



FORM 4 ANSWERS



COMPLETE FORM 4 EXAMS AND ANSWERS



Kenya certificate of secondary education (K.C.S.E)

231/1
BIOLOGY
PAPER 1.
THEORY
TIME:

MARKING SCHEME

1. Interfering with:
 - Chemical mediation of synaptic junction.
 - Electrical changes of ions across the synapse.

(2mks)

2. - Endothermic animals remain active at all times despite changes in environmental temps.
They colonize/ inhabit all habitats.

(2mks)

3. a) Transport of respiratory gases i.e. O₂ & CO₂.
 - b)

RBC	WBC
No nucleus	Nucleated
Disc shaped	Amoeboid.

(2mks)

4. a) Haptonasty (1mk)
 b) Plants obtain nitrogen from plants when the insects are digested. (1mk)
 c) Motor sensory, relay neurons (any of the three) (1mk)

5. a) K (1mk)
 b) The pupil is small to allow in less light (1mk)
 c) Myopia / hypermetropia / astigmatism. (1mk)

6. Magnification $= \frac{\text{Imagesize}}{\text{Actualsize}}$
 $= 50,000 = \frac{1 \times 1000}{x}$
 $x = \frac{1000}{50,000} = \frac{1}{50} = 0.02mm$

7. i) Ribonucleic acid (1mk)
 ii) Presence of uracil as one of nitrogenous bases. (1mk)
 iii) C-T-G-A-T-C-T-G-C

8. i) Holds the objective lenses in place enabling change from one objective lens to the other. (1mk)
 ii) Concentrate light on the object on the stage. (1mk)



- iii) Regulate amount of light passing through the condenser. (1mk)
9. a) Herbivorous rej. Herbivore (1mk)
b) Absence of incisors and canines on the upper jaw. (2mks)
10. a) Golgi apparatus/ body. (1mk)
- b) i) Packaging of carbohydrates and glycoprotein.
ii) Secretion of synthesized proteins and carbohydrates.
iii) Secrete enzymes; produce lysosomes. (3mks)
11. RQ = $\frac{\text{Volume of carbon(iv)oxide}}{\text{Volume of oxygen consumed}}$
- = $\frac{9.3}{9.1} = 1.021$
- = 1.0
- b) Food is carbohydrates. (3mks)
12. Acquired characteristics / trait cannot be inherited. (2mks)
13. i) There is little accumulation of toxic wastes
ii) The waste products are formed slowly and get re-utilized by the plant.
iii) The waste products diffuse out through stomata e.g. CO₂, O₂ (3mks)
14. a) Ciliated epithelial cells (1mk)
b) Movement of trachea.
Movement of egg/ova in oviduct (1mk)
- c) Trachea
Oviduct. (1mk)
15. a) Capture recapture method. (1mk)
- b) $P = \frac{Fm \times sc}{MR}$
= $\frac{435 \times 620}{75}$
= 3596 weaverbirds. (2mks)
- c) The released animals may not mix freely .
Some organism may move in and out of the study area. (1mk)
16. Hip joint (pelvic girdle and femur joint) shoulder joint (Pectoral girdle and homerus). (1mk)
17. Xylem vessels tracheids, Sclerenchyma, Collenchyma tissues



18. a) X- biceps
Y- Triceps. (2mks)
- b) X- Biceps relaxes while Y(triceps) contract. (2mks)
19. Nocturnal animals.
- i) Have a high concentration of rods in the retina that are sensitive to low intensity.
- ii) Retinal convergence of rods enables any little stimulation of several rods to combine and generate a nerve impulse. (2mks)
20. **Leaf A Habitat Aquatic.**
Reasons. -Stomata only on upper surface.
-Stomata are exposed on the upper surface to hasten rate of transpiration.
-The leaf has a large surface of 30cm^2 to provide a large surface of transportation.

Leaf B.

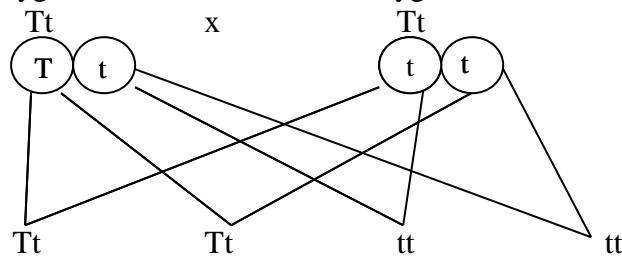
Habitat. Terrestrial / normal dry land.

Reasons. Stomata are mainly on the lower surface. The upper surface is exposed to direct light and high temperature. Hence fewer stomata to reduce water loss.

-Lower/ small surface to reduce surface exposed to transpiration.

(4mks)

21. Heterozygous tall X Homozygous dwarf.
Parental phenotypes : Heterozygous tall. x Homozygous Dwarf.
Parent genotype
Ganetes.



Genotypes

Ratio 1Tt :1tt

(3mks)

22. Hydrogen atoms/ ions combine with carbon (iv) oxide. They form glucose using energy provided by adenosine triphosphate. (3mks)
23. i) Thigmotropism/ Haptotropism (1mk)
ii) Contact with support causes migration of auxins to the outside



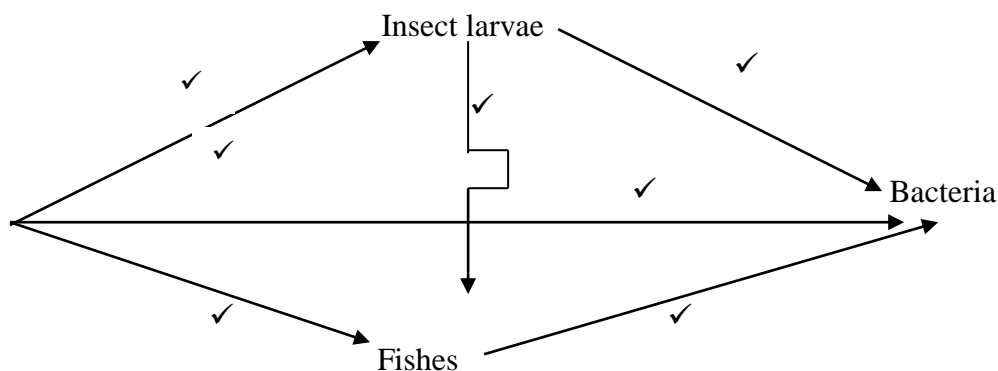
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BIOLOGY

Paper 2

THEORY**Time: 2 Hours***Kenya Certificate of Secondary Education (K.C.S.E)***Marking scheme.**

1. a) Adaptations of capillaries.
 - Their walls are made up of an endothelium only which allows only part of the blood to move into the intercellular spaces;✓
 - They are numerous thus creating a large S.A for exchange of materials;✓
 - Have narrow lumen that maintains high blood pressure;✓
 - Have sphincter muscle at the arteriole end enabling regulation of blood flow;✓
 - b) (i) Blood cells labeled B.
Red blood cells;✓
 - (ii) Oxygen gas;✓
 - c) (i) Transport of food nutrients;✓Metabolic wastes;✓antibodies involved in defense against diseases;✓
 - (ii) Distribution of body heat;✓
 - d) (i) Pulmonary vein;✓
 - (ii) Hepatic vein;✓
2. (a) Where organisms in various trophic levels don't exceed the carrying capacity;✓
 - (b) $500 + 1200 + 5000 + 10 = 7610g$ W 6.71kg;✓
 - (c) (i) Water plants;✓
 - (ii) Fishes;✓
 - (d)



(3mks)

3. (a) Gene for the window peak is dominant over gene for frontal hair lined.

Parental phenotype window peak

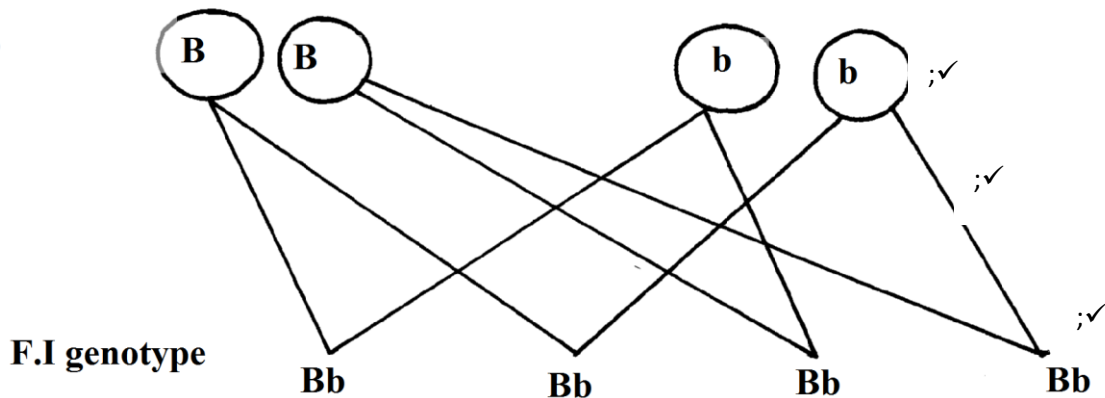
Frontal hair lined

Parental genotypes **B B**

X

;✓

Gametes



Accept pun net square but genotypes must be present in order to score.

- b) 1. -Gamete formation-independent assortment;✓
 -Crossing over;✓
 2. -Fertilization;✓
 3. -Mutations;✓
- c) -Tongue rolling;✓
 -Sex;✓
 -ABO (blood group);✓
 -Free ear lobe and attached one;✓
 -Pawpaw (male and female pawpaw);✓
- d) Are genes located on the sex chromosomes and are transmitted together with those that are transmitted together with those that determine sex;✓
4. (a)
 A-Sporangium;✓
 B-Spore; ✓(rej; spores)
 C-Rhizoid; ✓(rej. Rhizoids)
- b) Sporulation/spore formation;✓
 c) Absorption of water and mineral nutrients from decaying materials;✓
 d) (i) Process by which female and male gamete nuclei fuse to form a diploid zygote;✓
 (ii)

Ovum	Zygote
Haploid	Diploid;✓
Lower mass	Higher mass;✓



5. (a) -Sensory /Afferent Neuron;✓
 -Relay/intermediate Neuron;✓
 -Motor/Efferent Neuron;✓

b)



c) Grey matter;✓

d) Impulse reaching the dendrite end of relay neuron causes the synaptic vesicle to release a acetylcholine;✓ (transmitter substance) that diffuse across the cliff ;✓ and causes the depolarization of the motor neuron;✓

6. a) Graph C=2mks

P=2mks

A=2mks

S=1mk

L=1mk

8 mks.

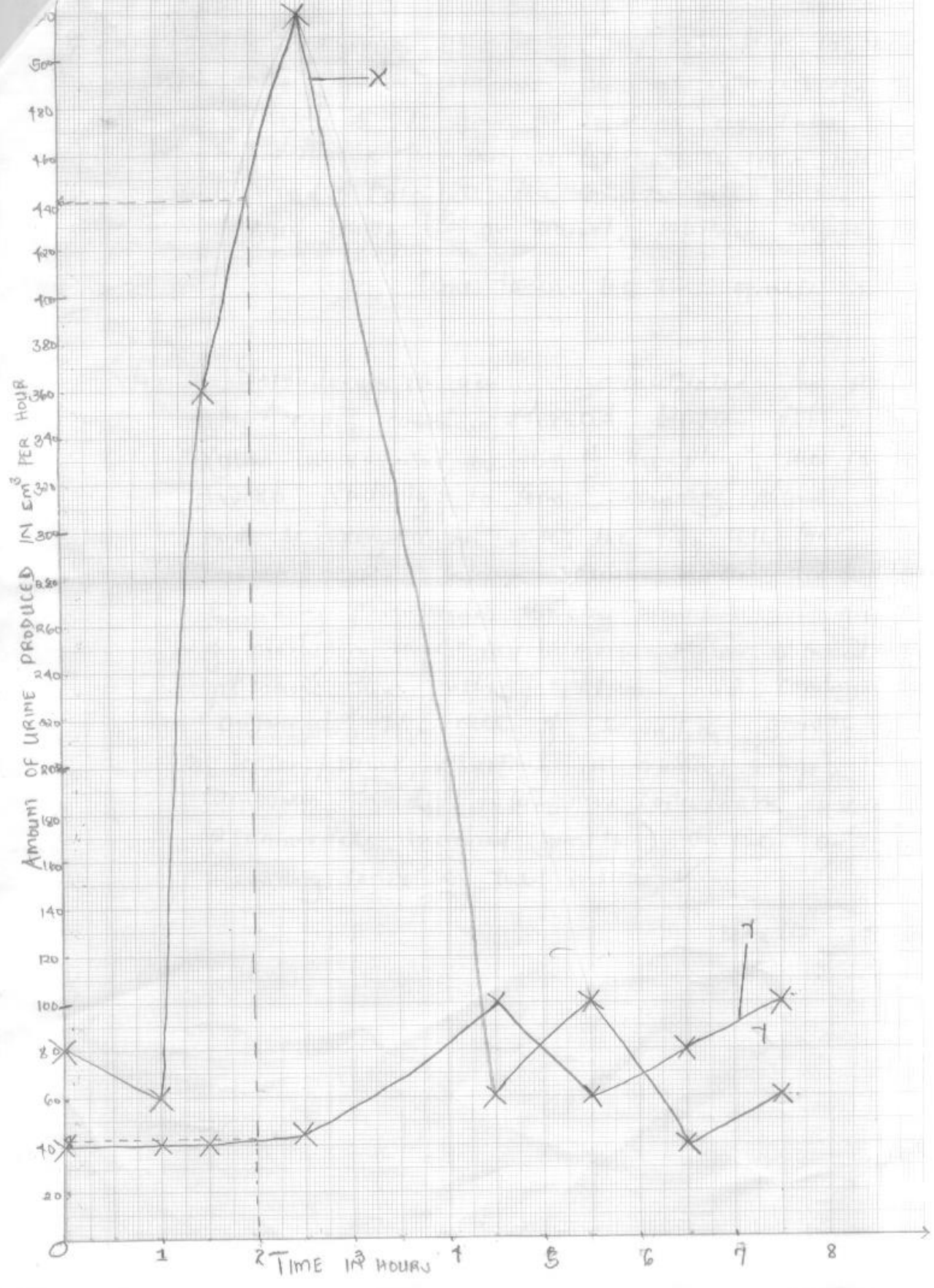
b) i) $440\text{cm}^3 \pm 5$;✓ (must be shown on the graph)

ii) $\frac{440 - 60}{1} = 380\text{cm}^3 \text{ perhour}$;✓

- c) When osmotic pressure of blood is low due to dilution by water intake;✓ rate of urine production increases;✓
- d) Rate in X is higher in the first hour than in Y; because intake of water lowers conc. of blood;✓ Excess is lost in urine. Therefore it reduces drastically becomes as low as in Y;✓ Because excess water has been eliminated in urine and osmotic pressure of blood is normal just like X.
- e) Concentration of 0.9% sodium chloride is isotonic to that of blood plasma;✓
- f) The kidney is able to regulate the osmotic pressure of blood;✓
- g) They are able to vary in volume of blood plasma when high due to dilution with water. The kidneys excrete excess water through urine thus lowering the volume to normal;✓



A GRAPH OF URINE PRODUCED IN CM³ PER HOUR AGAINST TIME IN





7. (a) Identify a young germinating seedling; ✓ mark its radical with Indian ink or permanent ink at intervals e.g. of 2mm; ✓ Leave it to grow for some time e.g. 24 hrs or overnight; ✓ Measure the distances between successive ink marks; ✓ and record; ✓ calculate the growth rate as;

New length(of an interval) subtract original length

Time taken for the growth

(max 6mks)

b) Secondary thickening is facilitated by meristematic cells; ✓ called cambium; ✓ located between phloem and xylem in vascular bundles of the plant; ✓ the cambium divides radially; ✓ to form secondary phloem outside and secondary xylem inside; ✓ the ring cells forms intravascular cambium/cambium between vascular bundles divides to form secondary parenchyma; ✓ thereby increasing the growth of modularly rays; much more xylem is formed than phloem; ✓ thus pushing phloem and cambium ring outwards; ✓ the rate of secondary growth is dependent on seasons/rains; ✓ resulting in annual/rings; ✓ cork cambium divides to form new cork/bark tissue ; ✓ to accommodate increased growth) on the outside and secondary cortex on the inside; ✓ (max 14mks)

8. (a) Light stage

It occurs in the grana/granum of the chloroplast; ✓ the chlorophyll in the chloroplast traps; ✓ light energy; ✓ used to split water molecules into oxygen and hydrogen atoms; ✓ in the process called photolysis.



The hydrogen atoms produced enters the dark stage, while oxygen is released to the atmosphere/re-utilized by the plant in respiration; ✓ some of solar energy absorbed by chlorophyll molecule is used in formation of ATP, used later in the dark stage; ✓

(11mks max 10mks))

b) Dark stage.

It involves combination of carbon (iv) oxide and hydrogen atoms; ✓ in a series of enzymes catalyzed; ✓ reactions to form simple sugar; ✓ (e.g. sucrose) in the process called carbon (iv) oxide fixation; ✓ the process required energy which is provided by ATP; ✓ (formed during the light stage); ✓ some of the sugars formed are directly utilized; ✓ by the plant cells while the rest are converted to starch; ✓ for storage.

Amino acids; ✓ and fatty acids ; ✓ are also formed during stage of photosynthesis; ✓ (10mks)



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BIOLOGY

Paper 3

Practicals**Time: 2 Hours****Marking scheme.***Kenya Certificate of Secondary Education (K.C.S.E)*

1. a) Kingdom plantae. (1mk)
(Rej.wrong spelling)

Reasons;

- Contains photosynthetic pigments i.e. chlorophyll.
- Indefinite growth.
- Store lipids in form of oils.
- Store carbohydrates in form of starch.
- Contains cell wall.
- Autotrophic.

(2mks)

- b) (i)Phylum Arthropoda. (rej wrong spelling)

(ii)J-class Arachnida. (1mk)

F-class insect (1mk)

(rej. Wrong spelling)

(iii)-2 body parts.

-Four pairs of legs/eight walking leg

-Cephalothoraxes and abdomen.

-Simple eyes.

(Max 3mks)

- c) (i)Angiospermatophyta. (1mk)

(ii)

Dicotyledonous	monocotyledonous
-Network venation	-Parallel venation
-Has petiole	-Has sheath-like petiole
-narrow leaf	-Broad leaf

(Max 2mks)

2.

- a) X.....Humerus✓1
Y.....Radius✓1
Z.....Ulna✓1 (rej spellings)
- b) (i) A and C.....Analogous structures. ✓1
(ii) B and C.....Homologous structures✓1

c) Reasons for b (i) and (ii) above.

B and C-have common embryonic origin but have been modified to perform different functions.✓1

A and C-Have different embryonic origin but have been modified to perform same functions.✓ 1

d) A and C-convergent evolutions✓1

B and C-Divergent evolution✓1

e) -Wings of A originate from an exoskeleton while those of C originate from an endoskeleton✓1



-Wing of A has no pentadactyl/structure while the wing of C has pentadactyl/structure ✓ 1

f) Organs that are reduced in size and function in organism ✓ 1

3.

Food substance	Procedure	Observation	conclusion
Starch	-To solution W add (2dropsof)iodine solution ✓ 1	-Brown/yellow color persists/remains ✓ 1 aCc.no color change observed.	-starch absent ✓ 1
Reducing sugars	-to solution W, add Benedict's solution and heat ✓ 1/boil/warm.	-color/brown changes from blue to green to yellow to orange ✓ 1 Acc.final color. Rej-red color	-Reducing sugars present ✓ 1
Non-reducing sugars	-To solution W add dilute hydrochloric acid, heat and cool. Add sodium hydrogen carbonate solution until fizzing stops, then add Benedict's solution and heat/boil/warm ✓ 1	-Color changes from blue to green to yellow to orange ✓ 1/brown. Acc.final color. Rej.red color	Non-reducing sugars present ✓ 1
Protein	-To solution W add sodium hydroxide then copper (ii) sulphate ✓ 1 -Rej. Heat.	-Color changes from blue to purple ✓ 1 (purple color observed)	-Protein present ✓ 1

(12mks)



Kenya Certificate of Secondary Education (KCSE)

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BUSINESS STUDIES

PAPER 1

MARKING SCHEME

1. Reasons why one may start a business.
 - a) To earn profit
 - b) To create employment
 - c) To provide goods and services
 - d) For prestige purpose (to ones image)
 - e) To become an owner-boss
 - f) To earn government revenue. (1 x 4 = 4mks)

2. Features of goods.
 - a) They are tangible and can be felt
 - b) They can be stored
 - c) They are seperable from their producers
 - d) Their quality can be standardized
 - e) Goods can be possessed (Transferable)
 - f) They can be change in quality over time
 - g) They are visible. (1 x 4 =4 mks)

3. Types of utility
 - a) Place
 - b) Time
 - c) Possession
 - d) Form (1 x 4 = 4 mks)

4. Factors that discourage entrepreneurial development.
 - a) Inadequate raw materials
 - b) Poor infrastructure
 - c) Political instability and violence
 - d) Inadequate relevant courses in learning institution
 - e) Inadequate government support
 - f) Unsupportive culture
 - g) Insecurity. (1 x 4 = 4 mks)

5. Qualities of an office worker
 - a) Well groomed/ presentable
 - b) Courteous/ respectful/ polite/ humble/ kind
 - c) Honest/ trustful/ faithful
 - d) Co-operative/ understanding
 - e) Discrete/keeps secrets/disciplined
 - f) Punctual
 - g) Hard working/ industrious
 - h) Diplomatic/ well behaved
 - i) Obedient/loyal/have ability to follow instruction (1 x 4 = 4 mks)

6. Characteristics of road side traders
 - a) Owned by one person
 - b) Small in size
 - c) Easy to start with few legal requirements
 - d) Relative require little capital to start and operate
 - e) Sell fast moving goods
 - f) Operate in open air



- g) Located all over the country
 h) Are flexible
 i) Sell non-durable consumer goods. (1 x 4 = 4 mks)
7. Advantages of partnership over sole proprietor
 a) They share business ideas unlike sole proprietor
 b) They share and liabilities unlike sole proprietor
 c) Bring different talents into the business unlike sole proprietor
 d) Raise more capital compared to sole proprietor
 e) Sharing of work among partners unlike sole proprietor
8. The role of consumer organizations in consumer protection.
 a) Deal with consumer complaints
 b) Making sure goods are not hoarded
 c) Ensuring that weights and measurement of commodities are collect.
 d) Ensuring health and safety regulations are adhered to.
 e) Ensuring fair prices are charged.
 f) Ensuring essential goods and services are available.
 g) Educating consumers on their rights.
 h) Seeking legal redress against the offenders.
9. Circumstances under which containerization may be suitable in the transportation of goods.
 a) Availability of loading and off loading facilities
 b) Where safety or security of goods is of major concern.
 c) Where goods in each container are destined for a specific destination.
 d) Where goods transported are regular in nature.
 e) Where the goods need special attention.
 f) Where a firm can be able to raise the capital required.
10. Services that facilitate communication
 a) Mail services eg Securicor, courier, broadcasting service
 b) Electronic media eg radio station and TV
 c) Print media eg newspaper journal
 d) Telephone services eg Yu, Zain and Safaricom
 e) Internet service provided by Nairobi Net
 f) E-mail (1 x 4 = 4 mks)
11. Importance of aware housing to a trader importance of aware housing to a trader
 a) Enhances steady flow of goods
 b) Protection of goods from theft and physical damage
 c) Meets unexpected demand
 d) Ensure production
 e) Enable preparation of goods for sale
 f) Enable the traders to look for market
 g) Some goods improve in quality while in warehouse
 h) Encourages specialization/ separates of production and distribution. (1 x 4 = 4 mks)
12. Compensation = $\frac{\text{True value of the property}}{\text{Sum insured}} \times \text{loss}$

$$= \frac{300,000 \checkmark 1}{400,000 \checkmark 1} \times 200,000 \checkmark 1$$

$$= 150,000 \checkmark 1$$
 (4 mks)
13. After sale services a computer firm may offer its customers.
 a) Transport
 b) Installation
 c) Repairs
 d) Advice on use of computers. (1 x 4 = 4 mks)



14. Reasons why demand curve of good usually slopes downwards from the left to the right
- Demand increases with a decrease in price
 - Demand decreases with an increase in price
 -
- (1 x 3 = 3 mks)
15. Why small scale firms are more popular in Kenya than large scale firms.
- Simple to organize
 - Nature of product sold eg nursing
 - There is quick decision making
 - Owners have control and independence
 - Due to legal constraints
 - Easy management
 - They have low production cost
 - They are flexible.
- (1 x 4 = 4 mks)

16. Sources of oligopoly power
Barriers to entry by
- Huge initial capital investment requirement to start the industry
 - Ownership of right patent right by the techniques firm.
 - A few firms have control over source of raw material.
 - Aggressive entrepreneurs who use ruthless strategies to force rival firms out of the industry
 - Large economies of scale which enable firms to produce at low cost and sell at relatively low prices forcing their rival firms out of the market.
- (1 x 4 = 4 mks)
17. Compute the table below.

	Assets	Liabilities	Capital
a.		83360	
b.	205300		
c.			182900
d.		513500	

- (1 x 4 = 4 mks)
18. Problems associated with income approach method of measuring national income.
- Fluctuation of prices of commodities
 - Income from illegal commodities not included.
 - Computation error.
 - Double counting error.
 - Problem of calculating of depreciation of an item to get the right income.
19. Measures that can be taken by the government to solve unemployment problem in Kenya
- Check population growth rate
 - Education reforms
 - Use appropriate technology (Labour intensity)
 - Maximum utilization of local natural resources
 - Development of informal sector/ provision support of terms of training, marketing, credit.
 - Rural development
 - Organized mobility of labour
 - Decentralization of industries
 - Favourable government policies.
 - Encourage more direct foreign investment



k) Increasing government expenditure on projects. (1 x 4 = 4 mks)

20. For each of the following transactions indicate the account to be debited an account to be credited.

Transaction	Account to Debit	Account to Credit
	Cash a/c	Capital a/c
	Purchases a/c	Mwangaza a/c
	Motor vehicle a/c	Kwanza Motors vehicle a/c
	Mwangaza a/c	Cash a/c

($\frac{1}{2} \times 8 =$ mks)

21. **KENYANYA TRADERS**
Trial balance as at 31st Aug, 2007.

ACCOUNT	DR	CR
Premises	1,200,500	
Motor vehicle	700,000	
Cash in hand	100,000	
Capital		1,500,000
Loan		430,500
Creditors		70,000
	<u>2,000,500</u>	<u>2,000,500</u>

22. Importance of trading account

- Shows the cost of goods sold
- Shows revenue generated from sales
- helps in determining gross profit/ gross loss
- Assist in comparison of performance on profitability of a firm over different years.

(1 x 4 = 4 mks)

23. Methods of credit control used by the central bank of Kenya.

- Bank rates
- Special deposit/ Compulsory deposit
- Open market operation (OMO)
- Selective credit control
- Cash ratio
- Moral suasion
- Direct action

(1 x 4 = 4 mks)

24. Uses of public finance.

- To provide essential goods and services
- To control consumption of certain products
- Encourage consumption of certain commodities
- To promote balanced regional development
- To redistribute wealth
- To promote economic stability
- To create a conducive business environment
- Raise revenue for the government.

(1 x 4 = 4 mks)

25.

Transactions	Journal entry
1) Bought a business bicycle on credit	General Journal
2) Returned 10 cartons of milk to Makanyango previously bought on credit	Purchases/ Returns outward Journal
3) Receive one tray of eggs from lilian for sale and did not pay.	Purchases Journal
4) Sold goods to Habiba on credit	
5) Bought goods from Karitu and paid on spot	Cash payment/ Dispasment Journal





Kenya Certificate of Secondary Education (KCSE)

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BUSINESS STUDIES

PAPER 2

MARKING SCHEME

1. a) Advantages of automatic vending machines (ATM) to a trader.
- i) Enable trader to sell commodities 24 hours a day
 - ii) Offer goods or services faster
 - iii) Reduce fraud among employees
 - iv) Cheap to operate ie no employee required
 - v) Business increase its sales since customers are served any time.
 - vi) They economise on space
- (2 x 5 = 10 mks)
NB Mention 1, Explanation 1
- b) Differences between monopoly and perfect completion market.

Monopoly	Perfect completion
1) Goods have no close substitutions	1) Goods are homogenous
2) There are barriers to entry	2) No barriers to entry
3) Firms are price markers	3) Firms are price takers
4) Single seller in the market	4) many sellers in the market
5) Firm is the industry	5) The are many firms that make industry

- (2 x 5 = 10 mks)
- 2 a) Roles of stock exchange in the Kenyan economy.
- i) Facilitates buying and selling of securities
 - ii) Measures a country's economic performance
 - iii) Assists in determining prices of securities
 - iv) Creates employment
 - v) Sources of revenue to the government
 - vi) Safe guards investors interest
 - vii) Assists companies to raise capital
 - viii) Provide useful information to investors
 - ix) Promotes the culture of savings/ assist in accumulation of capital.
- (2 x 5 = 10 mks)
- b) Causes balance of payment deficit.
- i) Fall/ decrease in volume of exports
 - ii) Decrease in value of country's exports relative to those of imports
 - iii) Increase in value of import
 - iv) Restriction by trading partners aimed at reducing imports
 - v) Less capital inflow compared to out flow
 - vi) Over valuation of domestic currency, hence discouraging exportation
 - vii) Devaluation of currency by trading partners hence encouraging exports and discouraging import
3. A) Structural changes that a country may experience when undergoing development
- i) Shifting from agricultural to manufacturing sector
 - ii) Reduction in illiteracy
 - iii) Increase in skilled manpower/ personal
 - iv) Improvement in health facilities



- v) Increase in technology and enterprenuaral ability
- vi) Improvement of institutions that handle new method of productive economic activities.

(2 x 5 = 10 mks)

B) a) **UMOJA TRADERS**

Profit And Loss Accounts for the year ended 31st Dec 2009

Discount allowed	142,000	Gross Profit	520,600
Lighting	25,200	Rent received	120,000
Interest on loan	1,200	Net loss c/d	61,930
General expenses	102,100		
Repairs on buildings	60,000		
Repairs on furniture	72,030		
Repairs on motor vehicle	<u>300,000</u>		
	<u>702,530</u>		<u>702,530</u>

b)

UMOJA TRADERS
Balance sheet as at 31st Dec 2009

Building	560,000	Capital	1,400,000
Furniture	408,170	Less: Loss	61,930
Motor vehicle	900,000	Bank loan	452,500
Stock	72,500	Current liabilities	
Debtors	<u>96,900</u>	Creditors	<u>247,000</u>
	<u>2,037,570</u>		<u>2,037,570</u>

4. a) Advantages of M-Banking to an economy.
- i) There is top up of air time automatically
 - ii) Request for mini statement is possible
 - iii) Allows check of account balance
 - iv) One can pay utility bills without going to bank
 - v) Transfer of money/ credit from bank to mobile and vice versa.
 - vi) One can send money to another person. (2 x 5 = 10 mks)
- b) Five ways in which commercial attaches may boast export trade.
- i) Explore and identify new markets for exports
 - ii) Publishes and advertise their countries exports in journal
 - iii) Assist sales mission from mother country in organizing educational tour
 - iv) Organize visits to trade fairs and exhibitions for trades from their country
 - v) Make detailed reports on commercial activities which help to improve exports from their countries
 - vi) Select buyers, agents and distributors for home countries exports
 - vii) Inform traders from their countries on required standard for exports
 - viii) Research and analyses market
 - ix) Attend meetings/ seminars and workshops on trade partners
 - x) Keep data of new markets.



5. a) Causes of demand pull inflation.
- i) Increase in government expenditure eg increasing more money in hands of people which causes increase in aggregate demand for goods and service
 - ii) Credit creation by commercial by lowering lending rates(bank rates)
 - iii) Increase in income through export earning and wages
 - iv) General shortages of goods and service where demand is more than supply.
 - v) Increase in consumer expenditure/ disposable income
- b) Procedure for claiming compensation by the insured.
- i) Notifying the insure
 - ii) Filling a claim form
 - iii) Investigation of the claim
 - iv) Preparation of the assessment report
 - v) Payment of the claim. (2 x 5 = 10 mks)

6. a) Advantages of telegram over telephone communication.

Telegram	Telephone
1) Retained for future reference	1) Not retained for future reference
2) Suitable for confidential matter	2) Not suitable for confidential matter
3) Allow for inclusion of fine details	3) Does not allow for of fine details
4) It is not prone to distortion	4) Prone to distortion
5) Can be used as evidence	5) Cannot be used as evidence
6) Can be addressed to many people	6) Cannot be addressed to many people

(2 x 6 = 12 mks)

Collect comparison a must.

- b) i) Gross profit = $\frac{20}{100} \times 1,840,000$
= Sh. 368,000.
- ii) Cost of sales = sales – Gross profit
= Sh. (1,840,000 – 368,000)
= Sh. 1,472,000.
- iii) Purchases = Cost of sales + closing stock – opening stock
= Sh (1,472,000 + 460,000 – 300,000)
= Sh. 1,632,000.
- iv) Expenses = $\frac{16}{100} \times 1,840,000$
= Sh. 294,400.
- v) Net profit = Gross profit – Expenses
= Sh. (368,000 - 294,400)
= Sh. 73,600.



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CHEMISTRY**PAPER 1.****MARKKING SCHEME**

- a) It varies according to traffic flow. ✓ ½ when the flow is low, vehicle move fast, combustion of petrol is almost complete and hence carbon(II)oxide proportional is 60pp.m and when flow is high, vehicle move slowly, at time stop ✓ ½ and start engine, high concentration of carbon(II) oxide which can be 180p.pm
- b) Incomplete combustion ✓ ½ of petrol due to limited ✓ ½ supply of oxygen (air) in engine
- c) Takes site of oxygen in red blood cells to form carboxyhaemoglobin ✓ ½ which does not decompose. Therefore blood has less oxygen leading ✓ ½ to reduced respiration (suffocation)
2. a) Saponification reaction ✓01
- b) Fatty acids ✓01
- c) -Add brine ✓ ½ (Conc. NaCl) to acquires mixture, M precipitates out leaving L in solution. Decant ✓ ½ off L to separate from M
3. a) Nitrogen gas ✓ 01
- b) Remove delivery tube from under water ✓01 while still heating to prevent suck back. If heating is stopped while still under water, water will rush back into the test tube since atmosphere pressure on surface of water is greater than pressure in the tube. ✓01
4. i) J ✓01
ii) K ✓01
iii) M ✓01
5. a) i) Oxidation $-\text{Pb}_{(s)} \longrightarrow \text{Pb}^{2+}_{(aq)} + 2e^{-}$ ✓01
ii) Reduction $\text{Cu}^{2+}_{(aq)} + 2e^{-} \longrightarrow \text{Cu}_{(s)}$ ✓01
- reject
- Joining of letters
 - Proportionality of celters.
 - Oxidation numbers instead of charge.
- b) e.m.f = E^{θ} reduced - E^{θ} oxidized.
= $+0.34 - (-0.13)$ ✓ ½
= $+0.47\text{v}$ ✓ ½



6. a) from equation 1 mole CH₄ gives 206KJ
? _____ 556KJ

$$\frac{556 \times 1}{206} = 2.699 \text{ moles } \checkmark 01$$

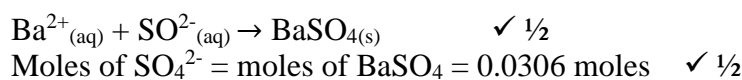
1 mole has a mass of 16g
2.699 mol..... ?

$$\frac{2.699 \times 16}{1} = 43.43.18\text{g} \quad \checkmark 01$$

- b) Reduced yield $\checkmark 01$ of carbon(II)oxide. Production of carbon (II) oxide is favored by high pressure therefore by le-chateliers principle increase in pressure shifts equilibrium to the left. $\checkmark \frac{1}{2}$

7. a) Mole of BaSO₄ = $\frac{\text{Mass}}{\text{R.F.M}}$
= $\frac{4.66}{152}$

$$= 0.0306 \text{ moles } \checkmark \frac{1}{2}$$



- b) $\text{M}_2\text{SO}_4(\text{aq}) \rightarrow 2\text{M}^+(\text{aq}) + \text{SO}_4^{2-} = 2:1 \quad \checkmark \frac{1}{2}$
Therefore moles of M⁺ = $2 \times 0.0306 = 0.0612$ moles,
Mass of SO_4^{2-} = in $\text{M}_2\text{SO}_4 = 96 \times 0.0306$
= 2.94 g $\checkmark \frac{1}{2}$
 \therefore Mass of M in $\text{M}_2\text{SO}_4 = 5.34 - 2.94 = 2.4\text{g} \quad \checkmark \frac{1}{2}$
Mass = $\frac{\text{Mass}}{\text{R.F.M}} \therefore \text{R.A.M of M} = \frac{2.4}{0.0612}$
= 39.2 $\checkmark \frac{1}{2}$

8. -Add the mixture to $\checkmark 01$ either and filter to remove aluminum sulphate and sugar residue.
-Add residue to alcohol $\checkmark 01$ and filter to remove aluminum sulphate. Evaporate $\checkmark 01$ the alcohol in filtrate to obtain sugar crystals.

9. Total energy change for Fe_(g) = $15.4 + 354 = 369.4$
369.KJ $\checkmark \frac{1}{2}$
To change 1 mole from Fe_(s) to Fe_(g) require 369.4KJ
To change 0.2 mol from Fe_(s) + Fe_(g) require?
 $\frac{369.4 \times 0.2}{1} \checkmark \frac{1}{2} = 73.88\text{KJ} \checkmark 01$

Or

To change 56g from solid Fe to gas \rightarrow require 369.4KJ $\checkmark \frac{1}{2}$
To change 11.2g from solid to gas require?

$$\frac{369.4 \times 11.2}{56} \checkmark \frac{1}{2} = 73.88 \text{ KJ } \checkmark 01$$

10. i) X -Oxygen gas $\checkmark 01$
P -Water. $\checkmark 01$

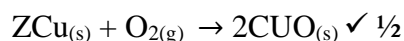


11. a) For reaction to occur, F is reduced and C is oxidised.
 $\therefore \text{e.m.f} = E^{\ominus} \text{ reduced} - E^{\ominus} \text{ oxidized.}$
 $= +0.8 - (-0.4)$
 $= +1.2\text{V} \quad \checkmark 01$
 Reaction occurs since E^{\ominus} is positive. $\checkmark 01$
- b) $\text{B}^+_{(\text{aq})} + \text{e}^- \rightarrow \text{B}_{(\text{s})} \quad E^{\ominus} = +1.68\text{V} \checkmark 01$ and
 $\text{E}^{2+}_{(\text{aq})} + 2\text{e}^- \rightarrow \text{E}_{(\text{s})} \quad E^{\ominus} = -2.38\text{V}$
- N/B must indicate E^{\ominus} value.
12. Reaction will be faster. $\checkmark 01$ powdered magnesium offers larger surface area $\checkmark 01$ leading to higher contact of reacting particles or more collisions $\checkmark 01$ of reacting particles.
13. A- Nail is covered with brown substance $\checkmark \frac{1}{2}$ or Rust because copper is less reactive than $\checkmark \frac{1}{2}$ iron, so iron rusts because copper cannot go into solution $\checkmark \frac{1}{2}$ in preference to iron.
- B- No observable change. $\checkmark \frac{1}{2}$ zinc is more reactive \checkmark than iron, it goes in solution leaving iron $\checkmark \frac{1}{2}$ inactive. Zinc is a sacrificial metal.
14. Na_2CO_3 does not decompose, NaHCO_3 decompose as :
 $2\text{NaHCO}_{3(\text{s})} \rightarrow \text{Na}_2\text{CO}_{3(\text{s})} + \text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})} \quad \checkmark \frac{1}{2}$
 Mass of $\text{H}_2\text{O} + \text{CO}_2 = (5.04 - 4.11)\text{g}$
 $= 0.93\text{g} \quad \checkmark \frac{1}{2}$
- From equation, 2moles of NaHCO_3 give 1 mole($\text{H}_2\text{O} + \text{CO}_2$)
 Or 168g of NaHCO_3 _____ 1mole ($\text{H}_2\text{O} + \text{CO}_2$) = 62g
 $\frac{168 \times 0.93}{62} = 2.52\text{g} \quad \checkmark \frac{1}{2}$
- Mass of anhydrous $\text{Na}_2\text{CO}_3 = (5.04 - 2.52)\text{g}$
 $= 2.52\text{g} \quad \checkmark \frac{1}{2}$
- % of anhydrous $\text{Na}_2\text{CO}_3 = \frac{\text{Mass of } \text{Na}_2\text{CO}_3}{\text{Mass of mixture}} \times 100\%$
 $= \frac{2.52}{5.04} \times 100\% \quad \checkmark \frac{1}{2}$
 $= 50\% \quad \checkmark \frac{1}{2}$
15. Misty fumes, $\checkmark \frac{1}{2}$ effervescence $\checkmark \frac{1}{2}$ and sulphur dissolves $\checkmark \frac{1}{2}$ concentrated sulphuric acid
oxidizes $\checkmark 1$ sulphur to sulphur(IV)oxide gas
 Equ! -1
16. a) Curve I. $\checkmark 01$ concentration of F increase with time since it is the product. $\checkmark 01$
- b) After time 'T' concentration of bolt E and F is constant because equilibrium has been established $\checkmark 01$



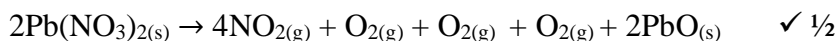
17. Copper metal – mass increase ✓ ½ because oxygen ✓ ½ combines with copper metal (oxidation)

or



Copper nitrate – mass decreases. It decomposes ✓ ½ into gases that escape and oxide left.

Or



Anhydrous copper (II) sulphate – mass remains constant ✓ ½ it is not decomposed. ½

18. The volume of a fixed mass of a gas is directly proportional to its absolute temperature if pressure is kept constant. ✓ 01

Explanation.

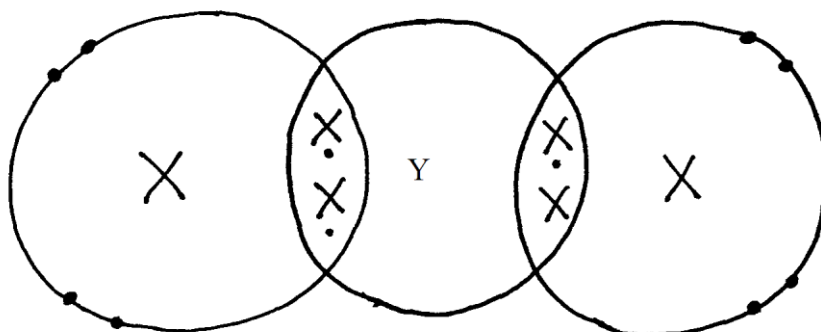
- increase in temperature ✓01 increases kinetic energy of the molecules, increasing number of collisions per unit time or pressure ✓01 increases to keep pressure constant, volume must increase.

19. i) Ammonia forms alkaline solution. ✓01.
 ii) Ammonia is very soluble in water therefore it creates a partial vacuum in upper flask and water in lower flask is forced up the tube. ✓ 01
 iii) Side tube maintains atmosphere pressure along the tube. ✓ 01.
20. a) To occupy space previously occupied by oxygen that was used by burning phosphorous. ✓01
 b) Because oxides of phosphorous formed still occupy space previously occupied by oxygen.
 (P_2O_5 , P_2O_3) ✓01
 c) Let all the fumes dissolve in water before final reading is taken ✓01

21.

Property	Rhombic	Monoclinic
Appearance	Bright yellow ✓ ½	Amber colored ✓ ½
Density g/cm^3	2.08 ✓ ½	1.98 ✓ ½
Melting point	113°C ½	119°C ✓ ½

22. a) 2.8.6 ✓ 01
 b) Y has 4 electrons in the outermost energy level, therefore compound X and Y is ✓01



23. number of electrons in the uttermost ✓01 energy level determines group in which it belongs and electronic configuration which gives ✓01 period as it is same as number of energy levels
24. pH will be above seven ✓ ½ 2M sodium hydroxide has more ions than an equal volume of 2M ethanoic acid ✓ ½ it is fully dissociated in solution unlike ethanoic acid which is partially dissociated .All hydrogen ions from acid will be neutralized ✓ ½ by excess hydroxide ions ✓ ½
25. a) Salt X ✓ ½ - its solubility increase with increase in temperature ✓ ½
 b) For each salt determine solubility at 90°C and 20°C ✓ 01. For X it reduces, therefore X Crystallizes. For Y it is almost constant, therefore no crystals. ✓01
26. a) Separating funnel ✓ 01
 b) B ✓ 01
 c) Decanting ✓01 or sacking top of liquid or into another container using teat pipette. ✓01
27. i) L ✓ 01
 ii) J ✓01

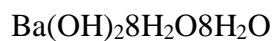
28.

Compound	Ba(OH) ₂	nH ₂ O
Mass	51.3g	433.25
R.A.M	171	18
Moles	$\frac{51.3}{171} = 0.3$ ✓ ½	$\frac{43.2}{18} = 2.4$ ✓ ½
Mole ratio	$\frac{0.3}{0.3}$ ✓ ½	$\frac{2.4}{0.3}$ ✓ ½



1

8



n=8 ✓ ½

29. Dip the blue litmus paper in each ✓ ½ solution. H₂SO₄ turns it red ✓ ½ while K₂CO₃ and NaCl have no effect ✓ ½ transfer the two unknown solutions to a test tube. Add H₂SO₄ to each solutions ✓ ½ solution with K₂CO₃ give vigorous effervescence ✓ ½ while solution of NaCl give no observable change. ✓ ½



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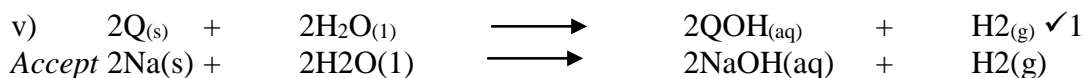
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CHEMISTRY

PAPER 2

MARKING SCHEME

- 1.a) i) Alkali metals ✓ 1
 ii) Minimum energy required to remove an electron from the outermost energy level of an atom ✓ 1 in the gaseous state.
 iii) P has the smallest ✓ 1 atomic radius. Therefore the outermost electron is strongly attracted ✓ 1 to the nucleus hence more energy is required to remove it.
 iv) - It melts because heat is produced ✓ 1 during the reaction or reaction is exothermic.
 - The hissing sound is due to the large production of hydrogen gas ✓ 1 produced in a stream.
 - Moves on the surface of the water due to being propelled ✓ 1 by the escaping hydrogen gas.
 - Floats on surface of the water because it is less denser than water.



- b) A strong base is fully ionised ✓ ½ in water to produce many hydroxide ions eg KOH, NaOH or Na₂O ✓ ½, K₂O while weak base is partially ionised ✓ ½ in water to produce few hydroxide ions eg NH₃(aq) ✓ ½ / CaO/Ca(OH)₂/Mg(OH)₂/MgO

- i) Reaction between a base ✓ 1 and an acid to form salt and water only or reaction between 1 mole of H⁺ ions and 1 mole of OH⁻ to form 1 mole of water.
 ii) Add 200cm³ ✓ ½ of 2M HNO₃ to 200cm³ of 2M Na OH
 - Heat / evaporate the mixture until saturation
 - Allow the mixture to cool for crystals to form slowly
 - Obtain the crystals.



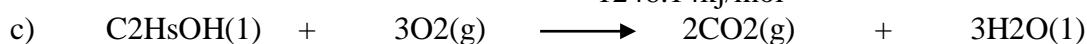
2. a) - Cost - Heavy value
 - Availability - Ease of storage
 - Effect on environment - Ease of transportation

b) i) $DT = 46.5 - 2.5 = 21.5$
 $DH = 450 \times 4.2 \times 21.5$
 $= 40635J \text{ or } 40.635KJ$

- ii) Mass of ethanol = 125.5 – 124 = 1.5g ✓ ½
 RMM of ethanol = 46g ✓ ½
 1.5g of ethanol produces 40635
 46g of ethanol produce $40635 \times \frac{46}{1.5}$

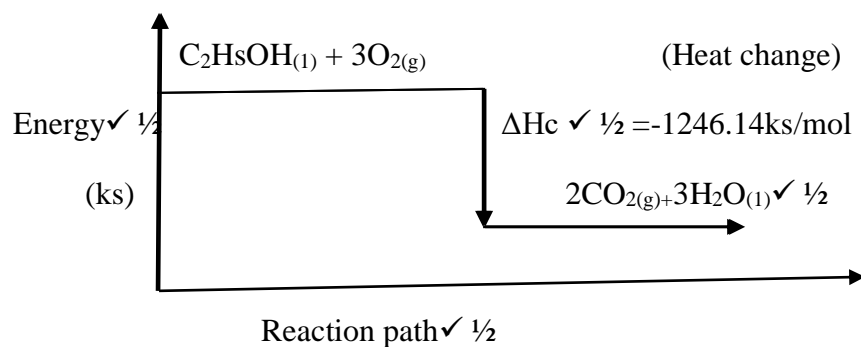
$$= \frac{1246140}{1.5} \text{ j/mol}$$

$$= -1246.14 \text{ kJ/mol}$$

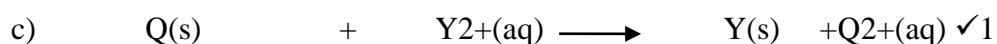




- d) - Heat lost to surrounding air or apparatus
 - Error in reading temperature or mass.
 - Incomplete combustion of ethanol
 - A little of the ethanol evaporates as the burner cools.



3. I. a) R ✓ ½, It has the one ✓ ½ with the most negative E^\ominus value.



d) E.m.f = E reduced - E^\ominus oxidised
 = $0.34 - (-0.13)$ ✓ ½
 = 0.47 volts. ✓ ½

e) It has no mobile ions ✓ 1 which are required for the reaction with lead to produce electric current.

II) a) i) Water ✓ 1

ii) Titanium ✓ 1

b) Chloride gas ✓ 1



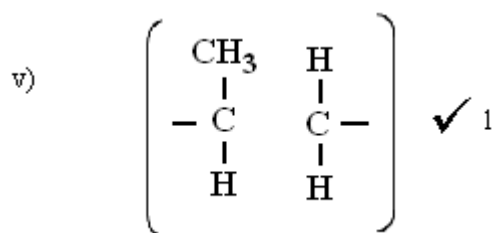
- d) - To minimise cost of operation. It is expensive.
 - To minimise its pollution effects. It is poisonous. (Any 1)

4. a) i) Alkynes ✓ 1

ii) Carboxylic/ Alkanoic acid ✓ 1



- b) i) Vulcanisation ✓ 1
 ii) Hardening the rubber/ to make it stronger or harder.
- c) i) $2\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}(\text{l}) + 2\text{K}(\text{s}) \longrightarrow 2\text{CH}_3\text{CH}_2\text{CH}_2\text{OK} + \text{H}_2(\text{g})$
 ii) I Dehydration
 II Hydrogenation
 iii) A 1,2 – dibromo propane
 B Ethene []
 iv) Nickel/ platinum/palladium



- d) - Source of fuel
 - Manufacture of carbon black used as a component of printers ink
 - Preparation/ manufacture of methanal and chloromethane which are useful industrial chemicals. (Any 2)

5. a) Is the mass of solute ✓ 1 that dissolves in 100g of H₂O or solvent to form a saturation at a given temperature or mass of a solute that saturates 100g of a solvent at a particular/ given temperature.

b) i) -Scale ✓ 1 (½ each axis)

-Plotting A ✓ 1

B ✓ 1

-Curves A ✓ 1

B ✓ 1

c) i) $24^\circ\text{C} \pm 1^\circ\text{C}$ ✓ 1

ii) Solubility at $50^\circ\text{C} = 37\text{g}/100\text{g}$

$100\text{g} \longrightarrow 37\text{g}$



$$35\text{g} \longrightarrow ? = \left(\frac{35 \times 37}{100} \right) \checkmark \frac{1}{2}$$

$$= 12.95\text{g} \checkmark \frac{1}{2}$$

iii) From graph

Solubility at 50°C of A = 84g/ 100g $\checkmark \frac{1}{2}$

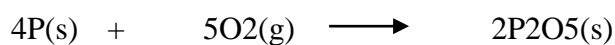
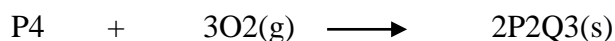
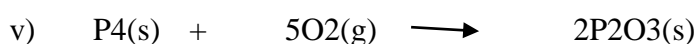
Solubility at 50°C of B = 37g/ 100g

$$84 - 37 = 47 \checkmark \frac{1}{2} \pm 1\text{g} (46\text{g} - 48\text{g})$$

d) Fractional crystallisation. $\checkmark \frac{1}{2}$

6. i) Under water – It readily reacts with oxygen when exposed to air.
- ii) Burning phosphorous caused hot air to expand and increase pressure to push down the water. After cooling the volume of air used for combustion of phosphorous was filled by water rising up the bell Jar.
- iii) The white fumes of the phosphorous (v) oxide or Phosphorous (iii) Oxide dissolved in the water to form a colourless.

iv) $\left(\frac{80 - 64}{80} \right) \times 100\% = 20\%$



vi) Red litmus paper remained red/ unchanged

Blue litmus paper turned to red P₂Q₃ dissolved in water to form phosphoric acid

b) i) $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$

ii) Cuts off supply Oxygen

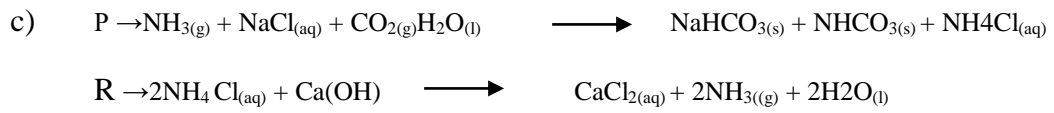
iii) They have a sacrificial metal on them.

7. a) A – Carbon(iv)Oxide

B - Ammonia

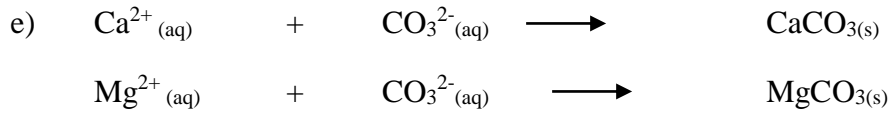
b) C – Ammonium chloride

D – Sodium hydrogen carbonate



d) Calcium chloride – used as a drying agent

Used to lower the melting point of molten NaCl in the extraction of sodium



Ca^{2+} and Mg^{2+} causing the hardness are precipitated as insoluble carbonates.



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CHEMISTRY**Paper 3****(PRACTICAL)****MARKING SCHEME**

1.

Table II	1	2	3
Final burette readings(cm ³)	11.4	22.8	34.2
Initial burette readings(cm ³)	0.0	11.4	2.8
Volume of HCl used cm ³ (solution N)	11.4	11.4	11.4

(3 mks)

CT - 1 mk

Penalize ½ mk for wrong arithmetic, unrealistic figures, incomplete table to a maximum of ½ mk

- If only one experiment done = 0
- If 2 experiment done = ½ mk
- If all experiments done = 1 mk

DP – ½

1 or 2 dp used consistently

Penalize fully if mixed or missing

ACC. = ½ mk

± 0.1 deviation from S.V ½ mk

Otherwise penalise fully.

P.A = 1 mk

Values average within ± 0.2 and correct working shown and correct answer given. 1 mk

If no working shown but correct answer ½ mk

If wrong units penalize ½ mk

If no units ignore.

F.A = 1 mk

± 0.1 deviation from school average titre 1 mk

± 0.2 deviation from school average titre ½ mk

If wrong units penalize fully if no units ignore.

a) (i) $\frac{11.4 + 11.4 + 11.4}{3} = 11.4$

ii) $\frac{0.2 \times 25}{1000} = 0.005 \text{ moles}$



iii) Mole ratio of HCl : NaOH is 1:1

$$\frac{0.005 \text{ moles} \times 1000}{11.4} = 0.4386 \text{ mol/litre or mol/dm}^3 \text{ or } 0.4386 \text{ M}$$

TABLE II

Marked as table I

	1	2	3
Final burette readings(cm ³)	40.0	40.0	40.0
Initial burette readings(cm ³)	0.0	0.0	0.0
Volume of solution L used cm ³	40.0	40.0	40.0

(4mks)

CT – 1

DP – ½

AC – ½

PA – 1

FA – 1

b. (i) $= \frac{40.0 + 40.0 + 40.0}{3} = 40.0 \text{ cm}^3$

(ii) Mole ratio 1:1

Moles in 25 cm³ of NaOH = moles in 40 cm of HCL
= 0.005 moles as in a (ii) above

(iii) Moles of H1 100cm³ of solution L.

$$= \frac{100 \times 0.005}{40} = 0.0125 \text{ moles.}$$

(iv) 1000 cm³ of solution N = 0.4386 moles

100 cm³ of solution N:

$$= \frac{0.4386 \times 100}{1000}$$

$$= 0.04386 \text{ moles}$$

(v) Moles of HCl reacted with solid +

Answer in (iv) – answer in (iii)

$$= 0.04386 - 0.0125$$

$$= 0.03136 \text{ moles}$$

(vi) Moles of F₂CO₃ reacted

= Mole ratio 1:2

= F₂CO₂ : HCl

$$= \frac{0.03136}{2}$$



$$= 0.01568 \text{ moles}$$

(vii) RMM = 1 g contain 0.03136 moles

1 mole will contain

$$= \frac{1 \times 1}{0.03136}$$

$$= 63.7755 \cong 64$$

$$\text{RFM of F}_2\text{CO}_3 = (64 \times 2 + 12 + 48) = 128$$

$$F = \frac{128 - 60}{2}$$

$$F = 38$$

2. **C-T – 2 mks** as follows

8 readings – 2mk

6 – 7 readings – 1 mk

4 -5 readings – ½ mk

0-4 readings – 0 mk

Readings between (40 and 90s)

NB: Correct working on 1/t

DP – 2 mks

Time 1 or whole numbers

1/t minimum of 4 dp unless it divides fully.

AC – 1 mk

Tied to 1st reading ± 0.5 deviation from school value.

Trend 1 mk

Time increasing with increase in temperature otherwise penalize fully.

Graphs

a) i) Time(s) x axis labelled correctly with units

L = ½ mk

S = ½ mk

Plot = 1 mk

Curve = 1 mk

NB: Label axis labelled correctly with units or penalize fully

If interchange penalize fully

Scale

Atleast ½ of the grid provided should be occupied.

Plot

8 plots – 1 mk

5 – 7 plots – ½ mk



0 – 4 plots – 0 mk

Curve

A curve descending from left to right. Otherwise penalize fully.

2. a) ii) Plot a graph of $1/t$ against temperature change

L - ½ mk

S - ½ mk

P - 1 mk

C - 1 mk

NB: Mark as a (i) above

- b) As temperature increases rate of reaction also increases

- c) Read $1/t$ at 58°C from candidates graph

e.g. 0.17

$$1/t = 0.17, \quad t = 1/0.17 = 5.8823 \cong 6 \text{ sec}$$

½ mk showing, ½ mk correct as

- d) Student should draw a tangent at 4.3°C and work out as shown

$$\frac{\Delta\text{Temp}}{\Delta\text{Time}} \quad \text{Or} \quad \frac{\Delta y \text{ axis}}{\Delta \text{in } x \text{ axis}}$$

$$= \frac{56 - 22}{21 - 7} = 2.4286$$

Showing ½ mk

Correct answer ½ mk

3. (a)

Observations	Inference
Efferescence / bubbles / fizzles / colourless gas produced White ppt or glass rod	CO_3^{2-} or HCO_3^- present
White ppt solution \warming but reappears on cooling	Cl- Present
No white ppt formed	Zn^{2+} , Al^{3+} Pb^{2+} Absent

- (b)

Observations	Inference
PH – 4 – 6	-Weakly acidic substance
(i) Indicator paper turns Yellow orange	-R – COOH / H^+ / H_3O^+
(ii) Effervescence / bubbles /	H^+ (aq) ions / H_2O^+ / R-COO



fizzing / colourless gas produced or evolved	
Purple colour persists	R-OH, $\text{>C}=\text{C}<$ —C≡C— Absent
Sweet smell	R-COOH confirmed present

Conditions for Q3

Reject words instead of chemical symbol

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CHEMISTRY

PAPER 3

CONFIDENTIAL

- 180cm³ of solution N HCl in a beaker.
- 180cm³ of solution M 0.2M NaOH in a beaker.
- 50cm³ of solution D, 2M HCl in a beaker.
- 100cm³ of solution B, 0.1M Na₂S₂O₃ in a beaker.
- 10cm³ of 1M HNO₃ in a boiling tube.
- Ethanol in a stopped container.
- 5cm³ of conc H₂SO₄ in a test tube with a dropper.
- Exact 1g of solid X which is F₂CO₃
- About 1g of solid L in a dry stoppered container
- About 1g of solid Q in a stoppered container access to:
- Methy orange in a dropper
- 0.5M Ca(OH)₂ in a dropper.
- 1M Pb(NO₃)₂ in a dropper.
- 2Ml NaOH solution in a dropper.



15. Distilled water in a wash bottle.
16. Acidified KMnO_4 in a dropper.
17. About 0.5g of Na_2CO_3 per student.
18. Pipette (25cm^3)
19. Burette.
20. Pipette filler.
21. 3 conical flasks. (250cm^3)
22. Stand and clamp.
23. White tile.
24. 100cm^3 glass beaker.
25. Thermometer (-10 to 110°C)
26. 10cm^3 measuring cylinder.
27. 100cm^3 measuring cylinder.
28. Stop watch/ clock.
29. Plain white paper.
30. 2 boiling tube.
31. 6 test tubes in a test tube rack.
32. A glass rod.
33. Metallic spatula.
34. source of heat.

N/B

1. solid X, Solid L and solid Q to be provided by the examining authority.

Preparation of solutions

Solution N is prepared by dissolving 68.8ml of concentrated Hydrochloric acid in 500ml of distilled then top up to 1litre of solution.

2. 1M HNO_3 is prepared by 66ml of conc. HNO_3 in 500ml of distilled water then top up to make 1litre of solution
3. Acidified KMnO_4 is prepared by dissolving 3.16g of KMnO_4 in 400cm^3 of 2M H_2SO_4 then topped up to 1litre of solution by distilled H_2O .
4. 2M H_2SO_4 prepared by dissolving 110cm^3 of conc. H_2SO_4 in 500ml of distilled H_2O then top to 1litre of solution.



451/1

COMPUTER STUDIES

PAPER 1

(Theory)

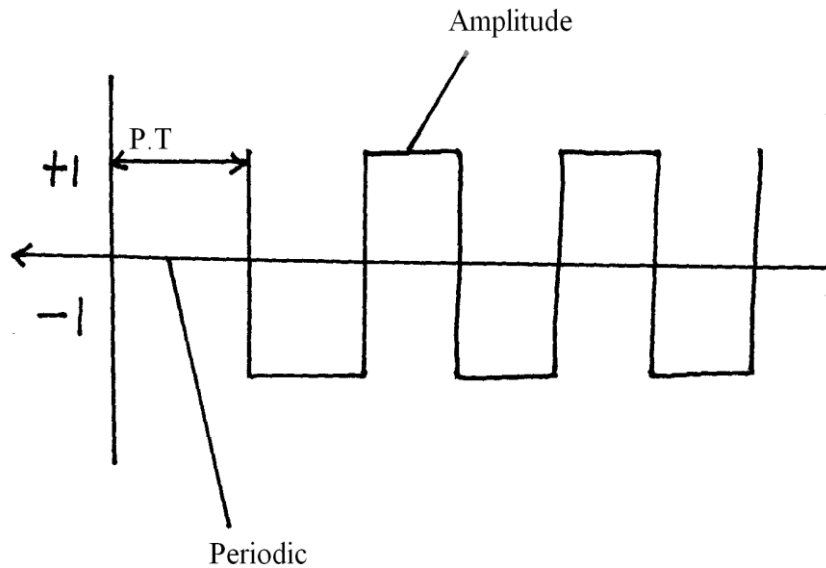
TIME: 2 ½ HOURS

MARKING SCHEME*Kenya Certificate of Secondary Education (KCSE)*

1. a) Define a system unit. (1 mk)
Is the part which houses the brain of the computer.
- b) Two functions of the control unit. (2 mks)
 - i) Coordinate and controls all processing activities in the CPU.
 - ii) Determine which operation or instruction to be executed.
2. a) Define a computer laboratories. (1 mk)
It is a special room set a side and prepared specifically for safe installation and use of computers.
- b) State two functions of the ups. (2 mks)
 - i) Provides power temporarily in the event of a blast
 - ii) It regulates power from an unstable source.
 - iii) Allow the user to switch off the computer correctly and save the work.
 - iv) Safeguards the computer against damage.
3. Discuss the following types of computers. (2 mks)
 - i) Dedicated purpose computers
- Are computers designed to perform a variety of tasks when given the software, but they have been set a side to perform a specific task.
 - ii) Embedded computers
- Are computers that are incorporated or added onto other devices such as phones
4. State two advantages of using biometric devices in voting. (2 mks)
 - 1) Because it is able to capture the voters' attributes ie finger prints and facial recognition



- 2) One cannot vote using other person's voting card
5. Discuss one are computers can be used in science and research. (2 mks)
- i) Weather forecasting – making weather predictions more accurate and reliable.
 - ii) Medical research – For diagnosis, keeping patients' records, inventory control.
 - iii) Millitary and space exploration science – Computers are used to make research, design, development and control of unmanned spaceships, aeroplanes and missiles.
6. State two types of database models. (2 mks)
- i) Flat file
 - ii) Relational
 - iii) Network
 - iv) Hierchical (award a mark for any 2)
7. a) Differentiate between an Orphan and a widow with reference to word processing. (2 mks)
- An Orphan is the first line of a paragraph that appears as the last line of a page while a widow is the last line of a paragraph tat appears of the first line of a page.
- b) By use of examples, differentiate between a function and a formula in spread sheets. (2 mks)
- Functions are in built predicted formulae that the user can quickly used instead of having to create a new each time eg = Sum(B1 + B4)
 - A formula is a mathematical expressions that create a relationship between cells to return a ne value eg = D3 + D4
8. With the aid of a diagram, explain amplitute and periodic time. (3 mks)



Amplitude – Is the maximum displacement that a waveform of an electrical signal can attain.

Periodic time – Time taken by a signal to complete a cycle.

9. a) Explain industrial espionage. (1 mk)

It is spying on a competitor to get information that can be used to cripple the competitor.

- b) Describe data encryption. (2 mks)

-It is done by mixing up into a form that only the sender and the receipt is able to understand.

- The message to be encrypted is called plan text document.

- After encryption an algorithm/ key is sent as a cipher text on the network.

10. What are data terminal equipment? (1 mk)

- These are devices used to process host and terminal data on a network eg mobile phones, PDAS, computers.

11. a) Explain open learning. (1 mk)

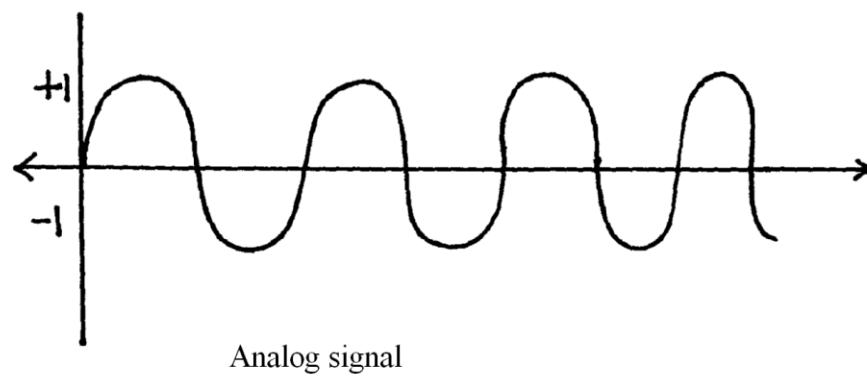
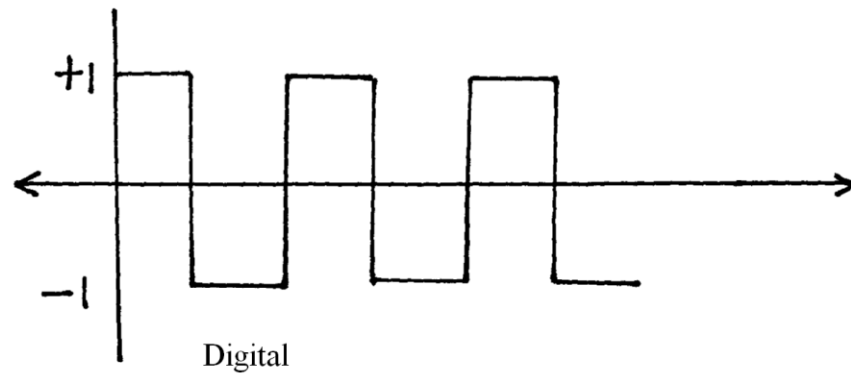
- This is where learning materials and lectures are made available online over the internet.

- b) Computers are used to enhance marketing in a variety of ways, one of which is E-business. Explain how computers are used in E-business. (2 mks)



- i) Advertisement
 - ii) Buying of goods an affordable price
 - iii) Variety of goods.
12. Discuss two computational errors giving example in each case. (4 mks)
 - i) Overflow errors
 - It occurs if the results from a calculation is too large to be stored in the allocated memory space eg If a byte represented using 8 bits, an overflow will occur if the results of the calculation gives a bit (1)00111011
 - ii) Truncation error
 - When a real number have a long fractional part which is cut off eg 0.784968 -0.984
 - iii) Rounding errors
 - Is as a result of raising or lowering a digit in a real numbers to the required rounded number eg 30.666 – 30.7
13. Differentiate between worm and a virus. (2 mks)
 - A worm is a malicious program that self-replicates hence dogs the system memory and storage media a virus is a destructive program that attaches itself on a removable drive and causes damage to computer systems such as deleting system files.
14. Differentiate sequential file organization from indexed sequential file organization. (2 mks)
 - Sequential file organisation records are stored and accessed in a particular order sorted using a key field while indexed sequential records are stored and accessed in a particular order using an index to locate individual records.
15. With the aid of a diagram, differentiate between analog and digital data signals.

Digital signals are discrete in nature and are represented using two states ie ON and OFF while analog signals are continuous in nature.



SECTION B

Answer question 16 and any other three questions in this section.

16. a) State two types of selection controls used in high level programming language. (2 mks)
- i) IF---THEN
 - ii) IF--- THEN---ELSE
 - iii) NESTED IF selected
- b) Give two characteristics of a good program. (2 mks)
- i) Key words should be properly used
 - ii) Should execute and produce the required results
 - iii) Should have a start and end



c) Use the flow chart below to answer the questions that follow:

i) Write a pseudocode for the above flow chart. (6 mks)

Start

Repeat

Input C, X and Y

Print "Error"

Until $C > 0$

Set $Z = X * Y$

Print Z

Set $C = c - 1$

iii) Modify the flow chart so that the program does not accept any negative inputs. (3 m)

17. a) State and explain two disadvantages that will come about if a network was to be installed in your school. (4 mks)

i) High initial cost – The cost of buying network hardware and software is very high.

ii) Security issues – The data on the network is prone to illegal access threats.

b) Disadvantages of wireless networks. (4 mks)

i) Difficult to establish or configure

ii) Initial cost is very high

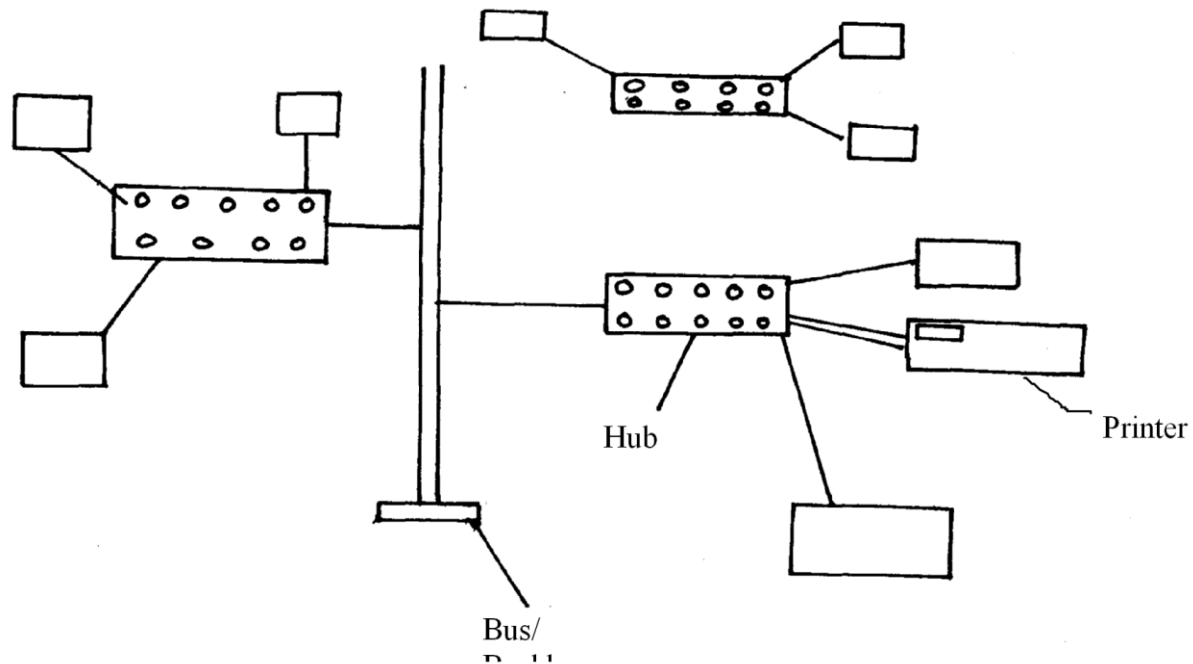
c) Write the following abbreviations in full. (4 mks)

i) F.T.P – File transfer protocol

ii) H.T.T.P – Hyper text transfer protocol

d) With the aid of a diagram, discuss Hybrid topology. (3 mks)

- This are groups of star – Configured networks connected to a linear bus backbone.



- e) Discuss one advantage of a client/ server network. (2 mks)
- It is easier to access files and other resources easily because they are all available on the server computer.
18. a) Explain why a computer is able to display the correct time and date when it has just be switched on. (2 mks)
- Because it is set and stored in a special memory known as the complementary metal-oxide semiconductor (cmes) which is a powered cell.
- b) Discuss two types of special memories found I computer system. (4 mks)
- i) Cache – Fast type of RAM found in the processor.
 - ii) Buffers – Special memories found in the input/ output devices.
 - iii) Register – Hold one piece of date at a time and are found in the ALU
- c) i) Define a Bus with reference to a computer system. (1 mk)
- Bus – This are electronic pathways or links
- ii) List to examples of buses. (2 mks)
- i) Address bus



- ii) Data bus
 - iii) Control bus
- d) Distinguish between a power cable and interface cable. (2 mks)
 - A power cable is used to transmit data from the source (socket) to the computer while interface cables are special cables used to connect peripheral cables to the system unit.
- e) Differentiate between the different types of RAM. (4 mks)
 - Static RAM – is a fast type of RAM located inside the microprocessor
 - Dynamic RAM – is a relatively slow type of RAM. It has the tendency for the stored charge to leak a way even with constant power supply hence requires periodic recharging.
- 19. a) i) Define a system. (1 mk)
 - Is a set of organised components which intersect in a given environment and within a specified banday to achieve collective goals.
- ii) Explain system entropy. (1 mk)
 - It means decay where a system slowly becomes useless to the user due to improvement in user requirements.
- b) State three circumstances that can lead to development of information systems. (3 mks)
 - i) New opportunity
 - ii) Problems
 - iii) Directives
- c) Distinguish parallel changes over from straight change over as used in system implementation. (2 mks)
 - Parallel changeover both old and new systems are run parallel to end other for sometime until users have confidence in the new system is stopped and discarded and the new system started immediately.
- d) Discuss two fact finding methods. (4 mks)
 - i) Interviews – It is carried out with relevant stakeholders inorder to get views a bout the current system.



- ii) Questionnaires – Special purpose document that allows a person to collect information and opinions from people who receive and respond to it.
- iii) Observation – Require the observer to participate or watch closely as a person performs activities in order to learn about the system.
- iv) Automated method – Used when one wants to get actual data which may be difficult to get through interviews, observation or questionnaires.
- e) Differentiate an open system from a closed system. (2 mks)
- f) List two responsibilities of a system analyst. (2 mks)
- i) Review an existing system and making recommendation on how to improve or implement an alternative system
- ii) Working hand in hand with programmers to construct a computerised system.
- iii) Coordinating training of new system users and owners.
20. a) State two ways of representing a signed number. (2 mks)
- a) Using ones compliment
- b) Using twos compliment
- c) Prefixing an extra sign bit to a binary number.
- b) Write the following abbreviations in full. (2 mks)
- i) ASCII – American standard code for information interchange
- ii) EBCDIC – Extended binary coded decimal interchange code
- c) Convert 110011.0110 to Decimal (3 mks)

P.V	2^4	2^3	2^2	2^1	2^0	.	2^{-1}	2^{-2}	2^{-3}	2^{-4}
B.D	1	1	0	1	1	.	0	1	1	0
D.V										



$$= 8 + 6 + 0 + 2 + 1 \cdot 0 + 0.25 + 0.125 + 0$$

$$= 17.000 + 0.375$$

$$= 17.375_{10}$$

d) Differentiate between absolute value and base value. (2 mks)

i) It is easier to construct machines (electrical circuits) based on binary or ON and OFF.

ii) Digital devices are more reliable, small and use less energy

e) Outline two reasons for using binary system in computers. (2 mks)

f) Perform $111011001000_2 - 11011011001_2$ using ones complement convert your answer to Hexadecimal. (4 mks)

$$= 111011001000 - 11011011001$$

$$= 111011001 + (-11011011001)$$

$$\text{ones complement} = 00100100110$$

$$= 111011001000$$

$$\underline{\quad 00100100110 \quad}$$

$$111111101110$$

$$= \underline{1111} \quad \underline{1110} \quad \underline{1110}$$

$$\text{F} \quad \text{E} \quad \text{E}$$

$$= \text{FEE}_{16}$$



Kenya Certificate of Secondary Education (K.C.S.E)

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COMPUTER STUDIES

PAPER 2

MARKING SCHEME

- | | | | |
|----|------|---|--|
| 1. | a) | Entering the correct data into the worksheet. | (1mk) |
| | | Saving with correct name | (2mks) |
| | b) | Typing the correct formula | (4mks) |
| | c) | Mean for each subject | ($\frac{1}{2} \times 6 = 3\text{mks}$) |
| | d) | Count if | (2mks) |
| | e) | Formatting | |
| | i) | Applying single line borders | (1mk) |
| | ii) | Aligning the subjects heading | (1mk) |
| | iii) | Merging | (1mk) |
| | iv) | Mean score set to one decimal | (1mk) |
| | f) | 2 marks each | |
| | g) | Hiding and saving | (2mks) |
| | h) | Creating a bar and showing the mean scores | (10mks) |
| | i) | Printing | |
| | i) | Mock result 1 | (1mk) |
| | ii) | Mock result 2 | (1mk) |
| | iii) | Bar charts | (2mks) |
| 2. | a) | i) Creating the database | |
| | | Correct file name (STAFF) | (2mks) |
| | | Creating table | |
| | | - Employee | (1mk) |
| | | - Employment | (1mk) |
| | | - Employers | (1mk) |
| | | - Correct field names (4 $\frac{1}{2}$ marks) $\frac{1}{2}$ mark for each field. | |
| | | - Correct data types (4 $\frac{1}{2}$ marks) $\frac{1}{2}$ mark for each correct data type. | |
| | | ii) Creating Relationship | |
| | | - Job category- job category relationship | (2mks) |



- Employer ID- employer ID relationship (2mks)
- iii) Creating forms for the table
 - Correct title for the forms (3mks)
 - Correct fields (2mks)
 - Field layout (2mks)
 - Correct data entry (3mks)
- b) i) Calculating the age in a query (4mks)
 - Age: (2015 – [year of birth])
 - Displaying employees over 30 years.
 - Criteria > 30 under the field Age (3mks)
 - Creating the report from the query
 - Correct title (1mk)
 - Correct field (1mk)
 - Layout of the field (1mk)
- ii) Compute the mean Age on report (2mks)
 - =AVG([Age])
- c) i) Creating the query
 - Correct fields
 - Employee fields
 - Job description field
- ii) Creating the pie chart (1mk)
 - Correct field names (1mk)
 - Saving (1mk)
- d) Printing
 - Employee table (½ mk)
 - Employment table (½ mk)
 - Employee aged over 30 years
 - Pie chart
 - Empt type



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Christian Religious Education

PAPER 1

TIME: 2 ½ HOURS

MARKING SCHEME

Kenya Certificate of Secondary Education (KCSE)

- 1.a) i) God went looking for Adam and Eve and even when they tried to hide from Him.
 ii) God provided them with clothing.
 iii) God put a mark on Cain's face to protect him from his enemies.
 iv) God provided them with new means of looking for food.
 v) Noah found favour in God even when others were filled with wicked thoughts.
 vi) During the flood, God did not destroy all his creation but spared a pair in each of them.
 vii) After flood, God blessed Noah's family to be fruitful and fill the earth.
 viii) God entered into a covenant with Noah after the end of the flood.
 ix) God gave a sign of rainbow and promised not to destroy creation through floods again.
 x) Human beings were instructed to crush the snake's head. (1 x 6 = 6 mks)
- b) i) The creation of Firmament, heavenly bodies, fishes and creeping things are omitted in the second account.
 ii) In the 1st creationthe planting of the garden and making of the river is recorded and omitted in the 2nd account.
 iii) 1st account both man and woman created at the same time while in the 2nd account man is created 1st then women later.
 iv) 1st account human being created in the image and likeness of God but in 2nd man is made out of dust and the woman from his rib.
 v) In the 1st account creation is by word of mouth but in the 2nd man out of dust and plants are made to grow out of garden
2. a) i) He was in the wilderness tending the flock of father in law
 ii) Angel of the Lord appeared in the form of a burning bush.
 iii) Moses wanted to find out why the bush was burning yet not being consumed.
 iv) He heard his name called informing him of the ground on which he was standing was holy.
 v) God revealed himself as the God of Abraham, Isaac and Jacob.
 vi) Moses was filled with fear and hid his face.
 vii) Moses was commanded to go back to Egypt and be used in saving the Hebrews.
 viii) He was reluctant to take up the task.



- ix) God promises to protect him.
 - x) Moses inquired to know God's name.
 - xi) God revealed his divine name 'Yahweh'
- b)
- i) A lamb or a goat 1 yr old – significant purity and innocence.
 - ii) Blood smeared on the door posts to identify the Israelites.
 - iii) The sacrifice was to be whole roasted – No time.
 - iv) Eat bitter herbs – reminding them on the slavery and suffering.
 - v) Eat while standing – They were ready for the journey.
 - vi) Remain indoor – To avoid the angel of the death.
- c)
- i) Lack of physical miracles
 - ii) Their needs are not met
 - iii) A lot of suffering
 - iv) Abject poverty
 - v) Extreme riches and power thirst
 - vi) Modern technology
 - vii) Terrorism in churches
 - viii) Lack of role models
 - ix) Rampant church conflicts
3. a)
- i) To be like other nations
 - ii) Samuel was getting old
 - iii) Samuel sons had failed to rule in accordance to the way of God
 - iv) Desire for a physical leader whom they could see and approach
 - v) Desire a stable government which had law and order to avoid leadership vacuum
 - vi) Due to prevalent wars at that time they wanted a warrior King who would lead them to victory
- b)
- i) Stood for the covenant way of life
 - ii) Faced the 450 prophets of Baal at Mt. Carmel
 - iii) Preached against idol worship
 - iv) He announced a three and a half year drought as a punishment from God for Idolatry
 - v) He openly rebuked King Ahab and Jezebel for promoting Baalim in Isreal
- c)
- i) Mismanagement of public funds
 - ii) Land grabbing
 - iii) Misuse of public property
 - iv) Bribery
 - v) Forgery
 - vi) Tribalism
 - vii) Robbery with violence
 - viii) Cheating in business
4. a)
- i) Acted as mediators between God and the people
 - ii) They guided and counselled people to give in accordance with to the covenant way of life
 - iii) They communicated to the people God's information about future



- iv) They condemned all forms of social evils and ritual sins in the society
 - v) They warned people of God's punishment
 - vi) They emphasized monotheism and condemned Idolatry
 - vii) They gave people hope in salvation if they repented their sins
- b)
- i) Great swarms of locasts- he saw a great plague of locasts destroying all plants and food in the land. He cried to God and God lifted the punishment.
 - ii) Vision of great fire – He saw a great fire. He pleaded again and God withdrew the punishment.
 - iii) Vision of a crooked wall – He saw a wall that had been built but was so crooked. The wall represented the Israelites who were sinful. God refused to listen to Amos Pleas.
 - iv) Vision of a basket of ripe fruit
 - A basket of fruit representing the time of harvest
 - The Israelites were about to harvest what they had sown.
 - Amos was silent because he knew the punishment was inevitable
 - v) The vision of the destruction of the altar.
 - Amos saw God destroying the temple where they offered their sacrifices and performed religious rituals
 - He understood that God had rejected those sacrifices because they were hypocritical and showy
 - No one could escape the punishment
 - It was divine and inevitable
 - Amos did not intercede because they deserved it.
- c)
- i) Avoiding evil
 - ii) Practising justice
 - iii) Doing a way with hypocrisy
 - iv) Responding to God's call and carrying out
 - v) God's work faithfully
 - vi) Should not have False securities e.g. money and education
 - vii) Persevering when faced with persecution and rejection
 - viii) Always repent whenever they go wrong
 - ix) By being baptised
 - x) Following the Ten Commandments.
5. a)
- i) Change ways of life and their evil ways
 - ii) Stop the exploitation of the aliens
 - iii) Stop breaking God's commandments ie murder and idol worship
 - iv) Be sincere in their worship
 - v) Coming destruction of Jerusalem and the temple
 - vi) Warned against false sacrifice/ offering sacrifices to idols
 - vii) Warned against false prophets
 - viii) Warned them of the invading of foreign power to Jerusalem.
- b)
- i) Build houses and live in them
 - ii) Plant garden and eat their produce
 - iii) Marry and procreate
 - iv) Worship the Lord God in truth and spirit
 - v) Listen not to false prophets



- vi) Trust in God and not give up
 - vii) To live in peace in Babylonian cities God would restore them back to their land only after 70 years of judgement were over.
- c)
- i) Wealth
 - ii) Spouses
 - iii) Education
 - iv) Positions/ power
 - v) Children
 - vi) Golden images
 - v) Plants
 - vi) Animals
 - vii) Ornaments
 - viii) Evils spirits/ Magic/ witchcraft
6. a)
- i) A source of social unity
 - ii) A source of wealth
 - iii) A source of labour
 - iv) It was compulsory/ Passage of life
 - v) it was a stage of procreation
 - vi) It was a source of security
 - vii) polygamy was highly valued/ accepted
 - viii) Marriage raised social status of a person eg leadership
 - ix) It was a way of reducing adultery on part of man
 - x) It was a covenant relationship
 - xi) Divorce tolerated on certain ground
- b)
- i) Parents were totally involved
 - ii) They chose partners marriage for their children
 - iii) Marriage was a rite of passage
 - iv) Peers too would recommend a marriage partner
 - v) They could kidnap a girl and take her to her husband
 - vi) A senior wife could recommend a marriage partner for the husband
 - vii) Girls could be marriage off out to pay debts
 - viii) Qualities of a good wife/ husband were taken into consideration
 - ix) A period of courtship and negotiations followed after identifying the marriage partner
 - x) wedding took place after bride wealth/ dowry was given
- c)
- i) Unfaithfulness of a woman
 - ii) Laziness
 - iii) Terminal disease e.g. epilepsy
 - iv) Unhygienic or dirty woman
 - v) Extreme poverty
 - vi) Witchcraft



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Christian Religious Education

PAPER 2

TIME: 2 ½ HOURS

MARKING SCHEME

Kenya Certificate of Secondary Education (KCSE)

1. a) Outline the prophecies of prophet Jeremiah concerning the Messiah.
 - i) Be an heir to David's throne
 - ii) Rule wisely – he will be a descendant of David
 - iii) Do what is right and just
 - iv) Ensure Judah is save from all her enemies
 - v) Ensure Isreal live in peace
 - vi) Be called the lord of our salvation (1 x 7 mks)

- b) Describe the activities that took place during the dedication of Jesus in the temple Lk 2:22-40 (8 mks)

- c) Outline the relevance about Jesus by Simeon and Anna when he was presented in the temple.
 - i) Jesus was the chosen one
 - ii) Jesus will be a light to the Gentiles
 - iii) Jesus will bring glory to God in his ministry
 - iv) Jesus will bring redemption to Jerusalem
 - v) Jesus will save mankind from sin
 - vi) Jesus will be crucified
 - vii) Jesus will face opposition in his ministry. (1 x 5 = mks)

2. a) A describe of the incident when Jesus was rejected at Nazareth Lk 4: 16 – 30
 - i) Jesus came to Nazareth where he was brought up
 - ii) He went to the synagogue as he usually did on the Sabbath day.
 - iii) He was give the book of prophet Isaiah where he stood up to read.
 - iv) He read the book and the place that was written about him and read it to the people.
 - v) After reading, he closed the book gave it to the attendant and sat down.
 - vi) Everybody in the synagogue look at him
 - vii) He told them that the scripture he had read was fulfilled in their hearing
 - viii) All people were happy with what he had spoken
 - ix) People wondered allowed saying is this not Joseph's son?
 - x) Jesus told them that they could ask him to do in his own country things he had done in Capernaum he told them that a Prophet is not accepted in his own country.



- xi) He told them that there were many widows in Israel during the time of Elijah but God sent the prophet to a widow in Zerephath/ God only healed Naaman the Syrian of leprosy during the time of prophet Elijah. (1 x 7 = 7 mks)
- b) Reasons why Jesus faced opposition from the Pharisees in Galilee
- i) Jesus touched a man with Leprosy which was against the Jewish law
 - ii) He forgave sins which the pharases knew only God could do. Healed the paralyzed man
 - iii) He mixed/ ate with the tax collectors who were known to be sinners
 - iv) Jesus made it clear to them that he had not come to call the righteous but sinners to repentance.
 - v) The disciples did not fast like those of John the Baptist which annoyed the pharises
 - vi) He challenged them to move from the old traditional order to the new one which he had brought
 - vii) The disciples of Jesus plucked and ate grains on the Sabbath day which was unlawful/ he healed a man with a withered hand on the Sabbath day. (4 x 2 = 8 mks)
- c) Ways in which church leaders can respond to those who oppose them in their work.
- i) Find out the causes/ reasons for the opposition.
 - ii) The church leader should pray for/ with them.
 - iii) Explain to them the gospel truth in humble manner/ guide and counsel them
 - iv) Seek reconciliation through a third party/ another person.
 - v) Involve them in decision making/ church activities
 - vi) Recognise their efforts in supporting the church matter
 - vii) Visit them in their homes/ fellowship with them/ preaching
 - viii) Assist them when in problems financing/ material support
 - ix) Send them messages of encouragement
 - x) Change your approach to issues/reform where necessary (1 x 5 = 5 mks)
3. a) Testimony of the holy women regarding the resurrected Jesus Christ (Lk 24:1-10)
- i) The holy women notably Mary Magdalene, Joanna and Mary the mother of James went to the tomb in the morning of Sunday carrying spices to prepare Jesus' body.
 - ii) They found the stone rolled away from the entrance to the tomb
 - iii) They went in but they did not find the body of the lord Jesus
 - iv) They stood there puzzled about this
 - v) Suddenly two angels appeared to them
 - vi) Full of fear the women bowed down to the ground
 - vii) The angels asked them why they were looking for the living among the dead.
 - viii) They were told Jesus was there but had risen as he had told them he will do on the third day upon his crucifixion death and burial while in Galilee.



- ix) The women went and told all these things to the eleven disciples of Jesus. (1 x 7 = 7mks)
- b) Give six reasons why Jesus disciples responded to the news of his resurrection with fear and disbelief.
- i) The news were first brought by women who were despised/ regarded lowly
 - ii) They lack faith/ little faith
 - iii) The disciples had witnessed the death/ the burial of Jesus
 - iv) They had expected glorious/ political messiah/ not one that will die/ they did not expect spiritual messiah
 - v) There was conflicting message about resurrection
 - vi) The tomb was heavily guarded by the Roman soldiers
 - vii) Influence from their historical background/ resurrection was impossible/ had not happened before/ was storage new thing (1 x 6 = 6 mks)
- c) Give seven reasons why violence against women is rampant in Kenya today.
- i) Male chauvinism/ superiority
 - ii) Poverty
 - iii) Women are vulnerable
 - iv) Ignorance of the law/ women do not report cases of violence
 - v) Attitude towards women
 - vi) Cultural beliefs/ norms
 - vii) Lack of laws/ legislation guarding women against violence
 - viii) Lenient punishment by the law court/ corrupt legal proctures
 - ix) Drug abuse/ alcohol
 - x) Male dominated society in leadership. (1 x 7 = 7 mks)
4. a) Give five ways in which Christians discern the gifts of the holy spirit.
- i) One who is under the influence of the Holy Spirit will be recognised if he recogniser Jesus as lord and saviour.
 - ii) If they act and behave in accordance with the teachings of Jesus.
 - iii) If they dispense the gifts of the Holy Spirit freely.
 - iv) If they produce the fruits of the Holy Spirit like love, joy, peace, patience and kindness etc
 - v) If they bring church unity in dispensing the gift. (1 x 5 = 5 mks)
- b) What were the teachings of Jesus on the role of the Holy Spirit
- i) The Holy Spirit is a counsellor
 - ii) He comforts Jesus disciples when grieved
 - iii) He teachers deeper the believer to become a child of God at Baptism
 - iv) He guides Christians in all their undertaking
 - v) He reminds Christians of the deeper meaning of Jesus' words.
 - vi) He enable Christian to worship God in spirit and truth.
 - vii) He continues Jesus' work of forgiving sins
 - viii) He gives Christians strength and courage to witness for Christ
 - ix) He explores the sins of the world and convicts the world for it's failure to believe in Jesus
 - x) He is a companion to every Christian
 - xi) He empowered Christians to preach the gospel
 - xii) He reveals the glory of Jesus' death as victory over the prince of evil



- xiii) He convinces people to see their sins and seek righteousness through repentance
- xiv) He shows the right of Jesus to be the son of God (1 x 8 = 8 mks)
- c) State seven ways in which the church promotes the unity of believers. (7 mks)
- i) Through interdenominational conferences/ crusades/ Christian broadcasts
 - ii) Allowing inter church marriages
 - iii) Co-operating in bible translations through the bible society of Kenya
 - iv) Subscribing the national Christian council of Kenya (N.C.C.K)
 - v) Giving or co-operating in relief services
 - vi) Having common bible colleges/ universities
 - vii) Having a common stand on emerging issues e.g. gayism
 - viii) They co-operate in burial ceremonies/ Harambees
5. a) What are the features of a Traditional Africa family.
- i) Its ordained by God during marriage
 - ii) Members are related by blood marriage of adoption
 - iii) Its polygamous
 - iv) All members participate in decision working
 - v) Husband is the head of the family
 - vi) Members have specific obligations to carry out
 - vii) Members must adhere to the rules and regulations
 - viii) There is organised systems of educating the youth
 - ix) Members share their resources
 - x) Elders are highly respected
 - xi) The family provides for the needs of her members.(1 x 7 = 7 mks)
- b) Explain four reason why Christian families find it difficult to live in harmony. (5 mks)
- i) Poor communication among members of the family
 - ii) Misuse of family resources
 - iii) Unfaithfulness
 - iv) Child abuse/ domestic violence
 - v) Drug abuse
 - vi) Denial of conjugal right
 - vii) Long illness/ bareness
 - viii) Long separation between members
 - ix) Lack of tolerance/ forgiveness/ reconciliation. (4 x 2 = 8 mks)
- c) Outline the advantages of a prayer in a Christian family. (5 mks)
- i) It enables members to thank God for his blessings.
 - ii) It strengthens their faith
 - iii) It enables them to ask for forgiveness
 - iv) Its an expression for humility
 - v) A member is able to intercede for others
 - vi) It enables members to ask for their needs
 - vii) It enables them to seek for God's guidance. (1 x 5 = 5 mks)
6. a) Explain the biblical teaching on law. (8 mks)
- i) God gave Adam and Eve clear instructions on what they were to do.
 - ii) Disobedience to the law leads to punishment
 - iii) God gave the ten commandments to the Israelites to guide them



- iv) The old testament prophets condemned Israelites for failing to observe the covenant law.
 - v) Jesus observed the law of Moses
 - vi) Jesus summarised the whole law into the golden rule based on love.
 - vii) Jesus taught the Jews to respect the Roman government and to pay tax.
 - viii) Jesus stressed that the law should promote the welfare of people
 - ix) Paul gave Christian at Corinth rules and regulations to guide them during worship.
 - x) Jesus gave the la of Moses a deeper interpretation
 - xi) Paul requested Christians to obey laws of the country. (1 x 8 = 8 mks)
- b) Outline the duties of citizens in Kenya.
- i) To participate in national development
 - ii) To conserve national resources
 - iii) To promote peace and harmony
 - iv) To report law breakers to the authority
 - v) To obey and respect authority
 - vi) To respect other people's right
 - vii) To pay taxes
 - viii) To participate in elections
 - ix) To be patriotic
 - x) To care for the sick and the needy.(1 x 7 = 7 mks)
- c) In what way is the church helping reduce tribalism in Kenya today.
- i) Preaching against tribalism
 - ii) By praying for those who practise the evils to change
 - iii) Educating the public on the evil of tribalism
 - iv) Condemning proponents of tribalism
 - v) Encouraging inter ethnic marriage
 - vi) Promoting use of national and official language
 - vii). Discouraging formation of tribal based political parties
 - viii) Advocating for laws that help discourage tribalism e.g hate speech
(1 x 5 = 5 mks)

Kenya Certificate of Secondary Education (K.C.S.E)

449/1

DRAWING AND DESIGN

PAPER 1

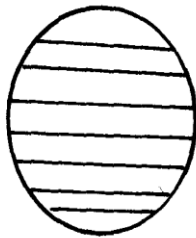
MARKING SCHEME

1.
 - i) Compressive strength – the ability to withstand squeezing load.
 - ii) Toughness – The ability of a material to withstand impact load or hammering load.
 - iii) Ductility – The process where the area of cross-section is reduced gradually while the length is increased in tension without rupture.
 - iv) Malleability – the ability of a material to extend permanently in all directions without rupture under compressive loads.
2.

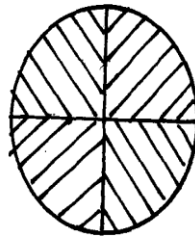
Thermosetting plastics – They undergo irreversible chemical change when heated.

Thermoplastics – Always soften when heated and harden again on cooling.

3.



Plain

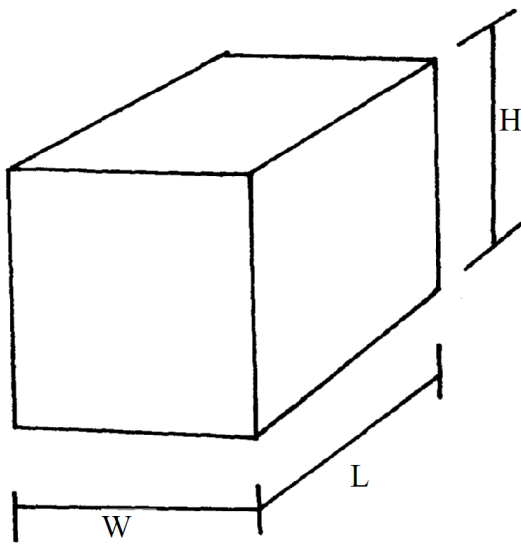


Quarter sawing

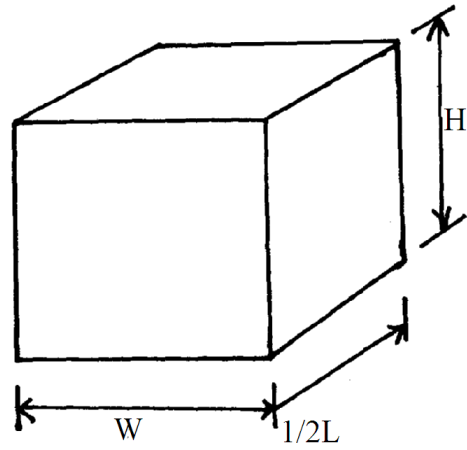
4.
 - i) Air seasoning
Timber is stacked in open-sided sheds which protect it from the sun and rain, but which permit the air to circulate freely. It is very slow process but gives best results.
 - ii) Kiln seasoning
The timber is stacked then hot air of controlled humidity and temperature is circulated through the stack. The hot air dries the timber while steam prevents it from splitting and warping.
5.
 - a)
 - i) Ferrous metal – metal which contain iron
 - ii) Non-ferrous metal – metal which do not contain iron e.g aluminium copper



b)



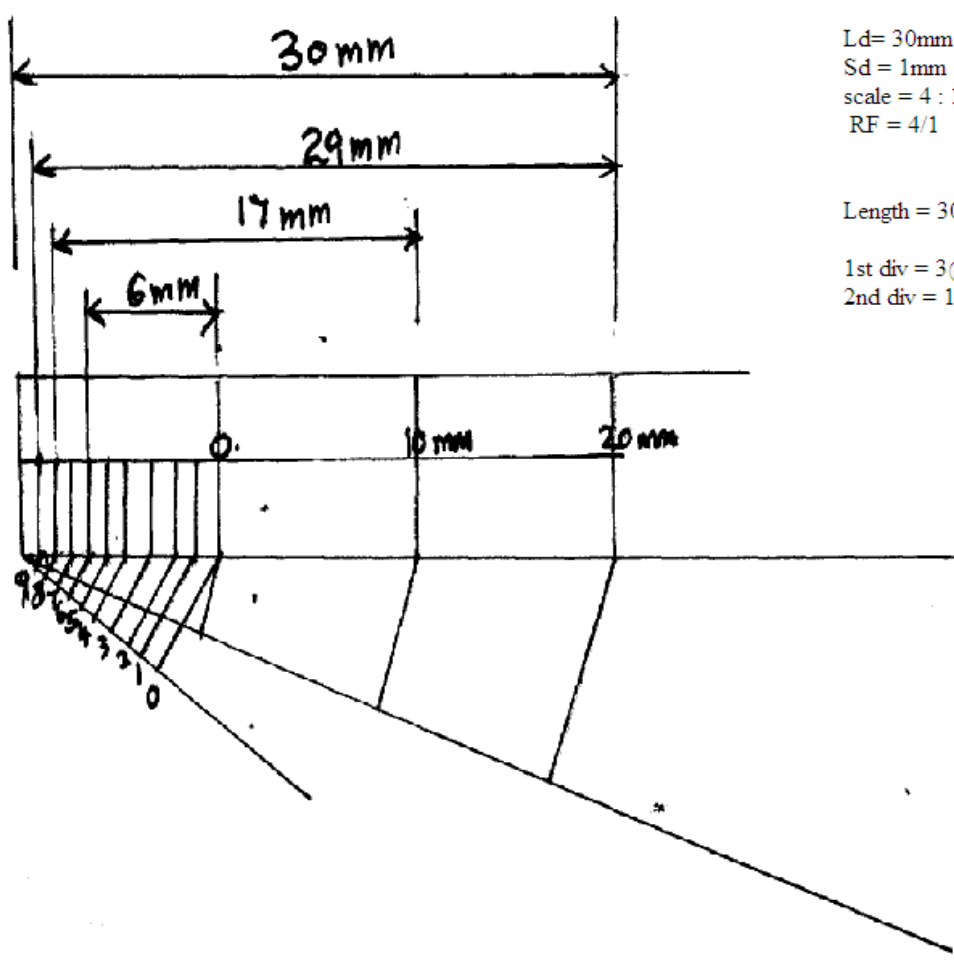
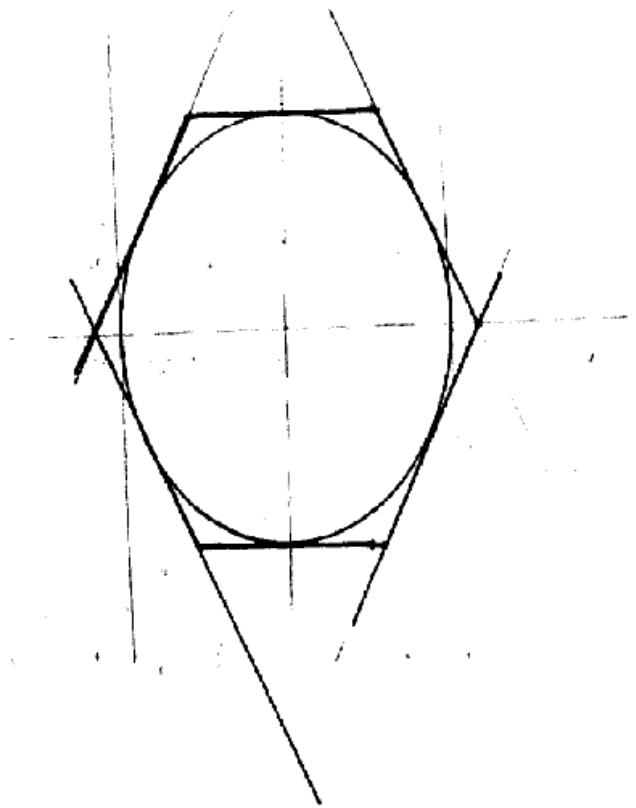
Oblique cavalier



Oblique cabinet

Actual measurements indicated on the drawing

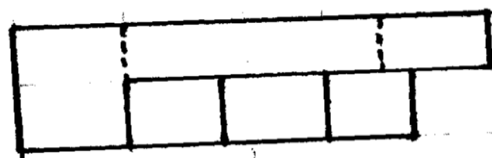
7.



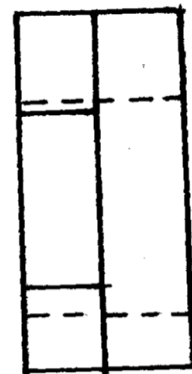
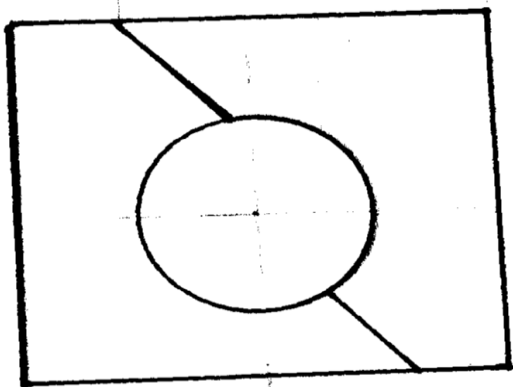
Ld= 30mm
Sd = 1mm
scale = 4 : 1
RF = 4/1

Length = 30mm x 4/1 = 120mm

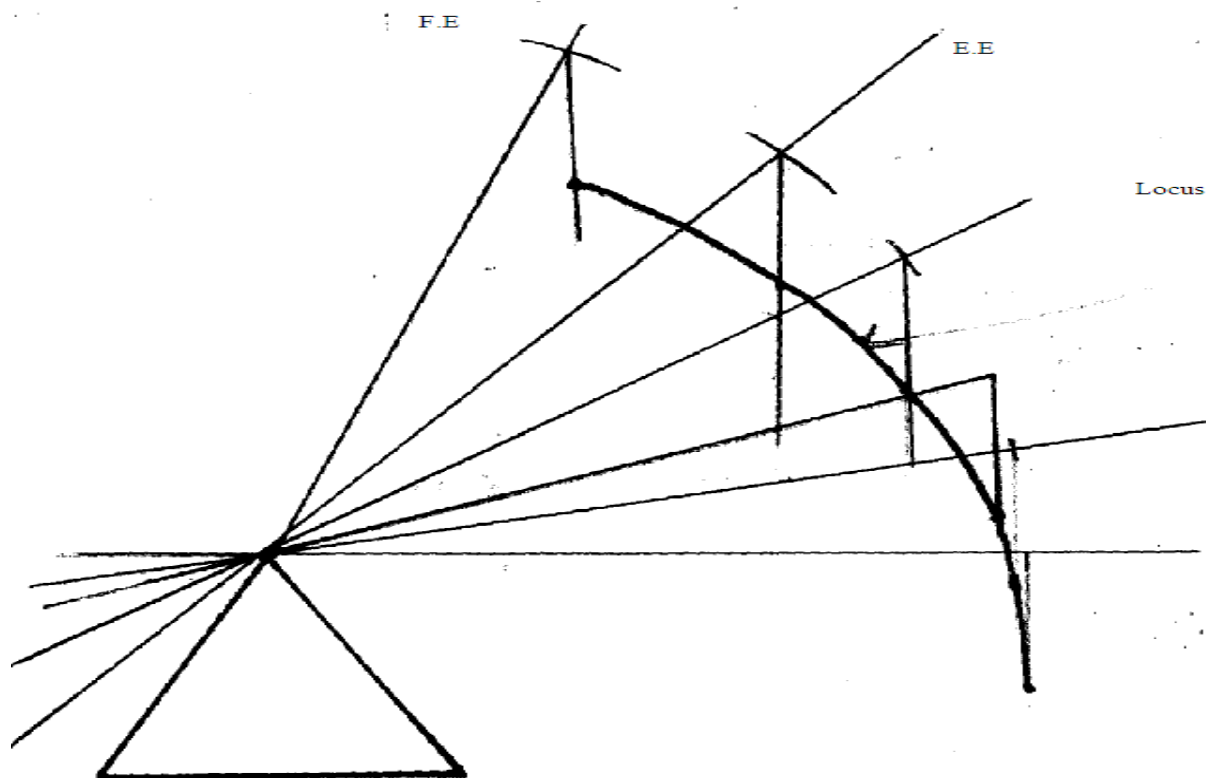
1st div = 3 @ 10mm
2nd div = 10 @ 1mm



PLAN



10.





F.E – 1MK

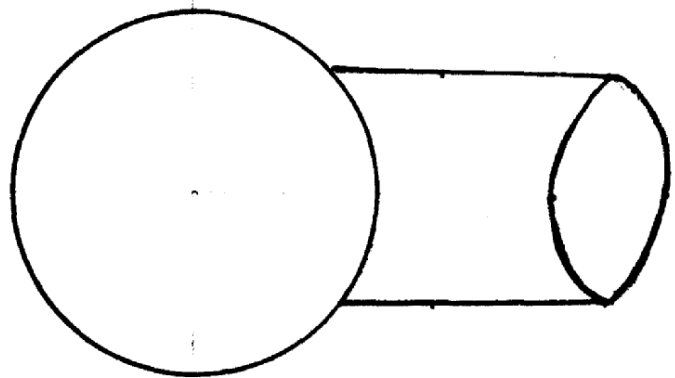
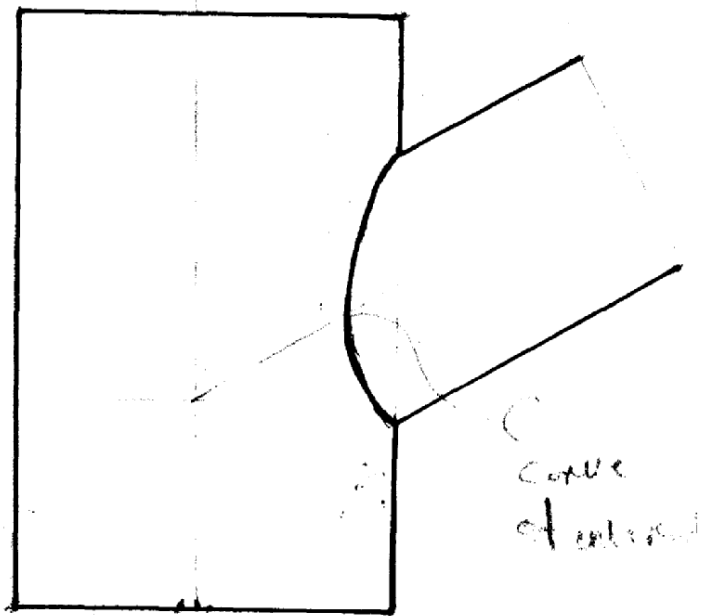
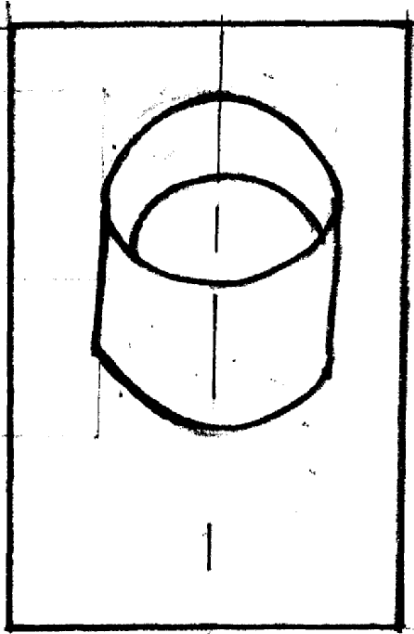
Plan – 3mks

E.E – 4mks

T.S – 2mks

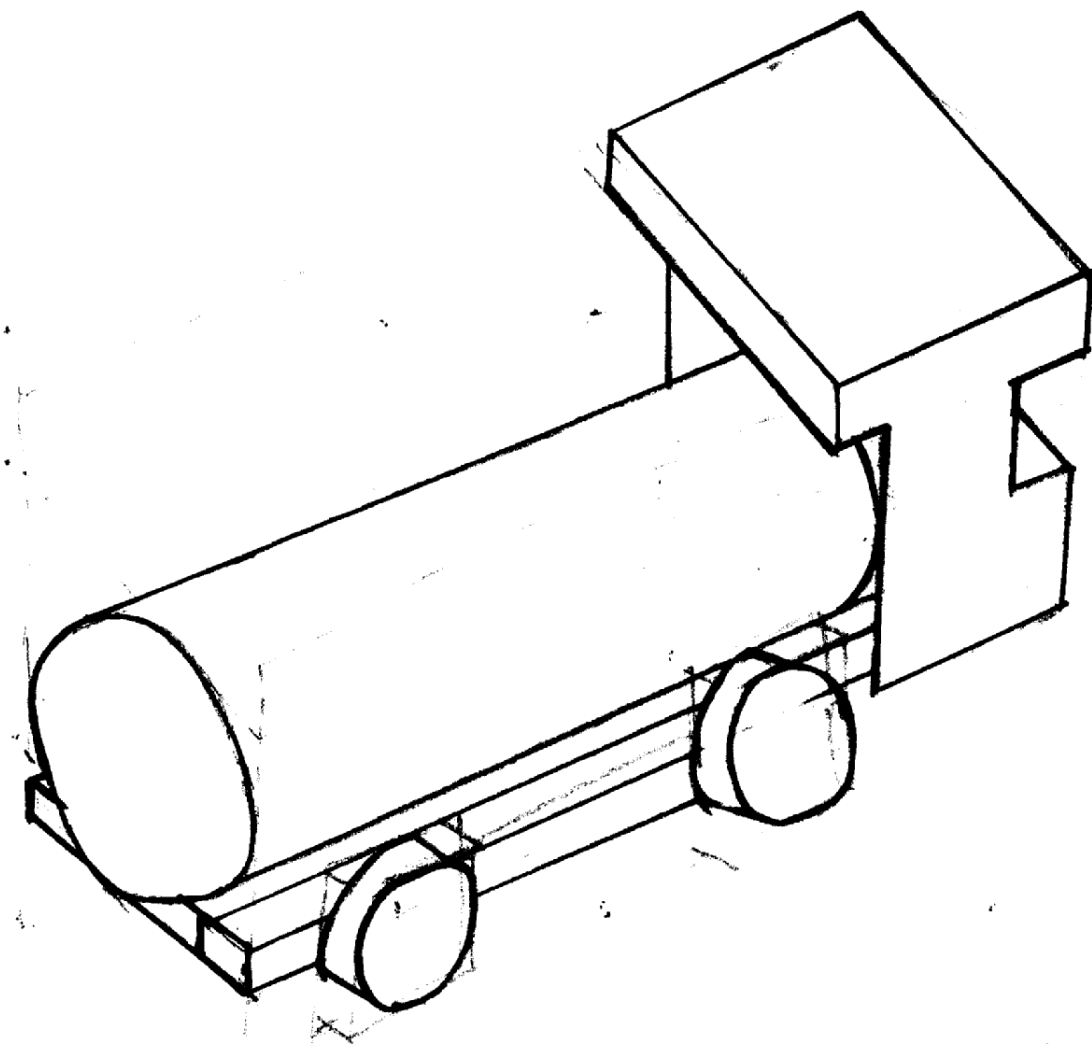
Auxiliary view – 4mks

13.





14.





Kenya certificate of secondary education (K.C.S.E)

101/1

ENGLISH.

PAPER 1.

(Functional skills)

TIME: 2 HOURS

Marking scheme:

Q1. Functional writing.

Q1 A. Invitation card.

- Title 1 mk
- Dear prof, Dr, Rev, mr, Mrs, Miss lmk
- RSVP lmk
- Enclosed lmk

Content:

- Venue lmk
- Time lmk
- Writer lmk

Tone- formal lmk

Language 2mks

If filled deduct 2mka AD

Q1B. Congratulatory note.

Dear June.. lmk

Content:

- Congratulations 2mks
- Congrats for unrelenting determination 1 mk
- Role model lmk

Sign off lmk

Tone informal lmk

Language 3mk

Q2. Cloze test

1. Pivotal/vital/crucial
2. Arenalfield
3. Against
4. forefront
5. price

6. enjoy
7. role
8. and
9. was
10. however.



- Q3. (a) (i) dear - loved by or important to somebody.
 dear - at a high price
- (ii) woods - an area of trees, smaller than a forest
 woods - difficulties or problems
- (iii) race - competition between people, animals, vehicles etc to see which one is faster or fastest.
 race - One of the main groups that humans can be divided into according to their physical differences e.g the colour of their skin.
- (iv) Saw - a tool that has a long blade with sharp points.
 - to use a saw to cut something
 - (verb) past tense of see.
- (v) buffet - a meal at which people serve themselves from a table
 - to knock or push somebody or something roughly from side to side.

NB The word shouldn't change its form and the sentence should be grammatically correct. If not—no mark.

- (b) (i) aabccddeef gf hiib (1 mk)
 Its irregular (1mk)

NB: Correct identification of the rhyme scheme. If not — no mark at all

- (ii) Repetition - broom broom, dust, street

- Alliteration - head held high
 - riding fast / riding slow
 - dust dust on
 - face feet
 - stick side

- Assonance - he hjs street
 - dust dust
 - broombroom
 - feet stick sjde

- Consonance - broom him
 - riding.. . riding

NB: (any two — ident ½ mk illust. ½ mk) (2 marks)

- (iii) It captures the broom sellers emphatic/desperate appeal to entice the buyers to buy his product. (2 marks)

- (iv) - To show that it is sold in one breath.
 - For emphasis on what is being sold.
 - Highlight the message (2 marks)

NB: any two. Each (1 mk)

- (c) (i) - give a riddle
 - exchange a proverb
 - Opening phrase — 'I am going to tell you a story.'
 - Clap hands



- Clear your throat
 - Singing a song (NB any 2 1 mk each)
- (ii)
- Gesticulation
 - facial expressions
 - dramatization

NB: The candidate must give an explanation if not ½ mk

Any 2 well explained points

(ident. 1 mk)

(expi. 1 mk)

(2 marks)

- (iii)
- nodding their heads
 - clapping their hands
 - completing statements
 - putting interjections
- (4 marks)

NB: any four 1 mk each

Avoid awarding marks for any actions that are not participatory e.g eye contact, sitting posture etc.

- (iv)
- language barrier
 - transport problems
 - unreliable informants
 - religious prejudice
 - distortion of information

NB: accept any other plausible answer.

- any 2 points 1mk each (2 marks)

- d)
- (i) Mbaire's utterances are in the wrong register.
She speaks to her former teachers as if she were speaking to her agemates (2marks)
- (ii) She should consider the following aspects of speech situation.
- The age of the person she is speaking to
 - The relationship — formal, informal. Casual to both interlocutors
 - The topic of discussion and how it relates to both.
 - The language the other person addresses you in — indication of distance.
- (Any three — 1 mk each) (3 marks)
- (iii) Most likely Mr. Katana is embarrassed by Mbaire's lack of language etiquette. The kind of Comments Mbaire was going to make about her former teacher, Mr. Kwac, could not easily be shared. (2 marks)



Kenya certificate of secondary education (K.C.S.E)

101/2

ENGLISH.

PAPER 2.

TIME: 2 ½ HOURS

MARKING SCHEME:

1. a) Stress is a psychological and physiologies response to events that upset our personal balance in some way.
- b) In small doses stress can give you the push you need. Motivating you to do your best and to stay alert and focused.
- c)
 - i) Negative stressors e.g. an exhausting work schedule or a rocky relationship.
 - ii) Positive stressors e.g. getting married or receiving a promotion.
- d)
 - i) Outside factors e.g. the state world or your environment.
 - ii) Inside factors e.g. your own irresponsible behavior, negative attitudes or unrealistic expectation.
- g)
 - i) Stressors -Events that cause stress.
 - ii) Equilibrium -Imbalance.
 - iii) Overwhelmed -exhausted.
 - iv) Subjective feeling -Product/ overcame controlled.
- e)
 - i) Irrespective of whellier an event an event is good or bad.....the end result is the subjective feeling of stress.
 - The nervous system pumps out adrenaline preparing us for emergency action.
 - The heart rate increases and blood flow to the large muscle increase.
 - The blood vessels under the skin constrict to prevent blood loss incase of injury.
 - The pupils dilate so we can see better.
 - The blood sugar ramps up- giving us an energy.
 - ii) Stressors are known as demands.
 - iii) The sympathetic nervous system pumps out adrenaline, doesn't it?

Question 2

- a) Before
 - The medical students formed their study groups.
 - Aoro's group members introduced themselves
 - Their were sixteen dead bodies/ cadavers in the lab for the students use in learning.

After

The medical student faced an oral examination when they were totally exhausted to the point of mental breakdown.



- b) Simon Onyancha ✓ ½ , Paul Omondi ✓ ½ Rakala and Jeremy Kizipo ✓ ½ Nobody made a move towards to grab the kit of instrument at first ✓ 1
- NB The student must begin the proper nouns with capital letters, if deduct ½ mk from the total 3mks.
- c) Both are determined/ fighters- It soon became clear that two people were fighting for the top position in anatomy.
- d) Determination- The medical students are determined to pass anatomy so they read and memorize.
Education – The medical students are undergoing their pre-serving training as doctors/ health practitioners at the university. They learnt other subjects such as Biochemistry and Physiology.
- e) Irrespective of whether one had managed to identify the previous one or not, one had to move to the next item each time the bell rang.
- f) i) The science that firmly grounded the image of the body into the doctor's head.
ii) The cornerstone of medicine.
iii) A test of one's power to recall
- g) Tony, Aoro's brother's appendix was removed when he had fallen sick(vi) Aoro was fascinated and examined a frog and operated it with an old blade and stitched it with a needle from his mother's sewing basket.(✓ 1)
- h) The mould of anxiety ✓ - The medic mumbling to himself/ people slept with their canning ham's manuals/ you could cut the tension with a knife.
- i) Biblical allusion ✓ - would of Jesus to his disciple to emphasize on the importance of gathering in order to enjoy his presence. To the medical students, anatomy is so important/ central and so they have to meet and discuss it.
- j) Wandia Mugo beats Aoro by one point.
She scores 78 points while Aoro scores 77 points.
- i) Obvious/ clear/ easily noticed.

Question 3

- a) -Dilemma narrative ✓ 1 -The father of the girl at the end of the story was torn between saving the daughter's eyes and giving her out to the common leper ✓.(1mk)
- b) -It has got two options of which are equally unpleasant.
-It has got a lot of suspense.
-It ends at a point where we were left to debate which option should the father take .
- It has got a moral lesson –that is never underestimate anybody.
- c) i) To entertain.
ii) To educate.



- d) - It breaks the monotony of narration.
 - It used to emphasis on the theme of determination.
 - Song to emphasize on the lepers love for Muthaka who saw bemitufal
 - It is used to prolong the period of narration.
 - It links the event of the story.
 - Heightens tension as they are building up towards the climax.

Any 2x1 =2mks

- e) Determined -did not despair even if people laughed at him.
 Wise/clever /intelligent -the clever leper a way of bringing down the leaves : cutting bamboo trees and tying them firm together.
 Optimistic -he has got great expectations of coming out as a ulefor.
 Envious. -In the song he says: how I envy the hides in your bed.
 Ambitious -He express his ambition of marrying Muthaka and goes on makes his attempt.

- f) Love -It is out of love that the common leper comes and makes on attempt to pick the leaves of the rare plant.
 -The Chiefs loves his daughter to show his love and concern he tries much as he could to see his daughters sight restored.

Determination -The common leper demonstrates his determination to marry the chief's daughter .he is not discouraged by darings and laughter from the people.

- g) They are hunters✓1 }
 They are animals✓1 } The narrator mentions ✓1 the hunter and herdsman

- h) The young adults -to caution them not to be too selective or looking for perfectionist in their daily lives.

The lepers. -To caution them not to despise some members of the society who may appear helpless /less fortunate.

- i) Contemptuous ✓²/ spiteful/scornful/disgusting -the common leper stinkingthough dushpprinted , the chief could not back on his words.✓1

- j) As you make your bed so lay on it.
 Do not judge a book by its cover.

Question 4.

- a) i) borne.
 ii) slung.
- b) i) ignoble
 ii) imprudent.
- c) i) understand.
 i) raise.
- d) i) Hardly had we started our exam when it began to drizzle.



- ii) The boss asked me why I always come late to work and said that it was no longer acceptable.
- iii) A set of class readers is what the principal bought

- e)
 - i) unnecessarily
 - ii) disintegration.

- f)
 - i) The head teachers advised their students to keep off drugs/ the principal / head teacher advised students/ pupils/ learners to keep off drugs.
 - ii) The parents left their children a big estate.

- g)
 - i) with
 - ii) on /upon.



Kenya certificate of secondary education (K.C.S.E)

101/3

ENGLISH.

PAPER 3.

(Creative composition and essay based on set texts)

TIME: 2 ½ HOURS

MARKING SCHEME:

1. Imaginative composition

Paper 101/3 is intended to test the candidates' ability to communicate in writing. Communication established at different levels of intelligibility, correctness, accuracy, fluency, pleasantness and originality. Within the constraints set by each question, it is the linguistic competence shown by the candidate that should carry most of the marks.

Examiners should not hesitate to use the full range of marks for each essay.

It is important to determine first how each essay communicates and in which category A, B, C and fits.

(The marks indicated below are for question one).

D CLASS The candidate either does not communicate at all or his language ability is so minimal that

(01 — 05) the examiner practically has to guess what the candidate wants to say. The candidate fails to fit the English word she knows into meaningful sentences. The subject is glanc at or distorted. Practically no valid. Punctuation. All kinds of errors “Broken English.”

D-01-02 C haotic, little meaning whatsoever. Question paper or some words from it simply copied.

D 03 Flow of thought almost impossible to follow. The errors are continuous.

Di- 04 — 05 Although the English is often broken and the essay is full of errors of all types we can least guess what the candidate wants to say.

C CLASS The candidate communicates understandably but only more or less clearly. He is not confident with his .language. The subject is often undeveloped. There may be some digressions. Unnecessary .repetitions are frequent. The arrangement is weak and the flow jerky. There is no economy of language: mother tongue influence is felt.

C-06-07 The candidate obviously finds it difficult to communicate his/her ideas. He/she is seriously hampered by his/her very limited knowledge of structure and vocabulary. This results in many gross, .errors of agreement, spelling, misuse of prepositions, tenses, verb agreement. And construction.

C 08 The candidate communicates but not with consistent clarity. His/her linguistic abilities being very limited, he/she cannot avoid frequent errors in sentence structure. There is little variety or originality. Very bookish English, link are weak incorrect, repeated at times.

C+ 09—10 The candidate commuicates clearly but in a flat and uncertain manner. Simple concepts sentence form are often strained. There may be an overuse of clichés, unsuitable idioms.



Proverbs a misquoted or misinterpreted. The flow is still jerky. There are some errors of agreement, tenses and spelling.

- B CLASS This class is characterized by greater fluency and ease of expression. The candidate (11 — 15) demonstrates that he/she can use English as a normal way of expressing himself/herself. Sentences are varied and usually well-constructed. Some candidates become ambitious and even over-ambitious. There may be items of merit of the one word or one expression type. Many essays in this category may be just clean and unassuming but they still show that the candidate is at ease with the language. There may be a tendency to under mark such essays. Give credit for tone. The candidate appeals to our emotions.
- 8-I 1-12 B13 The candidate communicates fairly and with some fluency. There may be little variety Sentence structure. Gross errors are still found occasionally, but this must not be over punished.
- B 13 The sentences are varied but rather simple and straight forward. The candidate does not strain himself in an effort to impress. There is a fair range of vocabulary and idiom. Natural and effortless & Some items of merit, economy of language.
- B+14-15 The candidate communicates his ideas pleasantly and without strain. There are errors and slips. Tenses, spelling, and punctuation are quite good. A number of items of merit of “whole sentence” or the “whole expression” type.
- A CLASS (16-20) The candidate communicates not only fluently, but attractively, with originality and efficiency. He/she has the ability to make us share his deep feelings, emotion enthusiasms. He/she expresses himself freely and without any visible constraint. The scrij gives evidence of maturity, good planning and often humor. Many items of merit which indicate that the candidate has complete command of the language. There is no strain, just pleasantness, clever arrangement felicity of expression.
- A- 16-17 The candidate shows competence and fluency in using the language. He may lack imagination or originality which usually provide the “spark” in such essays. Vocabulary, idiom, sentence structure, links, variety are impressive. Gross errors are very rare.
- A18 Positive ability. A few errors that are felt to be slips. The story or argument has a definite impact. No grammar problem. Variety of structures. A definite spark. Many margin ticks.
- A+ 19—20 The candidate communicates not only information and meaning, but also and especially the candidate’s whole self: his/her feelings, tastes, points of view, youth, culture. This ability to communicate his deep self may express itself in many ways; wide range of effective vocabulary, original, approach, vivid and sustained account in the case of narrative, well developed and ordered argument in the case of a debate or discussion. Errors and slips should not deprive the candidate of the full marks, he deserves. A very definite spark.

TABLE OF CATEGORIES.

<u>CLASS</u>	<u>MARK CATEGORY EACH ESSAY</u>				
A	A+	19-20	C	C+	09-10
	A	18		C	08
	A-	16-17	C-		06-07
B	B+	14-15	D	D+	04-05




B 13 D 03
B- 11-12 D -00-02

MARKING SYMBOLS

1. The main signs indicate three degrees of seriousness of error,

a) GROSS ERROR OMISSION FOR CONSTRUCTION IN MARGIN


(b) MINOR ERROR OMISSION MINOR CONSTRUCTION ERRORS


c) MINOR OR POSSIBLE ERROR



This sign in the margin is used only when a construction error affects more than one line.

2. The following symbols may also be used

FAULTY PARAGRAPHING



REPETITION

R

(of words) a circle around the word.

(of ideas) usually in the margin.

ILLEGIBILITY



VAGUENESS

V



WRONG WORD ORDER

W.o

Underline once And Write W.O in margin

ILLOGICAL or CONTRA DICTORY

ILL

ILL (In margin)

BROKEN ENGLISH when the candidate fails to communicate BR In margin.

BR

FOR PURPOSES OF IDENTIFICATION

COW to indicate that a candidate has crossed to make a correction-paragraph/page.

BRACKETS { } indicate a part of a D script that communicates.

*Use an asterisk to indicate an item or a sentence that the rubrics indicate should be used

3. TO INDICATE AN ITEM OF MERIT use a tick(✓) either above a word or in the margin for the whole sentence.

GROSS ERRORS

(i) Almost any error or agreement.

(ii) Serious tense error.

(iii) Errors of elementary vocabulary

(iv) Punctuation errors or missing punctuation which causes serious lack of communication.



- v) Elementary errors of sentence construction.
- vi) Ridiculous use of idiom that affects communication.
- (vii) Misuse of common prepositions.
- (iii) Misuse of capital letters -Use CAPS underline the first page and use CAPS on subsequent pages where mistakes persists.
- ix) Contracted forms except in dialogue.

MARKING. NORMAL SCRIPTS

1. (a). Decide on the degree of communication achieved A — D.
- (b). After underlining decide on the mark category.
- c) Allocate a numeric mark to the essay.

PROBLEM SCRIPT

All problem script must be marked by the examiner and then sent to the Team Leader with comments

1. IRRELEVANCY

- (a) Consistent distortion of question, evasion of question, writing on a totally different subject with a clumsy attempt at connecting the essay to the subject given, inclusion of memorized passages, etc.
- (b) The question is given an unacceptable or questionable interruption.
- (c) Essays contain long semi-relevant digressions or lack coherence.

ACTION.:

The examiner marks the essay, gives a linguistic mark and comments on the nature of the irrelevancy. The essay is then passed over to the team leader who judges whether the irrelevance should be judged as a deliberate attempt to deceive or should be attributed to the candidate's poor understanding of the subject. Deduct up to 4 marks for irrelevancy in the essay. If dishonesty is suspected, the Chief Examiner should be informed. Any deduction of 3 marks or more should be referred to the Chief Examiner.

2. CONTRAVENTION OR RUBRIC

Since the rubrics may change from year to year, the POINTS OF INTERPRETATION that are part of this MARKING: SCHEME must be consulted and adhered to faithfully. Here are some general rules that usually apply.

3. SCRIPTS THAT INDICATE

- (a) Decide on the category D+, or D-
- (b) Mark the errors of the essay.
- (c) Team leaders should look at a good number of those scripts and ensure that the mark given is fair.

4. BREVITY.

It should be remembered that the main quality of an essay is how effectively it communicates. If an essay looks too short, the examiner should take the time to count the exact number of words. If the candidate writes a very short story, he or she has already penalized himself / herself. Essays exceeding 450 words (2 pages) deduct 2 marks AD.

KENYAN ENGLISH

A good number of expressions are understood and currently used by all Kenyans. They can be used in essays without any need for quotation marks or explanations. We can include among those:

- Panga, rungu, shamba, murrum, matatu
- Wananchi, ugali, afulbe, matoke
- Maendeleo ya Wanawake, salaam, ayah, askari
- Debe, duka, Nyayo, boma, sukuma wima, goat party, manyatta, inagendo, katiba..



AMERICAN SPELLING

Although British English more common than “American English” spelling in Kenya examiners, should accept and no penalty should be given for such variations Penalize for lack of consistency in usage of either.

- Q1 a) Must be a story . if not deduct 2marks.(A.D) Must be passed on the assumption that the plan will succeed hence start thinking about what you will do after you succeed. But the plan fails. Hence the advice to wait until you have succeeded then you can think of what to do next. If not treat as irrelevant and deduct 2mks.(A.D)
If the essay exceeds 450words deduct 2marks.(A.D)
- b) -Must be a story if not deduct 4 A.D
-The sentence must be at the beginning of the composition if not deduct 2A.D
-The candidates must be the main character if not deduct 2 A.D
-The story should bring out the feeling of surprise.
-The message/information should be too good to believe or shocking.
-The candidates must clearly present the reaction to this message. If this is not done, treat as weakness.
2. A mother is born. She is never made merely by conceiving, carrying a pregnancy and being delivered of a baby” Closely referring to the Caucasian Chalk Circle show how far true this statement is. (20 Marks)

Introduction

- Instincts that make one motherly are not made. They are inborn
- Natella Abashwili is delivered of baby Michael
- She is therefore the biological mother
- When the time comes for her to demonstrate her motherly instincts, she flatly fails the test
- The time she is expected to protect whatever makes her a mother, the Queen misdirects her attention from the baby to wealth and materialism.

Body

- MI- As she orders her workers around to pack her many expensive dresses on the expensive chariots, she does not remember her baby
- At the opportune time, she successfully escapes the wrath of the rioting soldiers leaving her biological offspring at their mercy
 - Meanwhile, she has carried off with her all she thinks is the most important of her earthly belongings
- MII- Looking at the abandoned and desperate Michael, Grusha, a mere house girl, immediately demonstrates that she is richer in motherly instincts than the biological mother herself
- Seeing that his mother has actually run away and left him, Grusha wins a mental war against her conscience and within a split second, decides to carry away the baby.
 - She knows quite well that she does not have sufficient resources to bring the baby up but still takes him up
- MIII- To remove her from the danger zone, Grusha packs the ‘nothing’ she owns and makes for The Northern Mountains where she hopes to stay with her brother Lavrenti in an effort to protect the child
- MIV- Along the way, she encounters very many challenges just to protect the child- Key among them is crossing a very delicate bridge



- She hits a soldier who was trying to carry Michael away from her
She willingly gets into a loveless marriage for the sake of the-bey

Conclusion

From all the above, carrying a foetus to full term does not necessarily is a true mother.

This is very clearly demonstrated by Grusha, a mere kitchen hand , who before achieving this feat, is nowhere in the palace packing order.

Natella though the biological mother, fails to prove that she is ready for the long range task.

Inntroduction

For good existence, individuals must assist another since no man is an island. People suffering from HIV/AIDS and other predicaments need close attention and care for them to stay alive longer. Everybody needs the assistance of the people as much as he/she needs himself or herself.

Content:

PI- Social stigma on HIV/ AIDS.

This is propagated in this story by Kanja and the villagers. It impacts negatively on Maureen until she dies. Maureen feels alienated from other members of the society and this brings in loneliness. She has no sense of belonging.

PII- Misconceptions about HIV/ AIDS.

In general, people hold divergent views about how HIV/AIDS is contracted. They do not view the disease like any other. Victims of the disease are handled with a lot of reservation and restraint.

PIII- Kanja's visit to Maureen.

When visited by Kanja, Maureen feels so much relieved. She tells him, "Welcome Kanja. It is great to have you visit." (pg 19). The visit is a great comfort to Maureen. However, Kanja has no idea how good it was for him to visit Maureen.

PIV- Steve's assertion/observation on HIV/AIDS victims.

Steve is an HIV/ AIDS victim. He observed that when one is suffering from this disease, one good friend is all you need to make life less suffocating. (Pg. 19). The comfort from other people goes a long way in healing the souls of the victims.

PV- Kanja's decline to take juice.

Maureen gives Kanja juice to drink but he declines and this makes her break down and weep. This has a negative impact on her. She says, "Why are people so cruel?... it hurts when your age -mate comes to my house arid refuses to take what I serve him, it hurts." (pg. 21-22). The decline makes her lack a sense of belonging.

PVI- RejectionofHIV/AIDSvictims.

Victims of HIV/AIDS feel rejected and degraded. It makes them to be withdrawn and irrational. (pg. 22). Maureen feels isolated from other members of the society.

PVI- Tom's assistance.

Tom, a primary school teacher assists Steve to take Maureen to hospital. Tom comes out as a good neighbour to Steve. Mr. Kabia refuses to lend his car to Steve to assist him take Maureen to hospital. This makes Maureen feel estranged from her social and physical environment. She eventually gives in and gets out of harmony with herself and stops taking



With examples from 'Betrayal in the City' by Francis Imbuga, write a composition to show how hypocrisy is a vice in the society (20 Marks)

Introduction

- Hypocrisy can be seen as a desire by people to wear masks in an attempt to keep a positive image. There are very many examples in the play of characters that are deceptive.

Content

- HI- A clear example of hypocrisy is demonstrated by Mulili, who even after his role in Kabito's death, "breaks the news" of the death to Nicodemo and Tumbo feigning shock and disbelief. He lies that Kabito died following a road accident which he blames on driving while drunk.
- HII- Even after instructing Mulili to make sure that he eliminates Kabito, Boss is reported to be "in tears" following the death and has ordered that one road will be named after him (Kabito). He tries to portray himself as saddened by the death and to have had no way of preventing it. This is meant to hoodwink the public.
- HIII- The Kafira government (through Nicodemo) plants opium on Mosese's car and charges him with being in possession of bhang and detains him. The reason behind Mosese's tribulations is as a result of his attack on the government for being behind Adika's death.
- HIV- Boss almost confesses the government's role in the imprisonment while talking to Juser but suddenly changes the topic. This is a clear example of hypocrisy.
- HV- The government of Kafira has failed. The economy is in ruins and the rights of the people are grossly violated. Unemployment is rampant and there is an influx of expatriates. When students demonstrate against these ills, one of them, Adika is shot dead. However, there is hypocrisy noted when in the play to be performed to the visiting head of state, Tumbo advises that the words progress and 'achievement' should appear in every page describing Kafira. It's obvious that this is the false image of the country.
- HVI- Hypocrisy is also seen through Mulili who all along has been pretending to be the most loyal person to Boss so as to gain property and personal glory. He has also exploited the fact that he is Boss's cousin to intimidate or eliminate those who stand on his way.

However at the end of the play, he betrays the very man who had given him all the power he had repeatedly misused. To use his own idiom correctly, he is the real 'snake in the grass'

Conclusion.

In conclusion, it is clear that the writer has depicted the hypocritical nature of the various characters. At the end of the play hypocrisy is exposed.

3. C) "The youth living away from their parents encounter challenges." Write an essay citing such challenges and suggesting solutions for them, use Witi Ihimaera novel The Whale Rider for your illustrations (20 Marks)

Introduction

In the text, we encounter several young people living away from their parents. They include Jeff, Henare, Reremoana, Kingi and the narrator. Being away from home exposes them to some problems.



Content

Culture shock is evident among the young people living away from their parents. Once in a different country, they behave strangely. Rawiri's cousins, Henare, was wearing a dress while another, Reremoana, had changed her name, and had dyed her hair. She had also changed her mode of dressing. Kingi, on the other hand, had changed his attitude and did not want to associate with some people. They finally tell Rawiri not to tell Nani flowers that he saw them like that.

The narrator is also subjected to racism and rejection by Jeff's mother. She feels embarrassed in Jeff's presence. People should inculcate in themselves the spirit of tolerance and learn how to accommodate one another.

Lack of better jobs in the countries they migrated to is another problem. They had moved to other countries in search of fame, fortune, and power and success. The fact that these jobs are not forthcoming, causes embarrassment and feeling of rejection.

Home sickness is another problem Rawiri, felt out of place while in Australia and Papua New Guinea and hence he had always been thinking of going back home (New Zealand). He always kept in touch with the people at home through frequent calls and writing letters. In Kiwi Valley (named so because of the presence of many Maori people), the Maori people were subjected to discrimination. It is in this valley that Rawiri discovered that whatever he had been told about Australia was true.

Conclusion

The youth offer any society a link to the next generation. They should therefore be educated on the advantages and disadvantages of looking for greener pastures abroad. They should also be encouraged to return home if all does not go well wherever they are, since east or west home is best.



Kenya Certificate of Secondary Education(K.C.S.E)

312/1

GEOGRAPHY

PAPER 1

TIME 2HRS

TIME 2 ³/₄ HOURS

MARKING SCHEME

1. (a) **Disciplines related with the following areas study of geography**
 - (i) Geomorphology
-Geology
 - (ii) Biogeography
-Biology

- (b) **Three main areas of study of physical geography**
 - The earth and the solar system
 - The internal land forming processes
 - The external land forming processes
 - Weather and climate
 - Vegetation
 - Soils and rocks

3x1=(3mks)

2. (a) **Two main areas which make up the external part of the earth.**
 - Atmosphere
 - Hydrosphere
 - SIAL

- (b) **Three distributions which are found in the atmosphere**
 - Tropopause
 - Stratopause
 - Mesopause

3. (a) **Meaning of plate tectonic theory**
 - A theory which argues that the earth's crust is made up of semi- rigid broken blocks called tectonic plates which floats of semi- liquid upper mantle

2x1=(2mks)

- (b) **Three boundaries which develop due to movement of plate tectonics**
 - Extensions boundaries
 - Compressed boundaries
 - Transform faults

4. (a) **Definition of process.**
 - (i) precipitation
 - All forms of moisture formed when water vapour condenses in the atmosphere
 - (ii) Evaporation
 - Process through which moisture is lost from the surfaces to the atmosphere through air movement and the sun's heat.



- (b) **Four factors influencing the rate of evaporation from the earth's surface**
 -Availability of moisture
 -Temperatures
 -Speed of wind
 -Hours sunshine
 -Characteristics of the water body –salinity and depth. 3x1=(3mk)

5. (a) (i) **Type of rainfall shown on the diagram**
 -Conventional 1x1 =(1mk)
- (ii) **Type of cloud marked (a)**
 -Comululonimbus clouds 1x1 =(1mk)
- (b) **Two weather conditions associated with the above (a) rainfall**
 -Thunderstorm and lightening
 -Hailstones
 -Warm air near surface in the afternoon hours 2x1=(2mks)

SECTION B

- 6 **Study the map of Karatina 1:50,000 sheet 121/3 provided to the question that follow**

- (a) (i) **Identifying features found in grid reference 967543**
 -Water intake 1x1 =(1mk)
- (ii) **Distance of River sagana from the bridge in grid square 8347 to the southern edge of the map**
 -5.8, 5.9, 6.0 Km 2x1= (2mks)
- (iii) **Two methods that have been used to represent relief of the area covered by the map**
 -Contours
 -Trigonometrical stations
 -Spot heights
 -Use of names of relief features 2x1 = (2mks)
- (b) (i) **Calculating the area covered by part of Mt Kenya forest east of easting 99 and south of Northing 55.**
 -9Km² 3x1 =(3mks)
- (ii) **Two districts found in the area covered by the map**
 -Nyeri
 -Kirinyaga 1x2 =(2mks)
- (c) (i) **Using a scale of 1cm rep 50m draw a cross section from grid reference 810500 to 870500 (Refer graph paper)**
- (ii) **Cross section drawn mark and name**
 -All weather road (loose surface)
 -River Rithithi
 -Power line

(iii) **vertical exaggeration**

$$\begin{aligned}
 -VE &= \frac{vs}{Hs} \\
 &= \frac{1cmrep\ 50m}{1: 50, 000} \\
 &= 50\ \text{times}
 \end{aligned}$$

(d) **Description of drainage on area covered by the map**

- The most dominant drainage features found here are permanent rivers like Sagana, Rithithi etc
- Most rivers found on these areas originate in the Northern part especially from the mount Kenya forests and flow Southwards
- The largest river in the area covered by the map is river Sagana found to the sw part.
- Most of the rivers found on the map shows some traces of radial drainage pattern because they seem to be originally from the Mt Kenya forests and flow to different directions.
- Some rivers also show dendritic drainage pattern e.g. River Nyanyaga Gathambi etc
- Most of the rivers found here are in their youthful stages and have the presence of interlocking spurs e.g. Rivers Sagana, Thego etc
- Drainage features like dams have been developed on the rivers especially along river Sagana in grid square 8348.
- Several other artificial drainage features are found on the map e.g. water reservoir, water intake, Cattle dips, etc

1x6=(6ms)

7. (a) (i) **Definition of faulting**

-A process which takes place in rocks of the crust which makes them to fracture or break

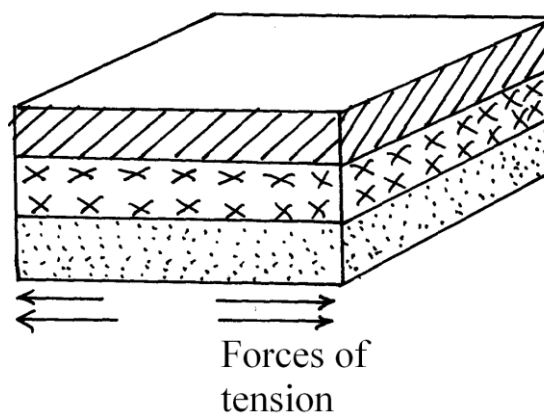
(ii) **Description of normal fault**

- Forces of tension act on rocks of earth's crust
- Forces pull away from each other
- vertical or inclined faults plane and direction of the down throw are both to the left and or both to the right.

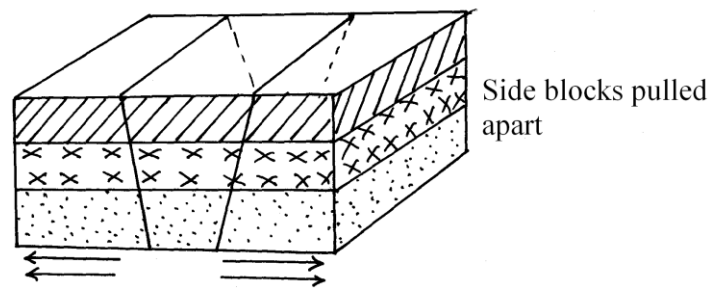
1X2=(2mks)

(b) (i) **Explaining formation of Rift valley by tension forces with aid of diagrams.**

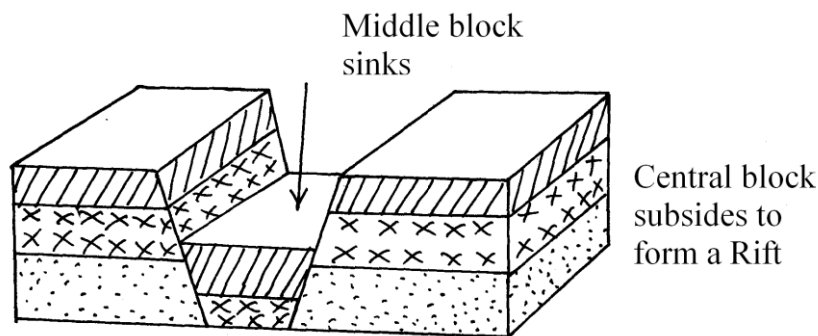
-The earth's crust is subjected to forces of tension. Forces pull away from each other



-Lines of weakness develop in the rocks of the earth's crust leading to the development of adjacent normal faults which are almost parallel



- The forces pull away the side blocks
- The middle block is formed to sink forming loading to the formation of a long trough between the faults which is called a Rift valley.



- Sometimes the normal faults may be multiple and as middle block sinks the other blocks are displaced unequally forming a rift valley with sides of step faulting.

Text 5

Diagram 3=(8mks)

(ii) **other features formed by faulting a part from Rift Valleys**

- Fault blocks /block Mountains
- Tilt blocks
- Fault scarps
- Tilt block landscape

4x1=(4mks)

(c) **Mentioning five effects of the process of faulting to man**

- Subsidence of land by faulting forms lakes which are rich in minerals which forms hot springs and geysers.
- Fascinating features of faulting like escarpments attract tourists.
- Foot of fault scarps underground water emerges leading to occurrence of springs.
- Windward sides of block mountains receives high rainfall becoming sources of rivers.
- Faulting may expose mineral that were found underground.
- Faulting disjoints land bringing problems in development of infrastructure.
- Fractures and displacement of land by faulting makes rivers change direction of flow or may disappear underground.

(d) **A field study of a fault near Itiero Girls High School**



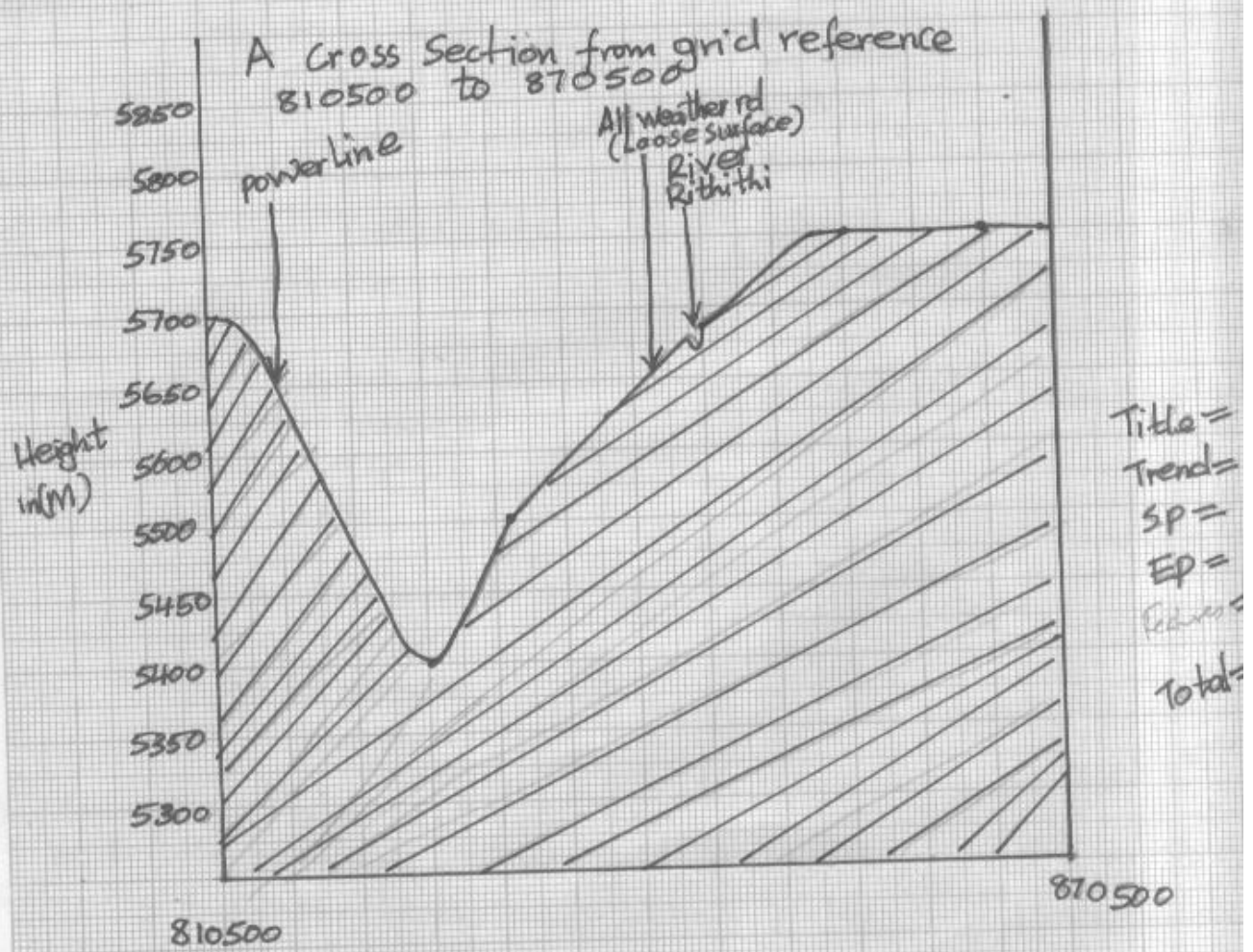
- (i) Three objectives for their study
 -To find out the forces that were behind the formation of the fault block
 -To investigate the age of the fault block.
 -To know the economic importance of the fault block
 -To find out the negative impact that the feature has had on the surrounding communities 1x3 = (3mks)
- (ii) **Two secondary source of information that they would use to collect data**
 -Waiting films and videos.
 -Listening to audio tapes.
 -Reading published documents like books ,magazines. 1x2 =(2mks)
8. (a) (i) Climate marked
M- Equitorial
O-Mediterranean
P-Savana
- (ii) Deserts. T-Namib
 S- Kalahari
- (b) **Description of characteristics of climate marked N**
 -High mean annual temperatures but varies.
 -Large diurnal /range of temperature absence of cloud cover
 -High annual range of temperature about 26⁰C
 -Low rainfall (annual) less 250mm p.a
 -winds found here are offshore most of the year.
 -Sandstorms common in these places
 -High rate of evaporation
- (c) (i) Natural factors influencing aridity and desertification
 -A place receiving insufficient rainfall.
 -Extremely high temperatures at a place
 A coastal region lying next to cold ocean currents.
 -A place lying on leeward side of a mountain.
 -A place being found far away from water bodies 2x4 (8mks)
- (d) **Explaining five effects of desert features on human environment.**
 -Loess deposits form good place for development of caves providing shelter in winter
 -Loess deposits form deep and fertile soils which support agriculture.
 -Desert features like yardangs, rocks pedestal offer fascinating features which attract tourist.
 -Extensive and bare surfaces and sands are suitable for testing of weapons/machines ,military training etc.
 Some deflection hollows contain water providing water for domestic and industrial use.
 -Salt fluts can be used to provide salts required in salt industries.
 -Sand dunes interfere with infrastructure e.g. roads. 1x6 =(6mks)
9. (a) (i) **Defintion of sea.**
 -A large body of saline water on margins of continents.
 -A large body of saline water enclosed by landmass
 -A large body of saline water connected to an ocean by a narrow stretch of water called a strait.



- (ii) List any features which occur in the oceans.
- Continental shelf
 - Continental slope
 - The deep sea plains
 - The ocean ridges.
 - ocean deeps
 - Ocean trenches
- (b) (i) **definition of waves**
-Ridges of running water developed by oscillation of water particles
- (ii) **Differentiating swash from backwash**
-Swash refers to most of water up the shore as wave breaks while the backwash is backward movement of water to sea after breaking of a wave
- (c) (i) **Explain three processes of wave erosion**
-Hydraulic action
-Corrasion
-Solution
-Attrition 2x3 =(6mks)
- (ii) **explaining the formation of a tombolo**
-A coastal area happens to have shallow waters
-Not far from this coastal place there is an island.
-Waves approach such a shallow coast and because of shallow depth they are forced to break
-The pebbles and sand the waves are carrying are deposited by the waves.
-As a result a low ridge is formed by these deposit and start developing from the coast
-More deposition of these materials take place and the ridge continues lengthening towards the side of the sea.
-Gradually the ridge joins up with an island on the side of the sea leading to the formation of a tombolo 1x4 =(4mks)
- (iii) **Giving three conditions necessary for formation of coral reefs.**
-Sea temperatures of about 21°C /high temperatures.
-Sunlight that penetrates the floor of sea up to a depth of 50m/shallow water
-Plenty full supply of plant food (planktons) 1x3 =(3mks)
- (d) **Listing three features which develop on submerged highland coasts.**
-Rids
-Fiord
-Dalmatian coast
10. (a) (i) **Three sources of underground water.**
-Rainwater
-Meltwater
-Lake and sea water
-Magmaic water
- (ii) **Differentiate pervious rocks from porous rocks**
-Pervious rocks are rocks that allow water to pass through them through their cracks /joint fissures while porous ones allow water to pass through them via their spaces.



- (b) **Explaining four factors influencing the occurrence of underground water.**
Amount of precipitation in an area.
-The nature of the slope of an area
-Nature of the rocks
-Amount of vegetations cover in an area
-Level of saturation of the ground
-Rate of evaporation –Transportation in an area.
- (c) (i) **Mentioning three factors necessary for formation of a karst scenery**
-Thick limestone, chalk or dolomite rock
-Rocks must be hard and well jointed
-Hot and humid climate
-Water table deep below the ground
- (ii) **Three underground features in karst areas**
-Stalactites
-Stalagmites
-Limestone pillars
-Underground caves
-Underground rives
- (d) **Explain three significant of karst features to man**
-Features like stalagmites ,stalactites polijes attract tourist.
-The lime stone block can be used in building houses.
-Limestone rocks are also used as raw materials in the cement making industries.
-The limestone ground are dry and therefore provide good grounds for rearing of sheep.
2x3 =(6mks)



Vs = 1cm rep 50M
Hs = 1:50,000



Kenya Certificate of Secondary Education(K.C.S.E)

312/2

GEOGRAPHY

PAPER 2

TIME 2HRS

TIME 2 ¾ HOURS

MARKING SCHEME

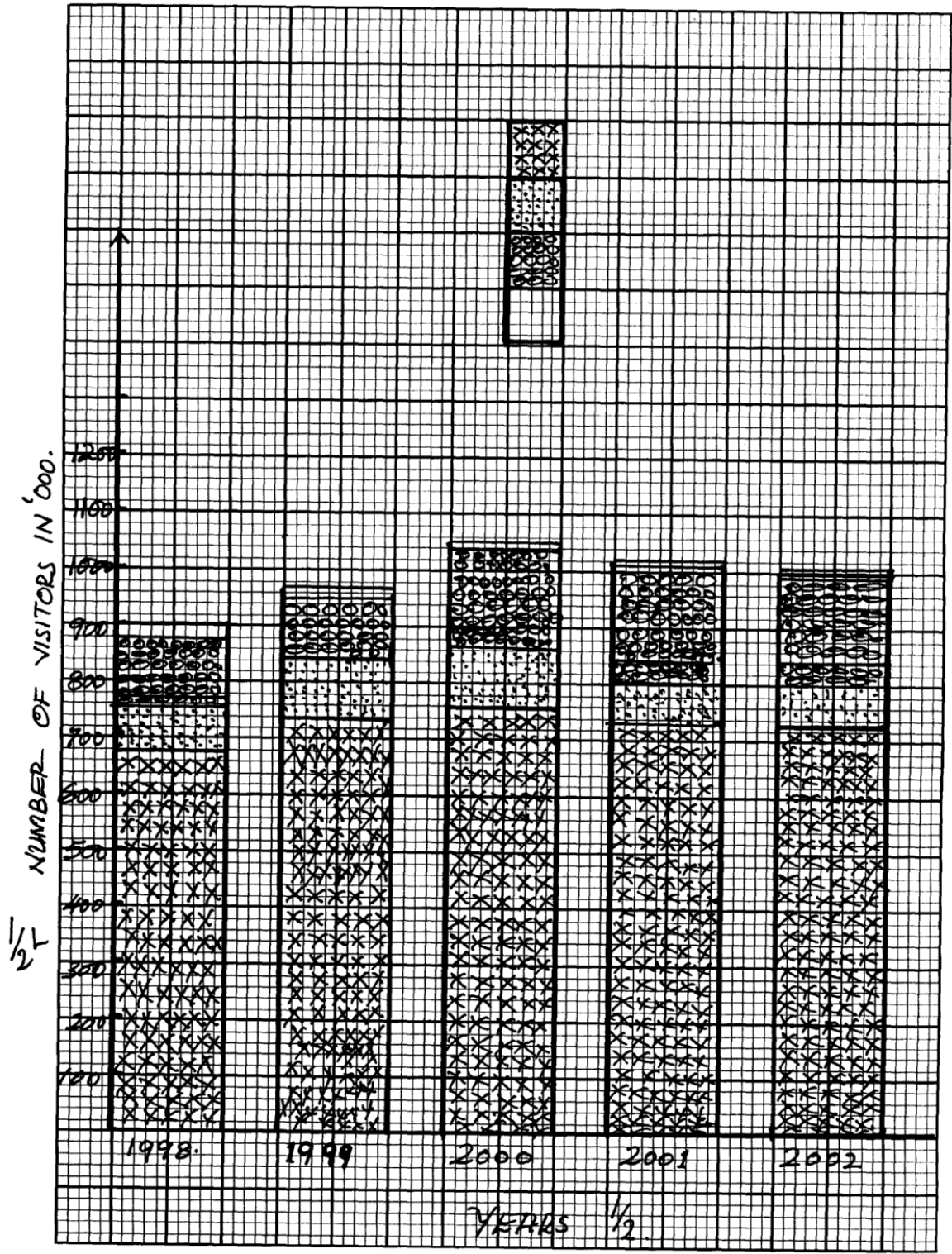
1. (a) Industrial inertia is the tendency of an industry to remain in a particular place even when the original locational factors or advantages are no longer important (2mks)
- (b) -Use locally produced raw materials
 -Simple tools are used
 -Require local skill
 -Labour provided by family.
 -Require small capital to start
 -Can be started any where even in homes
 -Check rural –urban migration ./it is labour intensive
 -Products are mainly sold to local market. (3x 1= (3mks)
2. (a) -Minerals occur in cracks and joints of rocks
 -They are deposited in crystalline forms
 -Can be deposited by hot magma or processing water 2x1 =(2mks)
- (b) -waste of agricultural land
 -Waste of industrial land
 -Ugliness- people who live in areas where there is much derelict land have no pride in their houses
 -Health and accidents hazards
3. (a) -High temperatures/ranging between 21⁰ - 27⁰
 -High rainfall /1.250 mm which is well distributed throughout the year.
 -Clay /black cotton soils which are /well drained gently sloping land
 -Dry spacori during harvesting. 3x1 = (3mks)
- (b) -Mumias -Kibos
 -South Nyanza -Trans - mara
 -Kabras Muhoroni
 -Koru
4. (a) Transhumance is seasonal movement of people and their animals from place to place in search of water and pasture for their animals. (2mks)
- (b) -Reared in areas receiving low and unreliable rainfall.
 -Animals are grazed communally.
 -Animals are kept for subsistence /sign of wealth.
 -Nomadic herders make use of natural pasture.
 -Different types of animals are kept e.g. sheep ,goats and cows
 -quantity as opposed to quality is emphasized
 -Mans social positions and prestige determined by number of animal kept 3x1=3mks



- Poor marketing of animals and their products.
 - Lack of organized land tenure where land is owned communally
5. (a) -Fostering good relations ,peace ,political stability and high standards of living for member states
 -Promotion of social and economic integration
 -Leading to the attainment of rapid and sustainable economic growth.
 -Establish a free trade areas ,a common external tariff and a customs union for member countries 3x1 = (3mks)
- (b) -Similar commodities are produced
 -Lack of co-operation among the countries
 -Different currencies (different value of the shilling
 -Introduction of trade tariffs.
 -Restriction of movement
 -Ideological differences
 -Unequal development. 2x1 =(2mks)
6. (a) (i) -Relatively more difficult to construct.
 -The number of components that can represent on a single bar is limited.
 -It is difficult to determine the actual value of individual components.
 -Fluctuation over a period of time cannot be seen at a glance 2x1(2mks)
- (ii) -Most visitors who come to Keya come for holiday
 -The year 2000 record the highest number of visitors
 -There was a drop in the number of visitors to Kenya in 2001 2 x1 =(2mks)
- (iii) -1998 record the lowest number of visitors.



U III/Scheme





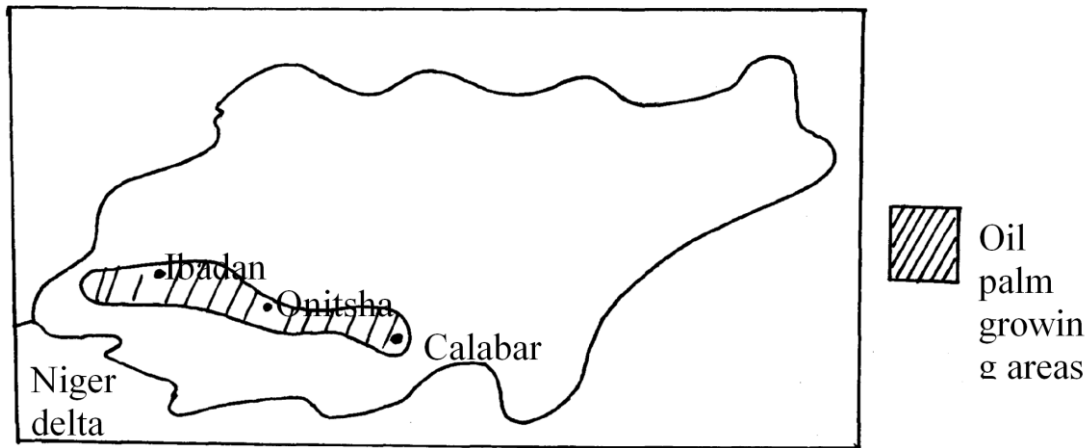
- (b) (i) -Traditional culture of more than 42 ethnic groups
 -Many tourist sites and potential areas are accessible by road in some cases by water or air
 -High class international hotels ,lodges and cottages have been constructed in towns.
 -Government support who regard tourism important to the economy.
 -Presence of preserved attractions like historical sites and monuments.
 -Political stability.
 -Publicly – A lot of campaign done through mass media
 -Training in tourism e.g. at Utalii college in Nairobi
 -Research programmes in wildlife management and conservation 4x1 =(4mks)
- (ii) -Extensive beaches for sun beaching
 -Historical sites e.g. Shimoni caves, Fort Jesus , Vasco da gama pillar
 -Mangroves swamps 2x 1 =(2mks)
- (c) -Earns foreign exchange.
 -The industry has employed many people
 -Source of revenue for the government
 -Improvement of roads connecting areas of tourist attraction
 -Conservation of wildlife and protection of historical sites
 -Expansion of training institutes
 -Promotions of international relations 4x1 (4mks)
- (d) Switzerland has many waterfalls which are commonly associated with hanging valleys while Kenya has a variety of waterfalls along many of her rivers.
 -There is domestic and international tourism in both countries
 -Both countries have springs which are considered health spas and thus tourist attraction
 -Both countries experience political stability and peace which promote tourism.
 Switzerland has a national park with a variety of plant and animal life. Kenya has a number of national parks with a large variety of plant and animal life as well
 -Switzerland has very many hotels and lodges which accommodate tourists. Kenya has many inland and coastal hotels as well lodges in the game reserves for accommodating tourists 3x1 = (6mks)
7. (a) (i) The term fisheries refers to water bodies where fish are reared or caught in numbers (2mks)
- (ii) -Herring -Capelin
 -Pilchard -Taft
 -Mackerel -Bristling
 -Sardines -Anchorites
 -Menhaden 3x1 =(3mks)
- (b) (i) Drifting fishing method
- (ii) -The method is used in catching pelagic fish
 -The drift net is held vertically in the water
 -The net is fitted with floats on the water side and weight at the bottom and help to stretch it like a tennis net.
 -As the fish try to go past the meshes of the net they are trapped by their gills/ the fish cannot either move backward or forward
 -once enough fish are caught the nets are hauled out by powerful boats called drifters



-The fish are then removed from the net and taken for processing 5x1 =(5mks)

- (c) (i) -Lake Vicyoria -Lake Masinga
 -Lake Naivasha -Lake Kamburu
 -Lake Jipe -Lake Kiambere
 -Lake Chula -Lake Bilisa
 -Lake Kanyapoli -Lake sare
 -River Tana ,Athi, Nzoia Yala,Kuja ,Sonde ,Nyaolo, and Migori 2x1 =(2mks)
- (ii) The East Africa coastline is mainly regular hence there are inadequate sea inlets to provide good sheltered areas for sea fish.
 -The East Africa countries lack capital for buying modern equipment required for marine fishing
 -Low demand for sea fish compared to fresh water fish species.
 -The presence of a narrow continental shelf limits the growth of planktons along the coast
 -Poor technology on deep sea fishing has hampered marine fishing
 -There are more inland fishing grounds (both natural and man-made)than there are marine fisheries 3x 1= (3mks)
- (iii) Creation of employment opportunities
 -Source of foreign income
 -Development of subsidiary industries
 -Source of raw materials in the manufacture of products like soap , margarine. Paint ,ink ,cosmetics etc.
 -Promotion of scientific research
 -Development of roads to connect fishing grounds with distant markets.
 -Source of food rich in proteins
 -It has led to diversification of the economy
 -Control of mosquitoes .If introduced into mosquito breeding grounds.4x1 =(4mks)
- (d) -Rugged terrain /discourage agriculture making the Japanese to turn to fishing as an alternative
 -Extensive continental shelf /this favour growth of plenty of planktons on which fish feed thus encouraging fishing
 -Convergence of the warm Kuro Siwo and cold Oya Siwo current along the coast result in well oxygenated ,ice free ,cool water ideal for fishing throughout the year.
 -cool temperatures /Japan experiences cool temperatures ideal for planktons growth /the cool temperatures ease preservation of fish.
 -High indented coastline /the Japanese coastline has numerous bays and sheltered harbours conducive for fish breeding /suitable for establishment of fishing ports. 3x2 = (6mks)

8. Map of Nigeria showing main oil palm growing in Nigeria.



- (b) -High temperatures throughout the year /200C -260c
 -Low altitude of u to 1050m above sea level.
 -High rainfall/1500- 2100mm which is evenly distribution throughout the year.
 -Deep /porous /well drained soils
 -Undulating relief
 -High relative humidity. 3x1 (3mks)
- (c) -Oil palm fruits are harvested three years after planting.
 -Ripe fruits are cut using curred knives or pangas throughout the year every 5- 10 days
 -They are carried in baskets or in poles to the lorries and transported to the factory
 - At the factory ,fruits are weighed.
 -They are off-loaded into rube-like cages or tracks
 -Fruits are passed through hot steam to arrest acid development and to sterilize them
 -The fruits are stripped off the stalks and other unwanted materials.
 -Fruits are put in digesters for further cooking to soften them.
 -The pulp is separated from the kernel
 -The pulp is then passed through oil extracting machines to extract – oil
 -The kernel are also tashed to remove shells and extract kernel oil.
Sequence must be followed to score 8x1 =(8mks)
- (d) Oil products from palm oil is used to manufacture a variety of products such as cooking fats and candles which saves the government foreign exchange which would have been used to import these commodities
 -Many people are employed in the oil palm plantation during cultivation and harvesting hence improving their living standards of living.
 -Industries using palm oil and kernel as raw materials have been established.
 -Both palm oil and kernels are exported ,hence the country earns foreign exchange.
 -Farmers get a regular income from the sale of oil palm products ,thus improving their standards of living . 3x1=(6mks)
- (e) (i) Used in the manufacture of margarine
 -Used to manufacture vegetable cooking oil
 -Used to manufacture soap and candles
 -Used as a cleaning agent in industries which produce them 2x1 =(2mks)
- (ii) **Problems facing oil palm in Nigeria**
 -Attacked by diseases e.g. blast.
 -Small scale farmers get low yield as they plant low yielding varieties
 -Poor traditional farming methods, leading to low yields. 3x1 =(3mks)



9. (a) (i) Forestry is the science of developing and managing forests including cultivating them. (2mks)
- (ii) Arabuko –Sokoke -Mt Kenya forest
 -Shumba hills forest -Mau forest
 -Kaya forest-Lonndiani/Tindiret -Kanira and ngong forest
 -Mt marsabit -Kaptagat
 -Aberdare forest -Kakamega forest
 -Mt Elgon forest. 3x1 =(3mks)
- (b) -Trees occur in uniform stands
 -the tress are mainly soft woods which are in high demand
 -Trees are easy to work on
 -Easy transportation of logs
 -Trees are planted in a certain partten making it easy to control fires. 4x1(4mks)
- (c) (i) Research on characteristics of trees to establish the suitable species that can be grown in specific areas
 -Public campaign on the value of forest through mass media
 -Carrying out research on the suitability of soils and the effects of pests and diseases on forests
 -Enacting laws to govern the management of forests
 -Use of alternative source of energy to reduce overdependence on wood fuel
 -Involvement of non- governmental institutions to assist in forest management and conservation
 -Reduction of wastage in forestry industry by recycling the wastes to produce other useful products.
 -Establishment of training institutions dealing with forestry e.g. Londiani Forestry Training Collage KFRI at Muguga
- (ii) The absence of pure stands forests of the same species occur far much a part
 -The branches of these trees are intertwined thus bringing down selected trees means ,several trees have to be felled
 -The traditional methods of using axes and saws are inadequate for the sizes of these trees
- The environment of equatorial forests is made of a continuous jungle that would scare off the forests. The temperatures are extremely high and the light humidity encourages insects to thrive causing illness.
 -Transportation of the heavy logs through the impassable forests which become quite a difficult task especially where roads are muddy.
 -The roads and railway are sometimes washed away during rains.
 -Inadequate funds for purchasing modern equipment.
- (d) The bark of the mangrove trees is used to provide tannin which is used in tanning leather
 -Mangrove poles are very strong and are used in building and construction.
 -Some of the poles are exposed to middle east to earn foreign exchange. 2x1 =(2mks)
10. (a) (i) Environmental hazard is a danger or disaster or catastrophe within the environment due to natural causes or human activities.
- (ii) Lightning -Drought
 -Windstorm -Volcanic eruptions
 -pests and diseases -Desertification
 -Pollution -Epidemics
 -Nuclear wastes 2x1=(2mks)



- (b) Gases emitted from some factories contain substances which corrode the roofs of houses and metals surfaces.
- Some gases from factories contain substances which make plants die and kill animals
 - Inhalation of smoke and soot particles leads to discomfort and irritation of the respiratory system.
 - Smoke and soot discolour buildings and plants making them ugly.
 - Gases emitted from factories may contain poisonous substances which may lead to poor health or death of people when inhaled.
 - Some gases released into the atmosphere combine with moisture to form acid rain which is harmful to life and property
 - Smoke and smog reduce visibility which may lead to accidents in the roads
 - Gases or excess carbon dioxide increase the temperature, affecting the climate of the affected areas. This may also lead to the depletion of the ozone layer
 - The dust that falls on plants inhibits photosynthesis. 4x2=(8mks)
- (e) Setting up of organizations and institutions e.g. UNEP in Nairobi which coordinates all matters related to environmental management and conservation
- Legislation the government has made laws governing environmental management and conservation e.g. the wildlife conservation Act, the water Act the forest Act etc
 - Education –Public awareness on environmental issues carried out through mass media and seminars
 - Research is being carried out on various aspects of development and how such development affects the environment.
 - Setting up recycling factories.
 - Signing of the Kyoto Accord on international treaty signed where countries agreed to reduce greenhouse gases they emit. 4x2 = (8mks)
- (d) (i) To find out the causes of floods
- To find out the effects of flood any
 - Any other relevant objective 2x1=(2mks)
- (ii) -To ensure proper time management
- To ensure that one remains on the course of study.
 - It is a pointer as to how much time will be required for the study.
 - To ensure that every area is covered adequately Any 2x1=(2mks)
- (iii) Constructions of dams /dams can be built across rivers in order to hold excess water during the rainy seasons
- Construction of dykes /levees, these will contain the water within the river channel
 - Reafforestation – This will increase the rate of interception and water holding by soil-lowering flooding
 - Dredging river channels –This will raise the volume of water they can hold
 - Diversion of river channels in some tributaries can be redirected to lower the volume of water in the lower stretches of rivers thus reducing flooding 3x1=3mks)



Kenya Certificate of Secondary Education (KCSE)

311/1

HISTORY AND GOVERNMENT

PAPER 1

MARKING SCHEME

1. **State two disadvantages of archaeology as source of information on history and government of Kenya.**
 - i) Time consuming.
 - ii) Too expensive.
 - iii) Hard to locate ideological sites. (2mks)

2. **Name two communities that belong to the western Bantu speakers.**
 - i) Abaluhya.
 - ii) Abasuba.
 - iii) Abakuria.
 - iv) Abagusii. (2mks)

3. **State two ways through which iron technology assisted in the migration and settlement of the Bantu.**
 - i) Weapons — conquer other communities.
 - ii) Tools — clear land/way for settlement/migration/ farming. (1mk)

4. **Why did seyyid said more in capital from Muscat to Zanzibar.**
 - i) Zanzibar was royal to him.
 - ii) Zanzibar had fertile soils.
 - iii) The climate of Zanzibar was warm and cool.
 - iv) Zanzibar was centrally placed — to control trade. - Administration. (2mks)

5. **Identify two communities that showed mixed reaction towards the British as they occupied Kenya**
 - i) Agikuyu
 - ii) The Luo
 - iii) The Akamba. (2mks)

6. **Who was the first representative of the Africans in the Legco during colonial period.**
- Dr. Arthur. (1 mk)

7. **What made the East African Association different from the other early associations that were formed in Kenya during colonial period?** (1 mk)
- It was nation wide.

8. **Identify two educational Associations that were formed in central Kenya during colonial period.** (2mks)
KISA — Kikuyu independent schools association.
KKEA — Kikuyu karinaga Educational Association.

9. **State two roles that were played by the Africans in the medical field during colonial period.** (2mks)
 - i) Africans who were Christians were trained as dressers.
 - ii) Chiefs campaigned for western medicine through Baraza's.
 - iii) Taxes were obtained from the local people to improve medical field.



10. **Why did KANU refuse to form a government after the 1961 elections in Kenya** (1 mk)
- On condition that Jomo Kenyatta be released first.
11. **Name the central oath-taking committee that was set up to co-ordinate oath-taking activities of the male freedom fighters.** – Muhimu (1 mk)
12. **Identify one types of citizenship in Kenya.**
- Birth right citizenship.
- Dual citizenship
(1 mk)
13. **Which body supervises the electoral process in Kenya.**
IEBC — Independent Electoral and Boundaries commission.
14. **What is meant by devolution of power in Kenya.**
- Decentralization of power.
15. **What are the roles of Director of Public prosecution in Kenya.**
i) Investigate any information.
ii) Institute or undertake criminal proceedings commenced in any court.
iii) Discontinue a case before judgment is delivered.
iv) Safeguard public interest of abstract and met to avoid abuse. (2mks)
16. **Give one achievement of the local nature councils formed in Kenya in 1924**
i) Collection of taxes.
ii) Maintain basic intrastate.
iii) Provision of basic social needs e.g water, cattle dips.
iv) Restated African activities e.g political agitation. (2mks)
17. **What is promulgation of constitution?** - Passing of the new constitution in public.

SECTION B

Answer any three questions from the section in the answer booklet provided.

18. **a) Give five reasons for the migration of the Bantu from their original homeland into Kenya.**
i) Population increase/pressure.
ii) External attacks.
iii) Internal conflicts.
iv) Adventure/Exploration.
v) Nature calamities e.g drought.
vi) Epidemics e.g diseases.
vii) Were farmers — in search of fertile lands.
viii) Iron workers — weapons — to attack other communities.
- Tools — to clear land for settlement. (5x1 =5mks)
- b) Explain the political organization of the Akikuyu.**
i) Were organized in clans — ridges.
ii) Clans were autonomous — but came together in case of a common enemy.
iii) Mad council of elders-
iv) The council of elders played roles like maintaining law and order solving disputes etc.
v) Under went initiation and formed age-sets that were forces of warriors who protected the community.
vi) Council of elders formed a higher council called kiama kia Athamaki — acted as a court of appeal.
vii) Senior elder (Muramati) co-ordinate the activities of the clan or 'Mbari'



viii) Had a decentralized form of government. (10mks)

19. a) State three reasons why the Akamba were involved in the long Distance Trade in Kenya

- i) They were centrally positioned to act as middle men.
- ii) Unfavourable climatic condition — only economic activity therefore was trade.
- iii) Availability of trade goods.
- iv) Existence of trade routes.
- v) Demand for some commodities of trade.
- vi) Existence of enterprising local traders among the Akamba. (3x1 3mks)

b) Six effects of the long Distance Trade between the East African coast and the interior of East Africa.

- i) Welfare among communities intensified due to the need to obtain slaves.
- ii) It attracted European visitors, who ultimately colonized East Africa.
- iii) Emergence of a class of wealthy merchants along the coast and interior e.g Kivoi of Ukambani.
- iv) Introduction of new crops to East Africa e.g rice.
- v) Increased volume of local and regional trade in the East African interior.
- vi) Growth of towns e.g Mombasa, lamu, pemba, kilwa.
- vii) Spread of Islam into the interior by Arab trade area.
- viii) Development of a money economy that replaced barter trade.
- ix) Led to the development of plantation agriculture.
- x) Emergence of strong kingdoms e.g wanga, Yao and Nyamwezi. (12mks)

20. Give five reasons why the Maasai collaborated with the British.

- i) Need for protection from enemies — Nandi.
- ii) Civil wars — Purko/Kwavi — had weakened them.
- iii) Succession disputes.
- iv) Natural calamities, drought and famine weakened them.
- v) Lenana wanted to consolidate his position and that of his kingdom by collaborating with the British.
- vi) Lenana needed food to save his people from starvation.
- vii) Wanted to be helped to get back their women and children taken by Agikuyu during the 1891 famine.

(5x1 = 5mks)

b) What were the results of the Maasai collaboration with the British?

- i) Land alienation.
- ii) Loss of independence.
- iii) Masaai — used by the British to conquer the resisting communities.
- iv) Lenana was recognized as the paramount chief of the Maasai economic activities were destructed.
- v) Purko Maasai were divided into two sections Loitai and Ngàng.
- vi) Their freedom to conduct rituals was limited.
- vii) Were rewarded with livestock taken from other communities.
- viii) Good relationship existed between the Maasai and British. (10 mks)

21. a) What were the demands of AEMO during colonial period in Kenya.

- i) More Africans to the Legco.
- ii) Against racial discrimination.
- iii) Release of nationalists who had been detained.
- iv) Independence be granted.
- v) Voting rights — be given to all adults of 21 years and above.
- vi) Release of datelines.

- vii) Increase in wages.
- viii) Separates rule for Africans and Asians to be abolished.



- ix) Abolition of discrimination based on races.
- b) Explain five constitutional changes leading to independence in Kenya.**
 - i) Election of Africans to the legco e.g Eliud mathu 1944, B.A Ohango 1946, 1957 elections etc.
 - ii) The lyftleon constitution.
 - iii) Multi-racial council of minister 1St African minster.
 - iv) Elections — 1957 — Africans elected to Legco.
 - v) The lennox Boyd constitution — Africans increased 8-14 special members to Legco.
 - vi) The Lancaster House conference increased Africans 14-33 1960 — emergency lifted - National parties allowed — KANU — KANDU
 - vii) The second Lancaster house conference drafted the independence constitution.
 - viii) 1961 — 1st General election — KANU won-refused to form the government till Kentatta was release. KANDU did so with Ngala as leader of government business.
 - ix) KANDU/KANU formed a coalition government — Ngala and Kenyatta became leader.
 - x) 1 June 1963 — self government Kenyatta — 1 prime minister.
 - xi) December, 12th 1963, Kenya attained full independence.

SECTION C

Answer any two questions from the section in the answer booklet provided.

22. (a) (i)It promotes fairness/justice in society
(ii)It protects human rights
(iii)For preservation of peace and stability
(iv)It preserves societal values
(v)Maintains order in society
(vi)It ensures respect for authority
(vii)To ensure national progress and development (any 5, 5 marks)
- (b) (i)Establishing an independent court system to try offenders
(ii)Suspected criminals are tried in a court of law and if found guilty are sentenced
(iii)Allowing those proved guilty a chance to appeal against the judgment
(iv)Empowering parliament to control the excesses of the executive
(v)Giving every accused person a chance to have his defense with the help of a legal representative
(vi)Ensuring the concept of the rule of law is strictly adhered to (any 5, 10 marks)
23. **a) State five factors that make it difficulty for the prisons department in Kenya to work effectively.**
- i) Congestion leading, to out break of diseases.
 - ii) Inadequate food, medical facilities and clothing for inmates.
 - iii) Some inmates have become hardened thus difficult to rehabilitate.
 - iv) Corruption in prisons has forced some prisoners to pay so as to get better services.
 - v) Shortage of trained counselors to assist in reforming the inmates effectively.
 - vi) Inadequate number of prison warders leads to over working hence brutal handling of prisoners.
 - vii) Inadequate finances has led to poor services such as food.
 - viii) Increased number of prisoners has led to poor living conditions.
 - ix) Political interference.
 - x) Inadequate facilities e.g vehicles. (5mks)
- b) What has the government of Kenya done to improve the situation in prisons?**
- i) Prisoners have decent uniform.
 - ii) There has been a change and improved diets in prisons.
 - iii) Improved living and sanitary conditions.
 - iv) Allowing visits by spouses among married prisoners.



- v) An allowance of Kshs. 60 per day for work done while in prisons to be given to prisoners.
- vi) Prisoners watch, read and listen to news.
- vii) Distance learning from Strathmore collage to enable them study accounts etc.
- vii) Provision of computer technology to the prisoners.

- 24**
- (a)
 - (i) Tax evasion by individuals or companies
 - (ii) Wrong information in wealth declaration
 - (iii) Embezzlement of funds by government officers who collect revenue
 - (iv) Many rich Kenyans keep their money in foreign accounts instead of investing in
 - (v) Many people lack information on how they can invest with the government through treasury bills, shares etc.

 - (b)
 - (i) Parliament approves estimates of ministries and money voted to them
 - (ii) Parliament approves supplementary estimates and demands an explanation why money has been returned to the treasury
 - (iii) All government contracts are publicly advertised for the awarding of tenders and awards
 - (iv) Permanent secretaries in ministries are the chief accounting officers and must see that regulations pertaining to expenditure in the ministries are strictly adhered to
 - (v) Only those who have authority to incur expenditure do so
 - (vi) All government money spent must be proved with valid documents
 - (vii) The government established the Kenya Anti-corruption Commission to ensure that justice is meted out on corrupt officers in government
 - (viii) The government has put in place mechanisms to curb revenue evasion e.g X-Ray scanners at the Mombasa port, ETR etc
 - (ix) The controller and Auditor-General audits ministries and government departments and reports findings to parliament
 - (x) There are parliamentary committees responsible for all the reports from ministries and departments allocated funds
- (Any 5, 10 marks)



Kenya Certificate of Secondary Education (KCSE)

441/1
HOME SCIENCE
PAPER 1
Theory
TIME: 2 ½ HOURS

**MARKING SCHEME
SECTION A-(40MKS)**

1. **Qualities in hand sewing needle.** **(2mks)**
 - Fairy sharp and fine to easily slope through the fabric without leaving behind ugly marks.
 - Stainless steel free from rust which would otherwise stain and discolour the fabric.
 - Smooth eye for easy threading, rough eye easily cuts the thread.
 - Correct size in relationship to the purpose it is purchased for.

(2x1=2mks)
2. **Disadvantages of relying on solar energy in the home.** **(3mks)**
 - The battery requires frequent replacement and this can be expensive.
 - In case of prolonged cloud cover, the means shortage of solar power.
 - Its use is mainly limited to lightening and operating of electricity appliances but not cooking.

(1x3=3mks)
3. **Two conspicuous seams.** **(2mks)**
 - Double stitched seam.
 - Overlaid seam.

(1x2=2mks)
4. **Qualities of a good dust bin.** **(2mks)**
 - Should be strong
 - Well fitting lid.
 - Large enough.
 - Rust proof.

(Any two 2x1=2mks)
5. **Coating food before deep frying** **(3mks)**
 - Prevent from breaking into pieces.
 - Prevent from overcooking.
 - Improve its appearance.
 - Prevent food from being too greasy.

(Any 3x1=3mks)
6. **Causes of anaemia.** **(3mks)**
 - Genetic (sickle cell)
 - Excessive loss of blood.
 - Sickness e.g. malaria leukaemia.
 - Parasites e.g. hook worm

(Any 3x1=3mks)
7. **Uses of fats in cookery.** **(3mks)**
 - Cut short gluten strands.
 - Soften mixtures.
 - Add flavour and colour.
 - Increase shelf life.

(Any 3x1=3mks)



- 8. Reasons for blending vegetables before freezing. (3mks)**
- Help retain colours.
 - Reduce bulkiness.
 - Retain nutrients.
 - Discontinue the working of enzymes.
- (Any 3x1=3mks)
- 9. Two disadvantages of convenience food. (2mks)**
- A lot of additives e.g Preservatives, colouring.
 - More expensive than French foods.
 - Nutritive value maybe inferior to that of French food.
 - Can easily cause food poisoning if poorly preserved.
 - Shelf life has expired.
 - Likely to be contaminated during processing and packaging.
- (Any 2x1=2mks)
- 10. Two reasons why a lactating mother would have inadequate milk. (2mks)**
- Due to psychological seam.
 - Poor diet e.g. less fluids
 - Sickness.
 - Mother not breast feeding frequently.
- (Any 2x1=2mks)
- 11. Why clothes are steeped. (2mks)**
- Loosen dirt.
 - Dissolved water based stains.
 - Soften starch.
 - Wetting the fabric to make working easier.
- (1x2=2mks)
- 12. Why interfacing is done on collars, cuffs and bands . (2mks)**
- Bring out edges of the area.
 - Gives them body.
 - Prevents sagging of the area
- (Any 2x1=2mks)
- 13. Reasons why a consumer needs protection. (4mks)**
- Goods and services are of good quality.
 - Goods and services are provided at the correct quantities.
 - Prices charged for goods and services are fair .
 - The consumer gets right information.
 - Health of the consumer is maintained.
 - Commodities are available.
 - The consumer enjoys the right to compensation.
- (any 4x1-4mks)
- 14. Four types of weaning. (2mks)**
- Abrupt weaning.
 - Partial weaning.
 - Gradual weaning.
 - Natural weaning.
- 15. Dangers of excess weight gain during pregnancy. (3mks)**
- Can cause varicose veins.
 - Can cause stretch marks.



- Increase fatigue in an expectant mother.
- Increase pressure on the heart.
- One may not loose weight after delivery.

(Any 3x1=3mks)

16. Desirable qualities of baking flour.

(2mks)

- Should have correct amount of gluten.
- Finely ground.
- No foreign bodies.
- Correct colour.
- Without lumps.
- Fresh with no odour of staleness/not expired.

(Any 4x 1/2 =2.)

17. Why a shopping list is useful to the consumer

(1mk)

- To ensure that no item is forgotten.
- Helps one to keep within the list items.
- Reduces chances of overspending.

(Any 2x 1/2 =1mk)

Section B-20mks (Compulsory)**18. a) Launder a white tea towel with an old tea stain.**

(8mks)

- i) Cover with borax 1/2 then pour boiling 1/2 water through the stain to loosen the stain 1/2 .
- ii) Soak 1/2 in cold water 1/2 to loosen dirt 1/2
- iii) Wash in hand hot 1/2 soapy water using friction 1/2 to remove fixed dirt.
- iv) Rinse severally in warm water 1/2 to remove traces of soap and dirt 1/2
- v) Boiling 1/2 to disinfect.
- vi) Rinse finally 1/2 in cold water 1/2 using out excess water.
- vii) Dry in direct sunshine 1/2
- viii) When dry, press 1/2 with a fairly hot iron 1/2

(1/2 x 16=8mks)

b) Wash a neglected aluminium pan

(4mks)

-Wash in hot 1/2 soapy 1/2 water using scouring pad 1/2 to remove stains 1/2 rinse 1/2 severally 1/2 using hot 1/2 water. Wipe dry 1/2 with a kitchen cloth to prevent water mark.

(1/2 x 8 =4mks)

c) Weekly clean the kitchen floor made of terrazzo.

(8mks)

- i) Sweep 1/2 the floor to remove loose dirt 1/2 dust the skirting board 1/2 .
- ii) Scrub 1/2 using warm 1/2 soapy 1/2 water working a small section 1/2 at a time.
Overlapping 1/2 the section to ensure complete removal of dirt 1/2
- iii) Clean with a cloth 1/2 wrung out of warm 12 water to remove traces of soap and dirt 1/2
- iv) Dry thoroughly 1/2 with a dry floor cloth 1/2
- v) Rub hard 1/2 with a dry cloth to buff 1/2



Section C 40 mks.

- 19. a) Precautionary measures to take while deep frying foods. (5mks)**
- Do not fill the pan more than $\frac{2}{3}$ full to avoid oil overflow.
 - Lower the food gently into the oil to avoid splashing on the ground.
 - Heat the fat Just to the right temperature to avoid catching fire.
 - Avoid spilling water into the hot fat to prevent fire outbreak/burning.
 - Balance the pan / sufuria well on the cooker to prevent accidents as it may tipple over.
 - Keep the fat away from reach to prevent burning for it to cool.
- (1x5=5mks)**
- b) Ways of finishing the lower edge of a short sleeved blouse decoratively. (5mks)**
- Scalloping /shell edging.
 - Binding with contrasting colour
 - Facing with contrasting colour.
 - Putting a frill.
 - Applying lace.
 - Embroidery of loop stitchery
 - Crocheting.
- c) Five points a consumer should consider before buying an item (5mks)**
- The cost of the item should be affordable.
 - The quality of the item and its durability
 - Buy an item which is versatile. It will be more useful i.e. a kitchen knife should be used for other jobs.
 - Style and design of the item in relation to ease and comfort in use.
 - The item being bought should be attractive in appearance.
 - Window shop to compare prices and qualities.
 - Do not purchase on impulse.
 - Read labels.
- (1x5=5mks)**
- d) Considerations to make when finishing a living / sitting room. (5mks)**
- Money available
 - Furnishing should be easy to care for.
 - Furnishing should conform to the colour scheme.
 - Furnishing should be of good workmanship
 - Size of the furnishing should be suitable to the size of the room.
 - The furnishings should have attractive design.
 - The furnishing should be durable.
- (5x1=5mks)**



20. a) Explain factors that influence the cleaning frequency of a home.

(10mks)

- Amount of dust and dirt brought in it this can vary according to its location and season 2mks
- Use of the house or particular room in the house e.g. toilets, bedrooms, kitchen need more frequent attention than other rooms.
- The occupants e.g. a house with young children needs more attention because they make it dirty & hygiene should be at its highest.
- The conditions of the home or surface e.g. cracked floors need frequent cleaning than smooth ones they collect more dust than smooth ones.
- Available time for cleaning.
- Cleaning equipments and material available.

(10mks)

b) Points to observe when fixing fastening onto a garment.

(5mks)

- Fasteners must be shown on double fabric.
- Be sufficient in number so that opening can be kept closed.
- Be evenly spaced e.g. buttons.
- Be sown directly opposite each other so that the opening will be flat when fastened.
- For thick fabrics, sufficient space be allowed between button and overlap.

1x5=5mks

c) Ensuring that left over foods do not go bad in the absence of a refrigerator. (5mks)

- Place in small containers.
- Should be well covered.
- Cool before placing in a cupboard.
- Wrap in grease proof paper, foil and polythene.
- Discard any food showing signs of spoilage.

21. a) Making a single pointed dart.

(5mks)

- Mark the position of the dart.
- Fold the fabric R.S together on the W.S and tack.
- Machine stitch along the tacking beginning from the wide part of the tapering end.
- Remove tacking stitches.
- Press the dart to the centre back & the centre front.

(5mks)

b) Signs and symptoms of pregnancy.

(5mks)

- Stopping menstrual periods.
- Nausea or morning sickness during the first 3-4 months of pregnancy.
- Frequent desire to pass urine.
- Strong like or dislike of certain foods
- Enlargements of breasts.



- Tenderness of nipples.
- Bulging the abdomen.
- Dark line on the abdomen running from the navel downwards.
- Movement of the foetus which is felt at about fifth month of pregnancy.
- Some changes in skin complexion. The mother may become smooth and lighten or the opposite.
- Some expectant mothers experience heart burn or frequent constipation

c) Food hygiene practice.

- Wear protective clothing to prevent contaminating from out
- Cover the hair to prevent it falling in food.
- Wash hands well before handling food to avoid contaminating food.
- Avoid habits like testing food using fingers to avoid dirt getting into the mouth
- Persons suffering from diarrhoea, typhoid, cholera, dysentery, T.B e.t.c should not handle food.
- Kitchen equipments should be clean to avoid dirt getting into the food.

(10mks)

Kenya Certificate of Secondary Education (K.C.S.E)

441/2

HOME SCIENCE

PAPER 2

MARKING SCHEME

	PROCESS	MAX. SCORE	ACTUAL SCORE	REMARKS
1.	<u>PRESENTATION</u>			
	a) Work well pressed ½ and well folded ½	1		
	b) Label firmly fixed ½ on a single ½ fabric Pins ½ unnecessary temporarily stitches removed ½ . short made up left leg.	1 1 1 1		
	Sub-Total	3		
2.	<u>CUTTING OUT</u>			
	a) short C.F smoothly cut ½ short C.F cut on straight grain ½ to within 2mm.	1		
	b) Short CB smoothly cut ½ short CB cut on straight grain to within 2mm ½	1		
	c) Waist band CF smoothly cut ½ on straight grain ½ to within 2mm.	1		
	d) Facing smoothly cut ½ on straight grain ½	2		
	e) Pocket well cut	1		
	Sub-total	6		
	Area of assessment			
3.	Dart.			
	a) straight stitchery (1) of dart back and tapering (1) to nothing	2		
	b) Cosreed length of base dart (1)measure.	1		
	c) Pressed toward C.B (1)	1		
	d) Stitchery reinforced to the point (1)	1		
	e) Correct width of dart 1 of dart flat on R.S 1	1		
	Sub-total	7		
4.	Pocket.			
	a) All edge well tacked in 1	1		
	b) Triangular bottom well clipped 1	1		
	c) Correct shape 1	1		
	d) Reinforced fat mouth 1	1		
	e) Correct size 1 and length 1 F. pocket pressed flat on both R.S and W.S	1		
	Sub-total	7		
5.	Machine fell seam.			
	-Straight stichery of line 1	1		
	-Straight stitchery of second stitching line close to fold.			
	-Fell neatly tucked under (no your visible)	1		
	-Evenness of fell	1		



	-Correct width of fell 6mm to within 2mm.	1		
	-Features of the seam R.S and W.S.	1		
	-Seam worked on the R.S fell pressed towards back.	1		
	Sub-total	8		
6.	Open seam:			
	-Open seam at the side .	1		
	-Straight stitchery.	1		
	-Seam un neatened but raw edges even.	1		
	-Seam open and flat	1		
	Sub- total	4		
7.	Facing.			
	-Preparation of the facing 1	1		
	-Attaching it neatly at lower edge of short	1		
	-Free edge of the facing well tucked in to form a turn up at short hem.	1		
	-edge well machine stitched.	1		
	Sub-Total.	4		
8.	Waist bend.			
	-Even width of waist bend 1	1		
	-Quality of knife-edge of waist band	1		
	-Quality of attaching of the waistband to the skin-1 (Mark by impression)	1		
	-Quality of hamming 2	1		
	Sub-total	5		
	Total	45		



Kenya Certificate of Secondary Education (KCSE)

441/3

HOME SCIENCE (FOOD AND NUTRITION)**Paper 3****(PRACTICAL)****Time: 1 ¾ HOURS****MARKING SCHEME**

NAME:.....

INDEX NO.....

SCHOOL:.....

SESSION

TEACHER:

AREAS OF ASSESSMENT	MAX SCORE	ACTUAL SCORE	REMARKS
1. Plan recipe - Availability - Collect qualities suitability - Suitability Order of work - Availability - Proper sequencing List of food stuffs, materials and equipment - Availability - Adequacy - Appropriateness	1 1 1 ½ ½ 1 1 ½		
Sub-Total	6 ½		
2. Preparation correct procedure - Carbohydrate meal - Protein - Vitamins/ minerals - Fruit salad - Cooking methods at least two Quality of results - Carbohydrate meal - Protein	1 1 1 1 1 1 1		



- Vitamins/ minerals	1 ½		
- Fruit salad	1		
	8 ½		
3. Presentation utensils			
- Appropriateness	1		
- Cleanliness	1		
- General impression	1		
- Garnishing	½		
- Centre piece	½		
Sub Total	4		
4. General Hygiene			
- Personal	1		
- Food	1		
Sub Total	2		
5. Economy of resources			
- Water	½		
- Food	½		
- Fuel	½		
-Material	½		
Sub Total	2		
6. Cleaning up			
- During work	1		
- After work	1		
Sub Total	2		



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KISWAHILI

KARATASI YA 1

INSHA

Mwongozo wa Kusahihisha.

USAHIHISHAJI

Karatasi hii imedhamiria kutahini uwezo wa mtahiniwa wa kuwasiliana na msemaji. Mawasiliano haya yatategemea ukweli wa lugha ya mtahiniwa: kutunga sentensi sahihi, insha yenye utiririko mzuri wa kimawazo na lugha ya kuvutia na yenye asilia.

Viwango vya kukadiria insha.

KIWANGO CHA D.

MAKI 01-05

1. Insha ya aina hii haieleweki kwa vyovyote, mtahiniwa ametumia lugha hafifu na isiyoeleweka.
2. Mtahiniwa hana uwezo wa kutumia maneno ya Kiswahili kwa njia inayofaa.
3. Lugha imevurugika, uakifishaji usiofa na insha ina makosa ya kila aina.

VIWANGO TOFAUTI VYA D.

D-(KIWANGO CHA CHINI)

Maki 1-2

Insha haina mpangilio maalum na haieleweki kwa vyovyote vile. Mtahiniwa amejitungia swali.

D(WASTANI)

Maki 03.

Mtiririko wa mawazo haupo, na insha haieleweki, makosa mengi.

D+ (WASTANI)

Insha hii ina makosa mengi ya kila aina. Lakini unaweza kutambua kile ambacho mtahiniwa anajaribu kusema. Insha ina lugha dhaifu ya Kiswahili na haina mpangilio. Inawasilisha ujumbe kwa njia isiyoeleweka kikamilifu.

Hana uhakika wa matumizi ya lugha na hupotoka hapa na pale. Mpangilio wa insha ni hafifu na mtiririko hujirudia.

Mtahiniwa ana athari za lugha ya kwanza.

VIWANGO TOFAUTI VYA C.

C- Maki 06-07.

Mtahiniwa ana shida ya kuwasilisha mawazo yake.

Hana msamiati wa kutosha.

Mada haijakuzwa kwa njia inayofaa.

Ana makosa mengi ya sarufi na tahajia.

C (wastani) 08.

Anawasilisha ujumbe lakini kwa njia hafifu hana ubunifu wa kutosha na dhana tofauti hazitokezi wazi.



Uakifishaji wa sentensi za si mzuri.
Amejaribu kushughulikia mada aliyopewa.
Ana makosa ya ijai, sarufi na msamiati.

C+ (KIWANGO CHA JUU) Maki 09-10.

- i) Mtahiniwa anawasilisha ujumbe vizuri kwa njia isiyo na motto.
- ii) Dhana tofauti zimeanza kujitokeza japo kwa njia hafifu.
- iii) kuna utiririko wa mawazo na japo kuna ufundi wa lugha unafaa.
- iv) Misemo, methali na tanakali za sauti zimetumiwa kwa njia hafifu.
- v) Anashughulikia mada aliyopewa kwa utiririko mzuri.
- vi) Kuna makosa ya sarufi, msamiati na hijai lakini bado inaeleweka.

B- (KIWANGO CHA CHINI) maki 11-12.

- i) Mtahiniwa anawasilisha ujumbe wake kwa kuonyesha hoja tofauti tofauti.
- ii) Kuna utiririko mzuri wa mawazo.
- iii) Ana uwezo wa kutumia miundo tofauti ya sentensi.
- iv) Makosa ni tofauti ya hapa na pale.

B (WASTANI) maki 13.

- i) Mtahiniwa anadhihirisha hali ya kuimudu lugha.
- ii) Anawasilisha ujumbe wake waziwazi kwa mawazo yanayodhihirika.
- iii) Matumizi ya lugha ya mnato yamejitokeza.
- iv) Anatomia mifano michache ya msamiati mwafaka.
- v) Matumizi ya tamathali za usemi yanaanza kudhihirika.
- vi) Makosa yanaweza kutokea hapa na pale.

B+ (KIWANGO CHA JUU) maki 14-15.

- i) Mawazo ya mtahiniwa yanadhihirika.
- ii) Mtahiniwa anawasilisha ujumbe wake kwa njia inayovutia na kwa urahisi.
- iii) Uteuzi wake wa msamiati ni mzuri.
- iv) Sarufi yake ni nzuri.
- v) Uakifishaji wake ni mzuri.
- vi) Kuna makosa ya hapa na pale.

A-(KIWANGO CHA CHINI) maki 16-17.

- i) Mtahiniwa huhahirisha ukomavu wa lugha.
- ii) Ana utiririko mzuri wa mawazo kulingana na mada.
- iii) Anapamba lugha kwa kutumia tamathali za usemi.
- iv) Uakifishaji wake ni mzuri zaidi.
- v) Makosa machache ya hapa na pale.
- vi) Anazingatia matumizi mazuri ya msamiati na sarufi.

A(WASTANI) maki 18.

- i) Mawazo yanadhihirika zaidi.
- ii) Anatomia lugha mnato.
- iii) Anatomia msamiati wa hali ya juu na unavutia.
- iv) Sarufi yake ninzuri.
- v) Anatomia miundo tofauti tofauti ya sentensi kifundi.
- vi) Anajieleza kikamilifu.
- vii) Makosa machache ya hapa na pale.



A+ (KIWANGO CHA JUU) maki 19-20.
 Mtahiniwa anawasilisha ujumbe wake kulingana na mada.
 Anadhihirisha mawazo yake vizuri zaidi.
 Anajieleza kikamilifu bila shida.
 Anatoa hoja zilizokomaa.
 Msaniati wake ni wa hali ya juu.
 Makosa ya aina yoyote yasizidi matano.
 Jumla ya makosa yasizidi matano.

JINSI YA KUTUZA INSHA MBALIMBALI.

1. Mtahiniwa asipozingatia sura ya insha aondeewe maki 4(nne) baada ya kutuzwa.
2. Insha isiyotosheleza idadi ya aneno aondolewe maki 2(mbili) baada ya kutuzwa.
3. Mtindo ya kuandika herufi tofauti isiingilie sana utahini.
4. Hati ya mtahiniwa isitiliwe maanani mno.

ALAMA	MAKI.
A+	19-20
A	18
A-	16-17
B+	14-15
B	13
B-	11-12
C+	09-10
C	08
C-	06-07
D+	04-05
D	03
D-	01-02

MAKOSA MBALIMBALI.

SARUFI.

- i) Matumizi mabaya ya herufi kubwa na ndogo.
- ii) Maendelezo mabaya ya ngeli K.M ng'ombe inakimbia.
- iii) Matumizi mabaya ya nyakati.
- iv) Kukosa kuakifisha au kutumia alama ya kuakifisha mahali pasipofaa.
- v) Kuanzia sentensi kwa kistari. Mfano –Baba alienda shambani.
- vi) Kuacha neon -mimi kwenda shambani.
- vii) Kurudia neon -mimi mimi sipendi chakula.
- viii) Kukosa kutonesha.

MAKOSA YA HIJAI.

- i) Kuunganisha maneno k.m kwasababu.
- ii) Kutenganisha maneno k.m aliye kuja.
- iii) Kuendeleza neon vibaya k.m aliekuja.
- iv) Kuongeza herufi katika neon. K.m kuwa badala ya kua
- v) Kuacha herufi katika neon k.m hakik badala ya hakika.
- vi) Kufupisha maneno kama vile n.k, k.v, k.m
- vii) Kukata silabi vibaya
- viii) Kukosa kueka ritifaa kwa mfano ngombe badala ya ng'ombe.



ALAMA ZA MATUMIZI.

1. Maudhui ✓
2. Sarufi i)= ii) ^ achwa.
3. Hijai _____
4. Msamiati ✓ au x msamiati mbaya.

SWALI LA KWANNZA

SURA YA TAWASIFU.

- i) insha iwe na kichwa.
 - ii) sehemu ya utangulizi ielezee maisha ya mwandishi.
 - iii) Mwili wa tawasifu utoe maelezo kuhusu elimu, hitimu, tabriba, pandashuka na mafanikio ya mwandishi.
 - iv) Mtahiniwa awe msimulizi katika insha hii.
 - v) matukio yapangwe kiwakati.
 - vi) Mwishoni mwa insha hii, msimulizi ajishashue kwa kuonyesha uzuri wake
 - vii) Kuweco orodha ya wadhamini.
- (Mtahiniwa asipozingatiwa sura ya insha aondolewe alama 4.)

2. Swali la 2.

Manufaa.

- i) Hurahisisha mawasiliano.
- ii) Hutumiwa kuburudisha
- iii) Hurahisisha masomo kwa wasomi.
- iv) Husaidia kuhifadh ujumbe kirahisi.
- v) Husaidia watu kufanya kazi hata wakiwa nyumbani au popote.
- vi) Walemavu hasa wasioandika huwasaidia kuwasiliana
- vii) Hufanya kazi nyingi ikiunganishwa na binadamu.

Hasara.

- i) Huendeleza upotezaji wa wakati.
 - ii) Hupuja wanaandishi wa vitabu.
 - iii) Huendeleza maovu kwa mfano taarifa za siri za mtu kuenezwa kiharaka.
 - iv) Huhitaji fedha nyingi kununua.
 - v) Huathiri macho.
 - vi) Huonyesha picha na video potovu kwa watoto.
- (Mtahiniwa lazima atoe hoja pande zote yaani faida na hasara)

Swali la 3.

Mla cha mwenziwe na chake huliwa.

Methali hii ni sawa na mhini na mhiniwa njia yao ni moja.

Methali hii humaanisha kuwa amfanyiae mwenzakeyasiyo ya haki naye pia atafanyiwa vivyo hivyo.

- Mwanafunzi atoe maana ya nje na dani
- Asipotoa maaa asikosolewe.
- Atoe kisa kinachoafikiana na methali.

4. Swali la 4.

Walikumbatiana kumbatu. Machozi yakapita nyusoni kwa hiari na kufanya nguo kubana.

Kilichopendeza na muhimu ni kuwa walirudiana tena hakuna tofauti tena.

Mtahiwa atoe kisa kinachonyesha jinsi watu waliokosana walivyopatana/kusameheana.





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KISWAHILI

KARATASI YA 2

LUGHA

Mwongozo wa Kusahihisha.

1. Ufahamu (Alama 15)
- a) Ameshindwa kuelewa dhana ya demokrasia. Dhana hii ina fasiri nyingi kutegemea lengo la mtu/kundi la watu/ mahali wanapoishi. **2x1=alama2**
- b) i) Pale umma utakapojikomboa kimawazo.
ii) Kwa ujasiri kudai huduma bora.
iii) Uajibikaji pamoja na kuheshimiwa kwa mkataba wa kijamii. **Zozote 2x1=alama2.**
- c) i) Kinyang'anyiro cha madaraka.
ii) Wasio wa madaraka watumia kila mbinu kuyapata.
iii) Walio madarakani hawataki kubanduka – hutafuta visababu vya kusalia madarakani. **Zozote 2x1=alama 2.**
- d) i) Maafa.
ii) Uharibifu wa mali.
iii) Majeraha.
iv) Ukimbizi wa raia nje na ndani ya mataifa hisika.
v) Dhuluma za kimapenzi dhidi ya wanawake.
vi) Uhasama wa kikabila.
vii) Ukuzasaa kwa aina mbalimbali ya magonjwa. **Zozote 4x1=alama4.**
- e) i) Hutumiwa na tabaka la viongozi kujjinadi hasa wakati wa uchaguzi.
ii) Wanasisia hujifanya kuwa wanayajali maslahi ya wanajamii kumbe huruma zao ni kilio cha mamba. **2x1=alama2**
- f) i) Mafahali -wachochole,maskini,raia penye ukavu.
ii) Wanatupikia majungu -wanatufitini au wanatukosanisha.
iii) Ukarabati -Urekebishaji, utengenezaji, kubamanya.

2. MUHTASARI. (alama 15)

- a) i) Kuwajibika kufanya kazi.
ii) Watie bidii.
iii) Wafanye kazi kwa busara, adabu njema na moyo mmoja (kujitolea)
iv) Wazidishe mazao mashambani ili wawe na chakula cha kutosha.
v) Wajishughulisha na biashara wasitegemee kuajiriwa tu
vi) Wajishughulisha kuleta uchumi katika mikono ya wananchi wa Kenya badala

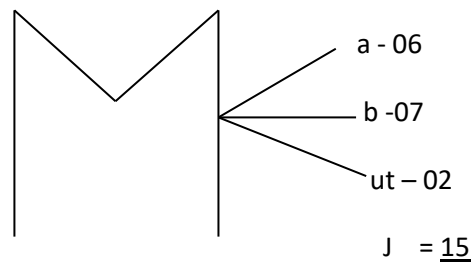


- ya kuwaacha wasihisike.
vii) Wazingatie elimu ya wote, kilimo, uchumi na amani.

Zozote 6x1=al.6

- b) i) Ukosefu wa elimu.
ii) Kutojihisisha katika biashara.
iii) Kutegemea ajira pekee.
iv) Kuacha uchumi wanchi mikononi mwa wageni.
v) Kukosa elimu tambuzi/ kuwa na elimu pambao.
vi) Kuchagua viongozi kwa misingi ya kikatiba na utajiri.
vii) Ukosefu wa ushirikiano.
viii) Uzembe.

Zozote 7x1=1.7



- a) dh -nzito/ ghuna -al.1
th -hafifu/sighuna -al1.
- b) i) Juma ni mlevi Ktz
ii) Ameenda darasani -kielezi } al.2
- c) i) Mtu/watu wamefanya hivyo kwa niaba yao.
ii) Kulazimishwa /kushurutishwa.
- d) Nyakati za kangazi kuna matatizo yanayokumba zaraa. Atakaebadilishia neon kiangazi na zaraa =0
 $4x \frac{1}{2} = al.2.$
- e) Fatuma alisema kuwa Sofia alikuwa amemletea nguo yake siku iliyotangulia na angeivaa siku ambayo ingefuata akienda Nairobi.
 $6x \frac{1}{2} = al.3.$
- f) i) Hali ya kuendelea/ kitenzi kishirikishi kikamilifu.
ii) kutowezekana /hamna matumizi
(alama 2)
- g) i) Baba -kitendo
ii) Pesa -kipozi
iii) Rununu -Ala. } alama 3.
- h) S → KN + KT
KN → N + S
N → Mwanafunzi



S → Aliyeumia jana
 KT → T+E
 T → Amepelekwa
 E → Hospitalini.

8x ½ =al.4

- i) Kipaka kilimrarua kinguo chake.
 Kijipaka kilimrarua kijinguo chake.

Zozote sahihi =al.2

- j) Ungekua na nia safi angekusamehe. (al.2)
 Akikosa upande mmoja =0.

- k) i) Mtu anayekula mkate ameagiza aletewe chai.
 ii) Mtu ambay anakula mkate ameagiza aletewe chai.
 iii) Mtu anaye mkate ameagiza aletewe chai.

Lolote/sahihi =al2.

Lazima kuagiza kutajwe ndiposa apate alama.

- L) Ni vigumu kwa watoto wasio thamini wazazi wao kufanikiwa maishani. Al.2

- M) Nani alyekikata chandarua changu kwa wembe? Sasa sitaweaza kusafiri nilikotoka kule Malaba. Ninamtaka aje aniombe msamaha.

6x ½ =al3.

- N) Kitenzi kishirikishi kipungufu. } Wameridhiana.
 Kukubali/kusisitiza } wa-me-awali- al 1
 Kivumishi kiashiria } an-a-tamati- al.1
 Jinsi/namna. } Zozote 2x1=al2.

- o) Wanafunzi ambao hupita mtihani husherehekea. al1

- p) Mwalimu mwanamke allitufunza. (al. 1) (kadina)

- q) Kirai nomino – walimu wa Kiswahili.

- r) Mvulana mmoja ametalikiwa.
 Akiandika msichana =0.

Al.1

- S) i) Changamano al.1
 ii) Ambatano al.1

4. ISIMU JAMII (ALAMA 10)

- a) **Maana ya lusha.**

Ni mfumo wa sauti/ ni chombo cha mawasiliano ya binadamu ambacho hutumia ishara na sauti nasibu zilizo na mpangilio maalum.

- b) **Sifa za lusha.**

- i) Hakuna lugha iliyo bora kushinda zingine. –zote ni sawa.
 ii) Kila lugha ina sifa zake.
 iii) Lugha hubadilika kutegemea mazingira, aina ya tukio, wakati na matumizi ya lugha hiyo.
 iv) Lugha ina uwezo kukua, mfano Kiswahili kimebuni msamiati TEHAMA (Teknolojia ya habari na mawasiliano.)
 v) Lugha pia hukja kwa msamiati wake kupotea n.k



Za mwanzo 4x1=a14.

C) Sifa za sajili za maabadini (Al. 5)

- i) Lugha ya heshima.
- ii) Lugha ya upole.
- iii) Matumizi ya maneno/msamiati –hekaya, amen
- iv) Ushawishi.
- v) Vitisho.
- vi) Kuchanganya ndimi.
- vii) Ukalimani.
- viii) Kurejelea vitabu vitakatifu.
- ix) Nyimbo za kusifu n.k.

Za mwanzo 5x1=a15.



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KISWAHILI

KARATASI YA 3

FASIHI

Mwongozo wa Kusahihisha.

1. Fafanua changamoto zilimkumba Fikirini ughaibuni huku ukirejelea hadithi ya damu nyeusi. (alama.10)

- Fikini anabaguliwa anapoachwa kituoni na basi ambalo dereva alikuwa mzungu. Dreva huyo alimuona Fikirini kama mghaidi.
- Anaposahau kufungs zipu yake ya kutoka msalani, anasingiziwa kuwa anaonyesha uchi wake kwa watu.
- Alipokua anavuka barabara anashikwa na kutozwa faini na askari kuwa hafai kuvuka hapo ilhali wazungu wengine wanavuka.
- Fikirini alipoingia dukani, mlinzi wa duka anamfuata kila mahali aendapo eti Fikirini anaonekana kama mdokozi wa bidhaa.
- Fiona anamsingizia ubakaji ilhali yeye ndiye anayemtaka washiriki naye kimapenzi.
- Fikirini anaulizwa maswali mengi yassiyodhirisha kuhusu Afrika na waafrika kwa mfano “Mbona waafrika ni weusi waliangukiwa na lami?”
- Anashindwa kula chakula kule kwani anafikiria chakula nyumbani kwao Afrika.
- Hakuna anayetaka kumsaidia; kila anayemuona au anayemzungumzia karibu hutoroka na kumwacha pekee yake; anaishi upweke.
- Fiona na Bob walitaka kumua na kumkata mrija nao walikua waaafrika wenzake.

(Hoja zozote $10 \times 2 = 20$)

SEHEMU YA B: KIDAGAA KIMEMWOZEA.

**2. a) Jadili maudhui ya:
i) Uongozi mbaya. (al.10)**

- Mudir wa wilaya alitumia cheo chake visivyo kwa kupangaza Nasaba bora uongozi wa jimbo la sokomoko ambalo hakustahili kupewa.
- Baada ya mtemi kupata uongozi aliwadhulumu watu wa sokomoko. Alinyakua mashamba ya watu, alifanya njama ya kuwaua wengine na kuwatia wengine mbaroni kwa mfano Chirichiri Hanadi na Yusufu Hamadi, babuye na amu yake Amani.
- Kila mtu alipaswa kufuata nyayo za mtemi bila kupinga.
- Mtemi aliwaajiri watu wa kuendesha propaganda kuwa viongozi wake ulikuwa bora lakini ufisadi ulimshamiri, bwana balozi alihutubu akisema kuwa mtemi nasaba bora alikuwa kiongozi mwenye utambuzi na aliyetabasuri kuliko wazungu wote wakiwekwa pamoja.
- Viongozi hawakuthamini wananchi, baada ya kuadhimisha siku kuu ya wazalendo watu walishikwa na walifungwa msalani kuwa ndio gereza lao, hata wa jinsia zote walifungwa humo. K.m mzee Mtuko, Imani na Amani wanafungwa seli moja. Waliteswa, kupigwa na kutopewa chakula kwa amri ya mtemi, mfano mzee Mtuko weye aliye kashifu uongozi wa Nasaba bora katika mkutano wa siku kuu ya wazalendo alitiwa mbaroni na kuteswa.



- watu walifungiwa na kutuhimiwa bila upelelezi wa kutosha k.m Amani na Imani wanafungwa kwa hutuma za kumua uhuru bila kufanya uchunguzi wowote. Mtemi Nasaba bora alionelea ni bora wafungwa kuteswa gerezani badala ya kufishwa kortini, aliwaambia wakawafanyie kazi kama kawaida.
- Mtmi Nasaba bora aliwaadhibu watu wengi wa sokomoko kwa kutowachanja mbwa wake ilhali wake mwenyewe hakuthubutu kumchanja.
- Viongozi wanatawala kwa njia isiyostahili na hawaridhishi wananchi, walitumia njia za uongo kusalia uongozini k.m mtemi Nasaba anasema kuwa wakati nduguye mwalimu majisifu alipokuwa mhariri wa gazeti la tomoko leo ilikua ni ada kwa picha yake kuchapishwa katika gazeti hilo.
- Vyombo vya dola vina tumiwa vibaya na viongozi wa mtemi Nasaba bora k.m askari wanatumiwa kuwafukuza Imani kutoka shambani mwao. Amani na Imani wanafungwa gerezani bila hatia.
- Uongozi wa shule unakosa kumchukulia mwalimu majisifu hatua za nidhamu kwa sababu ya kufika kazini akiwa mlevi na kutohudhuria vipindi vyake, pia idara ya elimu haichukui hatua wakati Fao anapo fanyiwa mtihani wa darasa la nane na kidato cha nne.

(Hoja zozote 10x1=10.)

ii) Utabaka (al.10)

- Ni mpangilio au mgao wa kijamii, unaoongozwa na na mhimili ya kiuchumi. Watu hujitenga katika ngazi au safu tofauti za kijamii.
- Kuna tabaka la juu linaloongozwa na watu wenye mali, la chini linaongozwa na watu wenye mtaji wa chini hawa walijajiriwa na kullipwa hela za kijungu jiko na huishi katika madhari mabovu. Ndio watawaliwa. Eneo la sokomoko kabla ya uhuru lilimilikiwa na wazungu walioajiriwa waliokuwa na mashamba makumbwa yaliyokuzwa mimea iliyowapa hella nyingi pembeni mwa mashamba haya waliishi waafrika maskini walioishi katika mabanda yaliyoinama na kuinamiana wengi walitoka sehemu walizotengewa waafrika kama Baraka, Ulitima, Umoja, Mabondeni n.k
- Watu wengi wa tabaka la chini hawakuwa na uwezo wa kujitolea kazini, walijajiriwa n kupigwa kalamu bila kutarajia, mfano mtemi Nasaba bora aliwaajiri wafanyakazi wengi waliofanya kazi kwa bidii lakini aliwapa kalamu alivyotaka na wakati mwengine kuwaadhibu kabla ya kuwatimua.
- Majununi alijizatiti kwa udi na uvumba kumwoa Michelle, msichana wa tabaka la juu, lakini Majununi hakuweza kutimiza malengo ya tabaka lake. Michelle aliamua kutupilia mbali mpango mpango wa kufunga ndoa na majununi amaye kulingana na Michelle alikua ni mtu wa tabaka la chini kasha akareje ughaibuni.
- Baada a kuajiriwa kwamtemi Nasaba bora, Amani alipewa kibanda kimoja kati ya vibanda vingi vilivyotengewa watenda kazi waliokuwa makabwela. Hii ni ishara ya utengano ambapo matajiri waliishi katika majumba makubwa na maskini waliishi vibandani k.m mtemi anaishi kasri la majununi, Amani aliishi kibandani.
- Malazi ya amani yalikuwa ya hali duni alitupa blanketi lake kuu na kunyanyuka.
- Kielimu watoto wa matajiri walipata fursa ya kusomea ughaibuni k.m Madhubuti na Fao ilihali wa makabwela walisalia nchini kama Amani.



- Watu wa tabaka la chini walitegemea chakula cha kawaida ili kuendeleza aushi yao, Amani anapotembelea Dj hospitalini, alimwandalia chapatti, chakuwa alichosema huliwa na wayonge kwa nadra kama jua kupatwa.
- Mbali na kukosa malezi bora, akina Yakhe walikosa matibabu bora, chweche makweche mwanasoka hodari alipovunjwa mguu, alikosa matibabu, pia aliishi katika mazingira duni huku mguu wake ukiozeana.
- Kabla ya uhuru wazungu waliishi jimbo la sokomoko lenye rutuba lililowapa mtaji mkubwa, na waliwakataza waafrika kumiliki mali pamoja na kupanda mazao yaetayo fedha.
- Uongozi mbaya uajitokeza kupitia kwa hongo. Mtemi Nasaba bora aliwahonga wahudumu wa mahakama kwa mfano mahakimu, mawakili na askari ili wamfungue Yusufu kifungo cha maisha gerezani. Kwa kufanya hivi mtemi Nasaba bora alifaulu kuyakua shamba la Majununi kutoka kwa mmiliki wake hali; Chirichiri Hamadi isitoshe, aliweza kunyakua shamba la mwinyi hatibu mtembezi babao imani baada ya kuhonga vyombo vya usalama.

3. Matumizi ya kinaya katika kidagaa kimemwozea (al.20)

- Maana yake ni kinyume cha matarajio.
- Mtemi Nasaba bora, maana yake ukoo bora au uungwana. Lakini vitendo vyake ni kinyume na jina lake hivyo ni kinaya. K.m
 - Mtemi NASaba bora aliwaadhibu wananchi ambao hawakuchanja mbwa wao ilihali wake mwenyewe hakuwachanja.
 - Mtemi alimuuliza Amani ikiwa yeye ni mwizi wakati wa kutafuta ajira kwake ilihali yeye menyewe ndiye mwizi mkubwa aliyenyakua mali ya watu.
 - Mtemi Nasaba bora alikuwa na tabia mbaya zisizo na ungwana wowote.
 - Mtemi anapomwambia Amani kachukue “mwanao” akamtunze (akimrejelea motto uhuru) ni kinaya kwa sababu Uhuru hakuwa mwana wa Amani bali wa Nasaba Bora.
 - Mtemi kutumia lugha ya kizungu ambayo wananci wengi hawaelewi ni kinaya badala ya kutumia lugha ya Kiswahili wanayojua.
 - Tabia za Nasaba Bora na mwalimu majisifu zilkuu kinyume cha maadili ya kasisi baba yao. (yeye aliwataka wapendane na kusoma bibilia) ni kinaya maana hawakupendana hata kidogo wala hawakuwa wakisoma bibilia.
 - Zahanati ya nasaba bora ina jina lenye maana ya utu lakini watu wengi huenda kufa huko.
 - Ni kinaya kuona kuwa mtemi Nasaba nora alikuwa akisoma bibilia lakini anapoambiwa kuwa Bob Dj alikuwa ameumwa na jibwa “jimmy” alikataa kutoa usaidizi wa kumfikisha kwa matibabu akisema hayo ni stahili yako.
 - Katika hotuba ya siku kuu ya wazalendo, mtemi anasema wanajali maslahi ya kila mmoja ilhali wananyanyasa watu na hawajali maslahi yao.
 - N kinaya kuwa watu wa sokomoko walikuwa na uchehefu wa maji ilhali kulikuwa na maji mengi katika mto kiberenge. Walibadilisha mtazamo wao kuhusu mwiko wa kutumia maji yam to huo wakati Imani na Amani walipokunywa maji bila kufariki.
 - ni kinaya mwalimu majisifu kuitikia mwaliko wa chuo kikuu cha mkokotoni ilhali hakuwa na ufahamu wa mada ya kuwasilisha.
 - Chwechwe Makwece aliletea nchi yake sifa nyingi lakini alipovunjika mguu hakusaidiwa, mguu ukakatwa.
 - Watu wa tomoko walipigania uhuru lakini viongozi walioshika hatamu ndio waliofaidika zaidina kuwangandamiza kama mkoloni mzungu.
 - Mwalimu majisifu alihojiwa katika idhaa ya taifa ya Tomoko (ITT) kuhusu maswala ya haki, uzalendo na utamaduni. Alitarajiwa kuwa miongoni mwa



watetezi aalimu na staid wa utamaduni na uzalendo wa mwafrika lakini tunaona hatimaye majisifu mtu aliyekolea katika ulevi kama pale kwa mama n'tilie.

- Mwalimu majisifu alimpa nasaha mashaka kuwa wasome kwa bidii kwani bara Afrika ilitaka watu waliosoma sana ili kulikomboa toka kwenye utumwa na ujinga, njaa na umaskini ilhali yeye mwenyewe alifika darasani kufunza kwa nadra.

(Hoja zozote $10 \times 2 = 20$)

MSTAHIKI MEYA.

4. a) **Mstahiki meya (al.2)**

- Afisini mwa meya, meya anazungumza maneno haya kwa Bili, Diwani I na Diwani II. Wanapanga njama ya kuuza fimbo ya meya. Wanaungana kufanya njama hili.

c) **Mstahiki meya;**

- Ni mfidadi -anapanga njama ya kuuza fimbo.
- Ni mwenye tama-m.f anapigania nafsi yake na ya marafiki.
- Ni mbinafsi. -Anajinufaisha kwa mali ya umma, ya wanacheneo.
- Haajibiki katika kazi -ankosa kuhudumia wanacheneo hali yao inaendelea kuzorota.
- Ni mbadhurifu-Anadanganywa na kukubali kuuza fimbo iliyo kitambulisho cha cheneo.

(Hakikiji majibu ya mwanafunzi).Zozote $5 \times 2 = 10$

d) Bili , Diwani I na Diwani II (al 3)

e) Kuchangana ndimi m.f hii ni grand idea (al.1)

5. Uongozi mbaya ; meya anakata kuongezea raia mshahara (al.20)

- i) Ukosefu wa dawa katika zahanati. Meya amekataa kutuma pesa ng'ambo dawa zije.
- ii) Uchaguzi wa mazingira;mji wa cheneo, uchafu umejaa kila mahali magonjwa kv. Kipindupindu.
- iii) Ufisadi umekita mzizi; meya haongozi wfanyikazi, raia hulipa kodi ilhali madiwani hawalipi.
- iv) Vifo; -kuna ukosefu wa madawa katika zahanati.
- v) Vitisho -kutawanya raia kwa vitoa machozi.
- vi) Dhuluma -matumizi ya rungu kuwachapa raia.
- vii) Unyakuzi -meya anachukua ardhi na kuwapa rafiki zake kama Bill.
- viii) Udanganyifu -Meya anasema, eti dawa njiani.(waridi muuguzi anamwambia daktari siki kwamba madawa yamonjiani).
- ix) Ubadhunifu -meya kupeleka familia ya ng'ambo kuzaa na kusomesha watoto wake.
- x) Raha na anasa -meya na Bili wanajiburudisha katika hoteli za kitajiri baada ya kuuza kipande cha ardhi
- xi) Mishahara duni -wanafunzi hawalipwi mishahara ya kutosha.
- xii) Mapuuza -meya anapuuza malalamishi ya wafanyakazi [Medi,Beka,Tatu].
 - a) Daktari siki afukuzwa kwa kumshuri meya jinsi ya maongozi mabaya-
- xiii) Umaskini -watoto wa cheneo kufukuzwa shuleni kwa ukosefu wa karo.
- xiv) Bei za bidhaa -maisha kuwa magumu kwa raia sababu ya bei ghali za bidhaa k.v. makaa n.k

(Zozote $10 \times 2 = 20$)

Ushairi.

- a) Mshairi anazungumza uozo wa jamii kwamba kuna uchafuzi wa mazingira na hakuna anayejali. Al.2



- b) Tarbia -Lina mishororo mine.
Sabilia -kibwagizo hakijikariri (hakiki majibu ya mwanafunzi) al.2
- c) Urundikaji wa machichana maganda.
-Taka zimejenga picha.
-Mbu wanazaliana panya wajidundaliza.
-Mahame na maanguko kushamiri. Al.2
- d) Mmejaa uchafu kurejea mabustani ya vitalu vya maua.
Mbwa, kuku wanaonekana kutafuta chakula humu. Al.4
- e) i)Tarbia -mishororo mine.
ii)Mizani -16 kila mishororo, mishororo ni mine kila ubeti.
iii)Vigao. -Viwili(Ukwapi na utao)
iv)Kibwagizo hakijikariri.
v)Vina vinabadilikaadilika kila ubeti. Al.5
- f) Ana maana watu hawaoni uozo ulio kwenye bustani ya vitalu.
- g) Inkisari -inovutia- inayovutia
-Inmchukia- inayomchosha.

7. a) **Eleza maana ya methali kisha ufafanue sifa zake.
Maana.**

- Methali ni kifungu cha maneno yanayohusiana na kutumiwa kwa ufasaha wa juu wenye kufumbia maana iliyokusudiwa. Methali huhusisha maneno machachekufumbia ujumbe mzito au hekima Fulani.
- Ni muhtasari wa ujumbe kwa njia fiche.

- b) Sifa za methali.
- i) Hutumia takriri kwa wingi.
 - ii) Hueleweka katika muktadha teule tu.
 - iii) Huwa na muundo wa kipekee unaotoa onyo na matokeo.
 - iv) Huwa na ukizani wa aina Fulani.
 - v) Huwa na ufanano wa kimaana.
 - vi) Mtindo wa kimafumbo.
 - vii) Ni rahisi kwa sababu ya uchhache wa maneno.
 - viii) Hutumia maneno machache kuelezea ujumbe mzito.
 - ix) Huweza kuwa na pande mbili.
 - x) Huwa na maana bayana na maana batini (ya nje nay a ndani /fiche)
 - xi) Hutumia msamiati wa kale.
 - xii) Hutumiwa kimazingira.
 - xiii) Hutumia majina ya viumbe.
- c) Jadili umuhimu wa fasihi simulizi.
- i) Huonya /hutahadharisha juu ya matendo mbalimbali.
 - ii) Hufunza madili ya jamii.
 - iii) Huelimisha juu ya bidii
 - iv) Hutumiwa kupunguza huzuni n kuwapa watu moyo.
 - v) Hukuza na kuendeleza utamaduni.
 - vi) Kunoa fikra/kuchemsha bongo.
 - vii) Kutoa ushauri/nasaha.
 - viii) Hukejeli wanaofanya maovu



- ix) Kutia moyo
 - x) huchangamsha.
 - xi) Huleta changamoto.
- d)
- i) Hutumiwa kutia uzungumzi wa kawaida ladha.
 - ii) Hutumiwa kusuluhisha migogoro mingi ya kisiasa, kidini na kishe.
 - iii) Hutumiwa kwene mijadala ya kawaida k.m. mjadala wa mahari posa na wanaozitumia vizuri huikubali washindi.
 - iv) Hutumika katika utambaji wa hadithi nyimbo na ushairi simulizi.
 - v) Hutumiwa kuyatafakari na kuyapima mmaisha, kufunza jumua na kutawalia jamii na mazingira ya binadamu.
 - vi) Hutumiwa kama kioo cha jamii na kuwasilisha hekima za wengi.
 - vii) Hufafanua falsafa ya jamii na hekima ya wale wanaozitumia katika mazungumzo yao k.m. kufafanua uhusianowa watawala na wa tawaliwa.
 - viii) Hutumiwa kuonya.
 - ix) Hutumiwa kukashifu.
 - x) Hutumiwa kutoa ujumbe kwa muhtasari.



Kenya Certificate of Secondary Examination (KCSE)

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MATHEMATICS**PAPER 2****MARKING SCHEME**

	Questions	Marks	Remarks
1.	$\frac{4}{11} \times \frac{14}{20}$ $\frac{10}{3} \div \frac{11}{10}$ $\frac{4}{55} = \frac{4}{55} \times \frac{33}{100}$ $= \frac{3}{125}$	B1 B1 A1	
2.	$500 \times 84.15 - 289850$ $= 130,900$ <p>But 100 yens \equiv 65 - 45</p> <p style="padding-left: 40px;">? 130900</p> $= 200000 \text{ yens}$	M1 M1 A1	
3.	<p>Gradient L1 = $\frac{-4+2}{3-1} = \frac{-2}{2} = -1$</p> <p>→ Gradient L2 = 1</p> <p>Mid- point AB = (2, -3)</p> <p>$\therefore \frac{y+3}{X-2} = 1$</p> <p>→ $y + 3 = x - 2$</p> <p>$\therefore -x + y + 5 = 0$</p>	B1 B1 M1 A1	
4.	<p>$\text{Pd}h = 1980$</p> $\frac{22}{7} \times 42 \times h$ <p>$h = 15\text{cm}$</p> $\text{Vol} = \frac{22}{7} \times 21 \times 21 \times 15$ $= 20790\text{cm}^3$ $= 20.79\text{li}$	M1 M1 A1	
5.	$\frac{3a+2}{4} \leq \frac{2a+3}{5}$ <p>→ $5(3a+2) \leq 4(2a+3)$</p> $15a + 10 \leq 8a + 12$ $7a \leq 2$	M1	

	$a \leq \frac{2}{7}$ $\frac{2a+3}{5} \leq \frac{4a+15}{6}$ $6(2a+3) \leq 5(4a+15)$ $12a+18 \leq 20a+75$ $-8a \leq 57$ $A \geq -\frac{57}{8} \Rightarrow -\frac{57}{8} \leq a \leq \frac{2}{7}$ <p>Intergal values -7, -6, -5, -4, -3, -2, -1, & 0</p>	M1 M1 A1	
6.			
7.	$80 + (n-1)128 = 180n - 360 \quad \text{or its equivalent}$ $\rightarrow 80 + 128n - 128 = 180n - 360$ $-52n = -312$ $n = 6$	M1 M1 A1	
8.	$\rightarrow \cos \alpha = \frac{4}{5}$	M1 M1 A1	



	$\text{Cos}(180 - \alpha) = -\frac{4}{5}$		
9.	$\frac{x^4 - y^4}{x(x^2 - y^2)}$ $\frac{(x^2 + y^2)(x^2 - y^2)}{x(x^2 - y^2)}$ $\frac{x^2 + y^2}{x}$	M1 M1 A1	

10.	<p>Let Area c x y = x</p> $\text{L.S. F} = \frac{4}{12} = \frac{1}{3}$ $\text{A.S.F} = \frac{1}{9}$ $\rightarrow \frac{1}{9} = \frac{x}{x+36}$ $\rightarrow 9x = x + 36$ $8x = 36$ $X = 4.5\text{cm}^2$	M1 M1 A1	
11.	<p>DIAGRAM</p> $\text{XO} = (r-4)\text{cm}$ $\text{OP} = r\text{cm}$ $\text{XP} = 10\text{cm}$ $\rightarrow r^2 = 100 + (r-4)^2$ $r^2 = 100 + r^2 - 8r + 16$ $\rightarrow 8r = 116$ $r = 14.5\text{cm}$	M1 M1 A1	
12.	<p>i) 19, 171, 311</p> <p>ii) 300</p>	B1 B1	
13.	$\left(\frac{1}{4}\right)^{2X} = \left(\frac{1}{32}\right)^{3X-4}$ $\left(\frac{1}{2}\right)^{4X} = \left(\frac{1}{2}\right)^{15X-20}$ $\rightarrow 4X = 15X - 20$ $-11X = -20$ $X = \frac{20}{11}$	M1 M1 A1	
14.	$450000 \equiv 100\%$ $? \equiv 93\%$ <p>Cash price = 418500 shillings</p> $\text{But } 418500 \equiv 113\%$ $? \equiv 100\%$		



	= 370353.9823 shillings	A1	
15.	$(3.375 \times 1/10)^3 = 0.038441$ $(3.375 \times 100)^{1/2} = 18.372$ $= \frac{3}{-18.333559}$ $(-3) \times \frac{1}{18.33} = (-3) \times \frac{1}{1.833} \times 10$ $= (-3) \times (0.5455) \times 1/10$ $= -0.16365$	A1	
16.	$\begin{array}{r} \frac{14}{1} + \frac{4}{3} \\ -6 + -20 \\ \hline -38 \\ \hline = \frac{3}{-26} \\ = \frac{-38}{3} \times \frac{1}{-26} \\ = \frac{38}{3} \times \frac{1}{26} = \frac{19}{39} \end{array}$	B1 B1 A1	
17.	<p>a)</p> <p style="text-align: center;">Checkpoint</p> <p style="text-align: center;"> $\begin{array}{c} \text{-----} \\ \text{Matatu} \quad \text{Bus} \\ 10.15 \text{ am} \quad 10.15 \text{ am} \end{array}$ </p> <p>Distance between matatu and bus = distance covered by bus for 15min</p> $= 99 \text{ km/h} \times \frac{15}{60} = 24.75 \text{ km}$ <p>Time taken for matatu to catch up with bus</p> $= \frac{\text{Distance between}}{\text{Relative speed}}$ $= \frac{24.75 \text{ km}}{33 \text{ km/h}} = 0.75 \text{ hrs} = 45 \text{ min}$ <p>→ Overtaking will take place at 10.15am + 45min = 11.00am</p> <p>b) Time taken = $\frac{\text{Distance}}{\text{R.S}}$</p> $= \frac{(150 + 240 + 100)}{252 \text{ km/h}}$ <p>But 252km/h = 70m/s</p> $T = \frac{490 \text{ m}}{70 \text{ m/s}} = 7 \text{ sec s}$	M1 M1 M1 M1 M1 A1 M1M1 M1 A1	

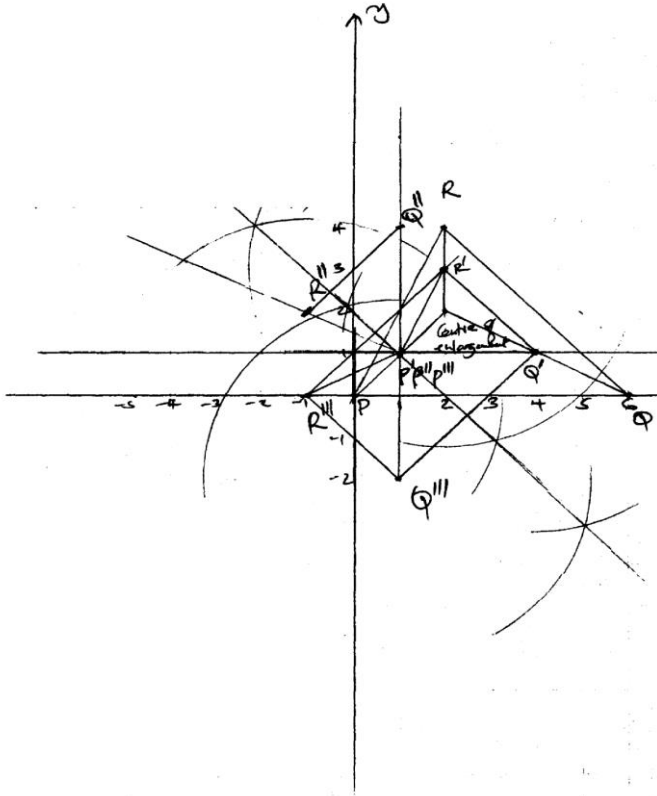
18.

- a) Draw PQR
 b) $P'(1, 1)$ $Q'(4, 1)$ $R'(2, 3)$
 c) $P''(1, 1)$ $Q''(1, 4)$ $R''(-1, 2)$
 d) $P'''(1, 1)$ $Q'''(1, -2)$ $R'''(-1, 0)$
 e) Reflection through the mirror line $y = -x + 2$

Gradient = -1

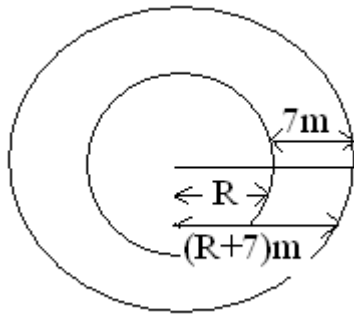
$$\rightarrow \frac{y-1}{x-1} = -1$$

$$y - 1 = -x + 1$$





19.



a) let radius lawn R m

radius of lawn r path $= (R+7)$ m

Area of the lawn $= \pi R^2$ m²

Area of the lawn + path $= \pi(R+7)^2$
 $= \pi(R^2 + 14R + 49)$
 $= (R^2 + 14R + 49) \pi$ m²

Area of the path $= (R^2 + 14R + 49) \pi - \pi R^2$
 $= \pi R^2 + 14\pi R + 49\pi - \pi R^2$
 $= 14\pi R + 49\pi = (14R + 49)\pi$

Area of the path also equal to 21% of area of lawn

$\rightarrow 21\%$ of πR^2

$= 0.21\pi R^2$

$\rightarrow 0.21\pi R^2 = (14R + 49)\pi$

$0.21R^2 = 14R + 49$

$0.21R^2 - 14R - 49 = 0$

$21R^2 - 1400R - 4900 = 0$

$3R^2 - 200R - 700 = 0$

$$R = \frac{200 \pm \sqrt{(-200)^2 - 4(3)(-700)}}{6}$$

$$= \frac{200 \pm 220}{6} \Rightarrow \frac{-20}{6} \text{ or } \frac{420}{6}$$

$$= \frac{-20}{6} \text{ impossible}$$

$$= 70$$

Hence $R = 70$ m

b)



Perimeter of inner fence

$$= 2\pi R$$

$$= 2 \times 3.14 \times 70 = 439.88 \text{ m}$$

$$\text{No of post } \frac{439.88}{10} = 43.988 = 44 \text{ posts}$$

Perimeter of outer fence

M1

B1

M1

M1

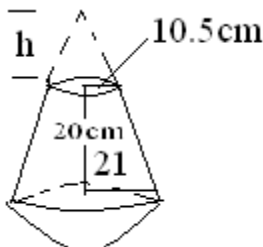
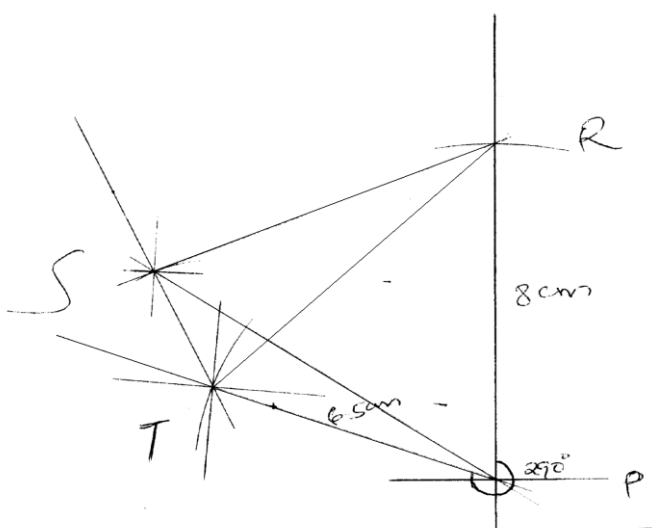
M1



	$= 2 \times 3.14 \times 77 = 483.868\text{m}$ $\text{No of posts} = \frac{483.868}{11} = 43.988$ $= 44 \text{ posts}$ $\text{Total number of posts} = 44 + 44 = 88\text{posts}$ <p>c) Total cost $88 \times 103 - 1 = \text{Sh. } 9240$</p>	M1 M1 A1 A1	
20.	<p>a) $v = at^2 + bt \text{ m/s}$ at $t = 1\text{sec}$ $v = 2\text{m/s}$ $a + b = 2 \dots\dots\dots(i)$ at rest $v = 0, t = 45$ $(4.5)^2 a + 45b = 0$ $20.25 a + 4.5 b = 0 \dots\dots\dots(ii)$ Solving (i) and (ii) simultaneously $a = 2 - b$ $20.25 (2 - b) + 4.5b = 0$ $40.5 + 4.5 b = 0$ $b = \frac{-40.5}{4.5} = -9$ $\rightarrow a = 2 - (-9) = 11$ $v = 11t^2 - 9tm/s$</p> <p>b) i) at rest, $v = 0$ $11t^2 - 9t = 0$ $(11t - 9)t = 0$ $\rightarrow t=0 \text{ or } 11t = 9 \rightarrow t = \frac{9}{11}$</p> <p>ii) $s = \int_0^4 (11t^2 - 9t) dt$ $\left[\frac{4}{3}t^3 - \frac{9}{2}t^2 + c \right]_0^4$ $\left(\frac{11}{3}(4)^3 - \frac{9}{2}(4)^2 + c \right) - \left(\frac{11}{3}(0)^3 - \frac{9}{2}(0)^2 + c \right)$ $(234.67 - 72 + c) - (c)$ $= 162.67 \text{ m}$</p> <p>iii) at max velocity $a = 0$ $a = \frac{dv}{dt}$ $v = 11t^2 - 9t$ $a = 22t - 9$ $22t - 9 = 0$ $t = \frac{9}{22}$ $v = 11 \left(\frac{9}{22} \right)^2 - 9 \left(\frac{9}{22} \right)$ $= 11 \frac{81}{484} - \frac{81}{22}$</p>	M1 M1 M1 A1 M1 A1 M1 A1 M1	



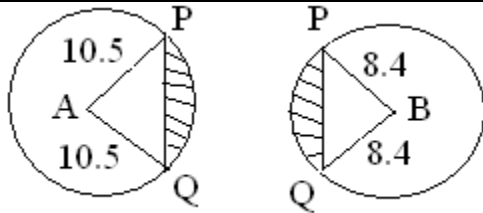
	$= \frac{81}{44} - \frac{81}{22} = \frac{81-162}{44}$ $= \frac{-81}{44} \text{ m/s deceleration}$					A1																																				
21.	<table border="1"> <tr> <td>Marks</td> <td>0-10</td> <td>10-30</td> <td>30-60</td> <td>60-70</td> <td>70-100</td> </tr> <tr> <td>Frequency</td> <td>12</td> <td>40</td> <td>36</td> <td>8</td> <td>24</td> </tr> <tr> <td>Area of rec</td> <td>12</td> <td>40</td> <td>36</td> <td>8</td> <td>24</td> </tr> <tr> <td>Height of rec</td> <td>12</td> <td>2</td> <td>1.2</td> <td>0.8</td> <td>0.8</td> </tr> <tr> <td>L.L</td> <td>9.5</td> <td>29.5</td> <td>59.5</td> <td>69.5</td> <td>99.5</td> </tr> <tr> <td>c.f</td> <td>12</td> <td>52</td> <td>88</td> <td>96</td> <td>120</td> </tr> </table>	Marks	0-10	10-30	30-60	60-70	70-100	Frequency	12	40	36	8	24	Area of rec	12	40	36	8	24	Height of rec	12	2	1.2	0.8	0.8	L.L	9.5	29.5	59.5	69.5	99.5	c.f	12	52	88	96	120				B2	
Marks	0-10	10-30	30-60	60-70	70-100																																					
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c.f	12	52	88	96	120																																					
	<p>ii)</p>																																									
	<p>ii) Medium position = $\frac{N+1}{2} = \frac{121}{2} = 60.5$ in the class 30- 60</p> <p>iii) $\frac{1}{2}$ total area = $\frac{120}{2} \text{ units}^2 = 60 \text{ units}^2$ = 12 + 40 + 8 = 60 units²</p> <p>But $\frac{8}{1-2} = 6.66 + 29.5 = 36.16$</p>					B1																																				
						M1																																				
						A1																																				

<p>22.</p>  <p>a) $\frac{h}{20+h} = \frac{10.5}{21}$ $21h = 10.5h + 210$ $10.5h = 210$ $h = 20\text{cm}$ $\rightarrow H = 40\text{cm}$ $L^2 = 21^2 + 40^2$ $L^2 = 441 + 1600$ $L = 45.17742799\text{cm}$</p> <p>b) $L_2 = 20^2 + 10.5^2$ $L_2 = 400 + 110.25$ $L = 22.588714\text{cm}$ \rightarrow slant length of frustum $= 45.17742799 - 22.588714$ $= 22.58871399$</p> <p>c) TOTAL S.A = $\pi r^2 + (\pi RL - \pi rL) + 2\pi R^2$ $=$ $\left(\frac{22}{7} \times 10.5 \times 10.5\right) + \left[\left(\frac{22}{7} \times 21 \times 45.17742799\right) - \left(\frac{22}{7} \times 10.5 \times 22.588714\right)\right]$ $+ 2 \frac{22}{7} \times 21 \times 21$ $= 346.5 + 2981.7104 - 745.427562 + 2772$ $= 5354.782685\text{cm}^2$</p>	<p>M1</p> <p>M1</p> <p>A1</p> <p>B1</p> <p>B1</p> <p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p>	
<p>23.</p> 		



	<p>a) 84km, 042° b) 80km, 065° c) 120°</p>		

<p>24. a)</p>	<p> $\angle PAQ = \angle PAM + \angle QAM$ $\angle PAM = \sin\theta = \frac{4.5}{10.5} = 0.4286$ $\sin^{-1}(0.4286) = 25.38^\circ$ $\angle QAM = \angle PAM = 25.38$ $\rightarrow \angle LAP = 25.38 \times 2 = 50.76$ </p> <p> b) $\angle PBQ = \angle PBM + \angle QBM$ $\angle PBM = \sin\alpha = \frac{4.5}{8.4} = 0.5357$ $\sin^{-1}(0.5357) = 32.39^\circ$ $\angle PBM = \angle QBM = 32.39^\circ$ $\angle PBQ = 32.39^\circ \times 2 = 64.78$ </p>	<p>M1 A1</p> <p>M1 A1</p> <p>M1</p> <p>B1</p> <p>M1M1</p>	
<p>c)i)</p>		<p>B1</p>	



A1

area of segment = area of a section – area of D

Taking (i)

$$= \left[\frac{50.76}{360} \times 3.14 \times (10.5)^2 \right] - \left[\frac{1}{2} \times 10.5 \times 10.5 \times \sin 50.76 \right]$$

$$= 48.84 - 42.69 = 6.15 \text{ cm}^2$$

Taking (ii)

$$= \left[\frac{64.78}{360} \times 3.142 \times (8.4)^2 \right] - \left[\frac{1}{2} \times 8.4 \times 8.4 \times \sin 64.78 \right]$$

$$= 39.89 - 31.92 = 7.97 \text{ cm}^2$$

$$= (6.15 + 7.97) \text{ cm}^2 = 14.12 \text{ cm}^2$$

Kenya Certificate of Secondary Education (K.C.S.E).

121/2

MATHEMATICS

PAPER 2

TIME: 2 ½ HOURS

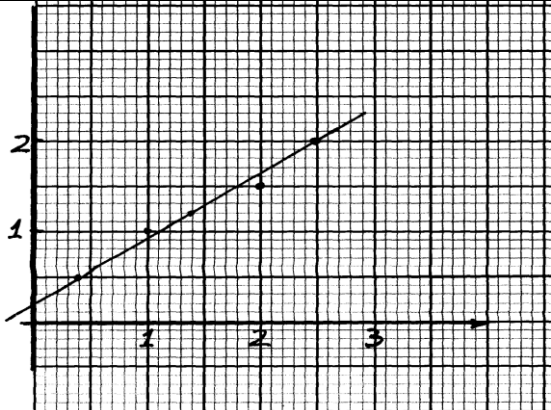
MARKING SCHEME

NO.	WORKING	MARKS	REMARKS
1.	$= \log 5^2 - \log 16^{\frac{1}{2}} + \log 40^2$	M1	Apply law $n \log A = \log A^n$
	$= \log 25 - \log 4 + \log 1600$		
	$= \log \left(\frac{25 \times 1600}{4} \right)$	M1	Combining logs
	$= \log 10,000$ $= 4$	A1	For ✓ answer
		3mks	
2.	$2x - (x - 3) = 0$	M1	For equating determinant to zero
	$2x - x + 3 = 0$		
	$x = -3$	A1	For ✓ value of x
		2mks	
3.	$a^4 = \frac{1+d^2}{b^2} + \frac{b}{3}$	M1	For squaring both sides
	$a^4 - \frac{b}{3} = \frac{1+d^2}{b^2}$		
	$b^2 \left(a^4 - \frac{b}{3} \right) = 1 + d^2$		
	$b^2 \left(a^4 - \frac{b}{3} \right) - 1 = d^2$	M1	For d^2
	$d = \sqrt{b^2 \left(a^4 - \frac{b}{3} \right) - 1}$	A1	For d
		3mks	
4.	$= \frac{3\sqrt{7} + \sqrt{7} - 2}{\sqrt{7}(\sqrt{7} - 2)}$		
	$= \frac{4\sqrt{7} - 2}{7 - 2\sqrt{7}}$		
	$= \frac{4\sqrt{7} - 2}{7 - 2\sqrt{7}} \times \frac{7 + 2\sqrt{7}}{7 + 2\sqrt{7}}$	M1	For conjugate
	$= \frac{4\sqrt{7} + (7 + 2\sqrt{7}) - 2(7 + 2\sqrt{7})}{21}$	M1	For rationalizing denominator



	$= \frac{28\sqrt{7} + 56 - 14 - 4\sqrt{7}}{21}$ $= \frac{42 + 24\sqrt{7}}{21}$ $= 2 + \frac{8}{7}\sqrt{7}$	A1	
		3mks	
5.	$height = \sqrt{15^2 - 9^2} = 12.0cm$ $v = \frac{1}{3} \times \pi \times 9.0 \times 9.0 \times 12.0$ $\% error = \left(\frac{0.05}{9.0} + \frac{0.05}{9.0} + \frac{0.05}{12.0} \right) \times 100$ $= 1.528\%$	B1 M1 A1	For height
		3mks	
6.	$A = k + \frac{m}{B}$ $-10 = k + \frac{m}{2.5} \quad (i)$ $-25 + 2.5k + m$ $10 = k + \frac{m}{1.25} \quad (ii)$ $12.5 = 1.25k + m$ $-25 = 2.5k + m$ $\underline{12.5 = 1.25k + m}$ $-37.5 = 1.25k$ $k = -30$ $12.5 = 1.25(-30) + m$ $m = 50$ $A = -30 + \frac{50}{B}$ $= -30 + \frac{50}{1.5}$ $= 3 \frac{1}{3}$	M1 M1 M1 A1	For simultaneous equations for \checkmark attempt to solve simultaneous equations.
		4 mks	
7.	$Area = h (y_1 + y_2 + \dots)$ $= 0.4 (6.2 + 4.3 + 2.6)$ $= 5.24$	M1 A1	for substitution for \checkmark answer (CAO)
		2mks	
8.	$= 14 \times \frac{18}{10} \times \frac{30}{27}$ $= 28 \text{ pple}$	M1 M1 A1	for $\times \frac{18}{10}$ for $\times \frac{20}{27}$ for 28 pple
		3mks	



9.	(i) $35+15 = 50^0$ (ii) $Time = \frac{60 \times 50 \times \cos 60}{250}$ $= 6\text{hrs}$	B1 M1 A1	
		3mks	
10.	(a) $= x^5 + 5x^4(-0.2) + 10x^3(-0.2)^2 + 10x^2(-0.2)^3 + 5x(-0.2)^4$ $= x^5 - x^4 + 0.4x^3 - 0.08x^2 + 0.008x - 0.00032$ (b) $= 10^5 - 10^4 + 0.4(10)^3 - 0.08(10)^2$ 90392	M1 A1 M1 A1	
		4mks	
11.	(a) AC (b) $AC = \sqrt{12^2 + 5^2} = 13\text{cm}$ $\tan \theta = \frac{6.5}{13}$ $\theta = 26.57^0$	B1 B1 M1 A1	At 13 for $\tan \theta$ for θ
		3mks	
12.	$= \frac{\sin x \cos x + \sin x}{\cos x}$ $= \frac{\sin x \cos x}{\cos x} + \frac{\sin x}{\cos x}$ $= \sin x + \tan x$	M1 M1 A1	
		3mks	
13.	$A(-1,1,0)$ $B(x, y, z)$ $\Rightarrow \frac{-1+x}{2} = 1, \frac{1+y}{2} = -1.5, \frac{0+z}{2} = 2$ $x = 3, y = -4, z = 4$ $B(3,-4,4)$ $/OB/ = \sqrt{3^2 + (-4)^2 + 4^2}$ $= \sqrt{41}$ $= 6.403 \text{ units}$	M1 A1 M1 A1	Can be implied (accept column form)
		4mks	
14.	 $y = 0.7x + 0.2$	P1 L1 B1	
		3mks	



15.	$\frac{2600}{40} = 65$ <p style="text-align: center;"> 70 55 \searrow \swarrow 65 10 15 $2:3$ </p>	B1 B1 A1	for equivalent																																																								
		3mks																																																									
16.	$x(x+9) = 36$ $x^2 + 9x - 36 = 0$ $(x+12)(x-3) = 0$ $x = -12, \quad x = 3$ $BC = 3cm$	M1 M1 B1																																																									
		3mks																																																									
17.	<p>(a) (i) $250,000\left(1 + \frac{4}{100}\right)^{10}$ $= sh.370061.0712$</p> <p>(ii) $\frac{370,000}{4}$ $= sh. 92,500$</p> <p>(iii) $10\,000 \times 4 \times 36$ $= sh. 1\,440\,000$</p> <p>(b) (i) $92500\left(1 - \frac{20}{100}\right)^3$ $= sh. 47\,360$</p> <p>(ii) Profit = $(61 + 1\,440\,000 + 189\,440) - 250\,000$ $= 1\,379\,501$</p>	M1 A1 M1 A1 M1 A1 M1 A1 M1 A1	Accept 370061.10																																																								
		10mks																																																									
18.	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Class</th> <th>x</th> <th>tx-45.5</th> <th>f</th> <th>ft</th> <th>ft²</th> <th>cf</th> </tr> </thead> <tbody> <tr> <td>21-30</td> <td>25.5</td> <td>-20</td> <td>15</td> <td>-300</td> <td>6000</td> <td>15</td> </tr> <tr> <td>31-40</td> <td>35.5</td> <td>-10</td> <td>11</td> <td>-110</td> <td>1100</td> <td>26</td> </tr> <tr> <td>41-50</td> <td>45.5</td> <td>0</td> <td>17</td> <td>0</td> <td>0</td> <td>43</td> </tr> <tr> <td>51-60</td> <td>55.5</td> <td>10</td> <td>4</td> <td>40</td> <td>400</td> <td>47</td> </tr> <tr> <td>61-70</td> <td>65.5</td> <td>20</td> <td>2</td> <td>40</td> <td>800</td> <td>49</td> </tr> <tr> <td>71-80</td> <td>75.5</td> <td>30</td> <td>1</td> <td>30</td> <td>900</td> <td>50</td> </tr> <tr> <td></td> <td></td> <td></td> <td>50</td> <td>-300</td> <td>9200</td> <td></td> </tr> </tbody> </table> <p>(a) 31-40</p> <p>(b) (i) Mean = $\frac{-300}{50} + 45.5$ $= 39.5 \text{ yrs}$</p> <p>s.d = $\sqrt{\frac{9200}{50} - \left(\frac{-300}{50}\right)^2}$ $= 12.17$</p> <p>(c) $6^{th} = 40.5 + \left(\frac{30 - 26}{17}\right)10$ $= 42.85$</p>	Class	x	tx-45.5	f	ft	ft ²	cf	21-30	25.5	-20	15	-300	6000	15	31-40	35.5	-10	11	-110	1100	26	41-50	45.5	0	17	0	0	43	51-60	55.5	10	4	40	400	47	61-70	65.5	20	2	40	800	49	71-80	75.5	30	1	30	900	50				50	-300	9200		B1 B1 M1 A1 B1 M1 A1 B1 M1 A1	For ✓ median class For ✓ ft column For ✓ ft ² column For ✓ c.f column
Class	x	tx-45.5	f	ft	ft ²	cf																																																					
21-30	25.5	-20	15	-300	6000	15																																																					
31-40	35.5	-10	11	-110	1100	26																																																					
41-50	45.5	0	17	0	0	43																																																					
51-60	55.5	10	4	40	400	47																																																					
61-70	65.5	20	2	40	800	49																																																					
71-80	75.5	30	1	30	900	50																																																					
			50	-300	9200																																																						
		10mks																																																									



19.	<p>(a) $a+2d, \quad a+8d, \quad a+24d$</p> <p>(b) (ii) $\frac{a+8d}{a+2d} = \frac{a+24d}{a+8d} \quad I$</p> <p>$a+6d+2(a+5d)=78 \quad II$</p> $\left. \begin{array}{l} 16d = 10a \quad I \\ 3a+16d = 78 \quad II \end{array} \right\}$ <p>$3a+10a = 78$</p> <p>$13a = 78$</p> <p>$a = 6$</p> <p>$16d = 10 \times 6$</p> <p>$d = 3.75$</p> <p>(ii) $S_q = \frac{9}{2}(2 \times 6 + (9-1)3.75)$</p> <p>$= 189$</p> <p>(ii) $\Rightarrow [6+6(3.75)] - [6+3(3.75)]$</p> <p>$= 11.25$</p>	<p>B1</p> <p>M1</p> <p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p> <p>A1</p> <p>M1</p> <p>M1</p> <p>A1</p> <p>A1</p>	<p>For substitution or equivalent</p>
		10mks	
20.	<p>$P(A) = \frac{3}{4} \quad P(A^1) = \frac{1}{4}$</p> <p>$P(B) = \frac{2}{3} \quad P(B^1) = \frac{1}{3}$</p> <p>$P(C) = \frac{4}{5} \quad P(C^1) = \frac{1}{5}$</p> <p>(a) $P(ABC) = \frac{3}{4} \times \frac{2}{3} \times \frac{4}{5}$</p> <p>$= \frac{2}{5}$</p> <p>(b) $P(A^1B^1C^1) = \frac{1}{4} \times \frac{1}{3} \times \frac{1}{5}$</p> <p>$= \frac{1}{60}$</p> <p>(c) $\Rightarrow P(A^1B^1C^1 \text{ or } A^1BC^1 \text{ or } A^1B^1C)$</p> <p>$= \left(\frac{3}{4} \times \frac{1}{3} \times \frac{1}{5}\right) + \left(\frac{1}{4} \times \frac{2}{3} \times \frac{1}{5}\right) + \left(\frac{1}{4} \times \frac{2}{3} \times \frac{4}{5}\right)$</p> <p>$= \frac{9}{60}$</p> <p>(d) $\Rightarrow P(ABC^1 \text{ or } AB^1C \text{ or } A^1BC)$</p> <p>$= \left(\frac{3}{4} \times \frac{2}{3} \times \frac{1}{5}\right) + \left(\frac{3}{4} \times \frac{1}{3} \times \frac{1}{5}\right) + \left(\frac{1}{4} \times \frac{2}{3} \times \frac{4}{5}\right)$</p> <p>$= \frac{26}{60}$</p> <p>(e) $\Rightarrow 1 - P(ABC)$</p> <p>$= 1 - \frac{2}{5}$</p> <p>$= \frac{3}{5}$</p>	<p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p>	
		10mks	



<p>21.</p>	<p>(a)</p> <table border="1" style="margin-left: 20px;"> <tr> <td>x</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>x+1</td> <td></td> <td>0</td> <td></td> <td>2</td> <td></td> <td>5</td> </tr> <tr> <td>3-x</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td>0</td> </tr> <tr> <td>y</td> <td></td> <td>0</td> <td></td> <td>3</td> <td></td> <td></td> </tr> </table> <p>(b)</p> <p>(c)</p> <p>(i) $(3-x)(x+1) = 0$ $-x^2 + 2x + 3 = 0$ $x = 3, -1$</p> <p>(ii) $-x^2 + 2x + 3 = y$ $-x^2 + x + 6 = 0$ $x - 3 = y$ $x = -2, 3$</p>	x							x+1		0		2		5	3-x			3			0	y		0		3			<p>B₂</p> <p>S₁ P₁ C</p> <p>B1B1 M1</p> <p>L1 B1</p> <p>10mks</p>	<p>For all ✓ values Allow B₁ for any four ✓ values</p> <p>✓ scale ✓ plotting ✓ curve</p> <p>For $y = x - 3$</p> <p>For ✓ line drawn For both values</p>
x																															
x+1		0		2		5																									
3-x			3			0																									
y		0		3																											
<p>22.</p>	<p style="text-align: center;">L_1</p> <p style="text-align: center;">L_2</p> <p style="text-align: center;">D C</p> <p style="text-align: center;">A B</p> <p style="text-align: center;">M</p> <p style="text-align: center;">X</p> <p>$\frac{44}{360} \times \frac{22}{7} \times 3.5 \times 3.5$ $= 4.7 \text{ cm}_2$</p>	<p>B1 B1 B1</p> <p>B1 B1 B1 B1</p> <p>B1</p> <p>B1 A1</p> <p>10mks</p>	<p>Angle bisector drawn ✓ly locating pts A,B,C,D ✓rectangle drawn</p> <p>L1 constructed L2 constructed Angle measured ✓ly $44 \pm 1^\circ$</p> <p>An arc broken drawn inside rectangle radius 3.5cm</p> <p>✓ region shaded</p>																												



232/1

PHYSICS**PAPER 1****MARKING SCHEME**

1. $2.50+0.45=2.95\text{mm}$ Reading ✓1
 $\frac{22}{7} \times 10 \times \left(\frac{0.295}{2}\right)^2 = 0.684.$ ✓1
2. Large surface area exposed to the atmosphere leading to high evaporation rate taking away latent heat of evaporation. ✓1
3. Instantaneous velocity at any point is different thus acceleration while the distance covered by the body per unit time is constant (constant speed)
4. Cooling the two metals further (reducing the temperature). ✓1
5. V.R = 4.
M.A = $\frac{100\text{N}}{28}$ ✓1
Efficiency = $\frac{\text{M.A}}{\text{V.R}} \times 100$
= $\frac{100}{28} \div 4 \times 100$ ✓1
= $\frac{100}{28 \times 4} \times 100 = 89.28\%$ ✓1
6. a) The force of liquid surface that make it t behave like a thin stretched skin. ✓1
b) The soap film behaves as if its surface is tightly stretched. As it tries to make its surface as well as possible it rises up the funnel. ✓1
7. a) $M_1V_1 + M_2V_2 = MV$
 $0.5 \times 1.2 + 1.5 \times 0.2 = 2v$ ✓1
 $0.6 + 0.3 = 2v$
 $V = \frac{0.9}{2} = 0.4\text{m/s}$ ✓1
8. Air molecules near the earth's surface are denser than the air molecules further above the earth. When heating by sun heat, they became lighter and move upward not downward.
9. -Mercury is highly denser than water hence require a small mercury column height.
-Mercury doesn't wet glass (Any one) ✓1
10. The care are made with a heavy base ✓1 (low C.O.G)



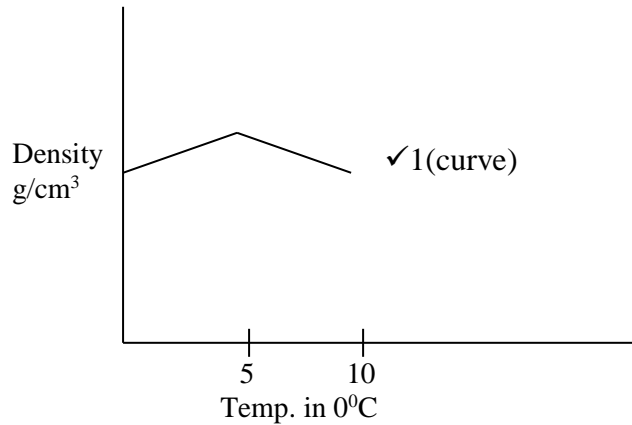
11. Velocity ration = $\frac{14}{9} \checkmark 1 = 1.56 \checkmark 1$

12. a) $V^2 = 2gs = 2 \times 10 \times 20 = 400 \checkmark 1$
 $V = 20 \text{m/s} \checkmark 1$

b) No viscous drag/zero air resistance $\checkmark 1$

13. Resultant force = $6 - 4 = 2 \text{N}$ $\checkmark 1$
 $2a = 2$
 $a = 1 \text{m/s}^2 \checkmark 1$

14.



a) Gas that obey gas law $\checkmark 1$

b) i) $\frac{2.0 \times 10^5 - 1.0 \times 10^5}{2.4 \times 10^6 \times 1.2 \times 10^6} = \frac{1}{12} \times 10^{-1}$

= 0.0833pa m^3 Extract value from graph.

ii) Operate the experiment at room temperature. $\checkmark 1$

iii) Reciprocal of pressure per unit volume. $\checkmark 1$

iv) The container to be thick enough to withstand the exerted pressure $\checkmark 1$

$$\frac{V_1}{T_1} = \frac{V_2}{T_2} \quad \checkmark 1$$

$$\frac{4000}{310} = \frac{V_2}{340} \quad \checkmark 1 \quad V_2 = 4387.097 \text{litres} \quad \checkmark 1$$

18) a) When a body is totally or partially immersed in a fluid, it experiences up thrust force which is equal to the weight of the fluid displaced. $\checkmark 1$

b) i) $W = T + U \quad \checkmark 1$

ii) $W = mg = evg \checkmark 1 = 10500 \times 0.3 \times 0.2 \times 0.2 \times 10 \checkmark 1$

= $1260 \text{N} \quad \checkmark 1$

iii) weight of liquid = $ev = 1200 \times (0.3 \times 0.2 \times 0.2) \times 10$



- displaced (U) = 144N ✓1
- iv) $T = W - U = 1260 - 144 = 1116\text{N}$ ✓1
- c) Mass = $800 \times 0.00001 = 0.008\text{kg}$. ✓1
- $$\text{Density} = \frac{M}{V} = \frac{0.008\text{kg}}{50 \times 10^{-6}} = \frac{0.008}{0.0005} = 16\text{kg/m}^3. \quad \checkmark 1.$$
19. Angle in radians through a point as the object is.
- a) Rotated in a circular manner ✓1
- $$\frac{2 \times 3.142 \times 75}{60} = \checkmark 1 \quad 7.855 \text{ rad/s} \quad \checkmark 1$$
- b) i) $w = \frac{2 \times 3.142 \times 75}{60} = \checkmark 1 \quad 7.855 \text{ rad/s} \quad \checkmark 1$
- ii) $a = wr = 7.855 \times 0.14 \checkmark 1 = 1.0997 \text{ rad/s}^2 \quad \checkmark 1$
- $$= \frac{1}{50} = 0.02 \text{ sec.} \quad \checkmark 1$$
- c) i) $V_{AB} = \frac{6 \times 5}{0.02 \times 3} = 500 \text{ cm/s} = 5 \text{ m/s.} \quad \checkmark 1$
- $$V_{BC} = \frac{6 \times 5}{0.02 \times 5} = 300 \text{ cm/s} = 3 \text{ m/s} \quad \checkmark 1$$
- ii) $\frac{300 - 500}{0.02 \times 8}$ or $\frac{3 - 5}{0.02 \times 8} \quad \checkmark 1$
- $$= -1250 \text{ cm/s}^2 \text{ or } -12.5 \text{ m/s}^2 \quad \checkmark 1$$
20. a) Quantity of heat energy required to raise a unit mass of a substance a temperature by Kelvin. ✓1
- b) i) $Q = MCA^\theta \quad \checkmark 1 = 3 \times c \times (50 - 20) = 1.25 \times 1000 \times 5 \times 60 \quad \checkmark 1$
- $$c = 6250 \text{ J/kgK} \quad \checkmark 1$$
- $$\frac{1.25 \times 10 \times 60 \times 1000}{1000} = 750 \text{ kJ} = 750,000 \text{ joules.} \quad \checkmark 1$$
- ii) $L = MI = \frac{1.25 \times 10 \times 60 \times 1000}{1000} = 750 \text{ kJ} = 750,000 \text{ joules.} \quad \checkmark 1$
- iii) $6250 \times (90 - 50) \times 3 = 1.25 \times 1000 \times t \quad \checkmark 1$
- $$t = 600 \text{ sec} = 10 \text{ min} \quad \checkmark 1$$
- $$\text{time taken} = 15 + 10 = 25 \text{ min.} \quad \checkmark 1$$
- iv) Liquids have high specific heat capacity than solids ✓1
15. a) Friction force } SECTION 2.
-Radius of the circular tack. } Any one ✓1.
- b) $Fr = \frac{MV^2}{r} \quad \checkmark 1$



$$6500 = \frac{1000V^2}{25} \quad \checkmark 1$$

$$V^2 = \sqrt{162.5} = 12.75 \text{ m/s} \quad \checkmark 1$$

c) i) tension at bottom $\frac{MV^2}{r} + Mg$

$$10.5 = \frac{0.2V^2}{0.32} + 0.2 \times 10 \quad \checkmark 1$$

$$V = 3.688 \text{ m/s} \quad \checkmark 1$$

ii) Tension at top = $\frac{MV^2}{r} - mg$

$$\frac{0.2 \times (2.688)^2}{0.32} - 0.2 \times 10$$

$$= 8.5 - 2.0$$

$$= 6.5 \quad \checkmark 1$$

Smoke particle.

16. a) i) For visibility of air movement $\checkmark 1$
 ii) Lens - focus light to a point in the smoke cell $\checkmark 1$
 iii) Microscope. - magnification of smoke particles $\checkmark 1$
- b) Smoke particles observed moving at random $\checkmark 1$
 the smoke particles move at random due to the bombardment air molecules at random
 $\checkmark 1$
 (Brownian motion)
- c) The smoke particles movement is vigorous thus the air molecules $\checkmark 1$.

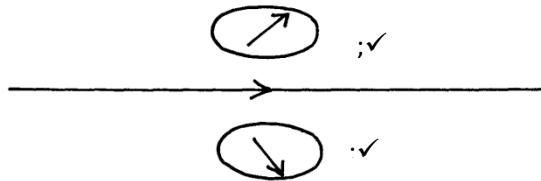
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PHYSICS

PAPER 2

MARKING SCHEME

1.



2. The charged point conductor repels positive ions of the air while negative ions are attracted; ✓
The positive ions drift towards the flame forming an electric wind which drags the flame with it; ✓

3. Metre bridge has no zero error as it depends on balancing point; ✓

4. Frequency of the source; ✓

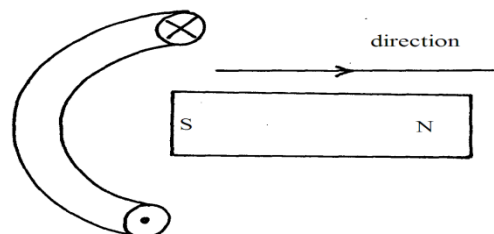
5. Total units. $= \frac{1200}{1000} \times 30 = 36 \text{Kwh};$ ✓

Cost $= 36 \times 8$

$= \text{Ksh } 288;$ ✓

6. Images are virtual; ✓ or upright or erect any 1 mark.

7.



8. a) Peak value $= 4 \text{cm} \times \frac{100}{1000}; =$ ✓

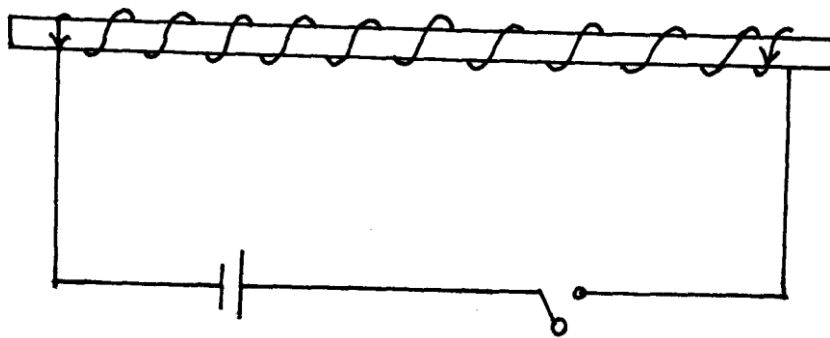
$= 0.4 \text{V};$ ✓

b) Period, $T = 8 \times \frac{0.8\text{s}}{1000} = 0.0064\text{s}; \quad \checkmark$

frequency, $f = \frac{1}{0.0064} = 156.25\text{Hz}; \quad \checkmark$

9. Intrinsic semi-conductor -their conductivity is enhanced by temperature only; \checkmark
 Extrinsic semi conductor -Their conductivity is enhanced by doping ; \checkmark
 An example of intrinsic is silicon and germanium; $\checkmark \frac{1}{2}$
 An example of extrinsic is P-type semi-conductor and n-type semi-conductor; $\checkmark \frac{1}{2}$

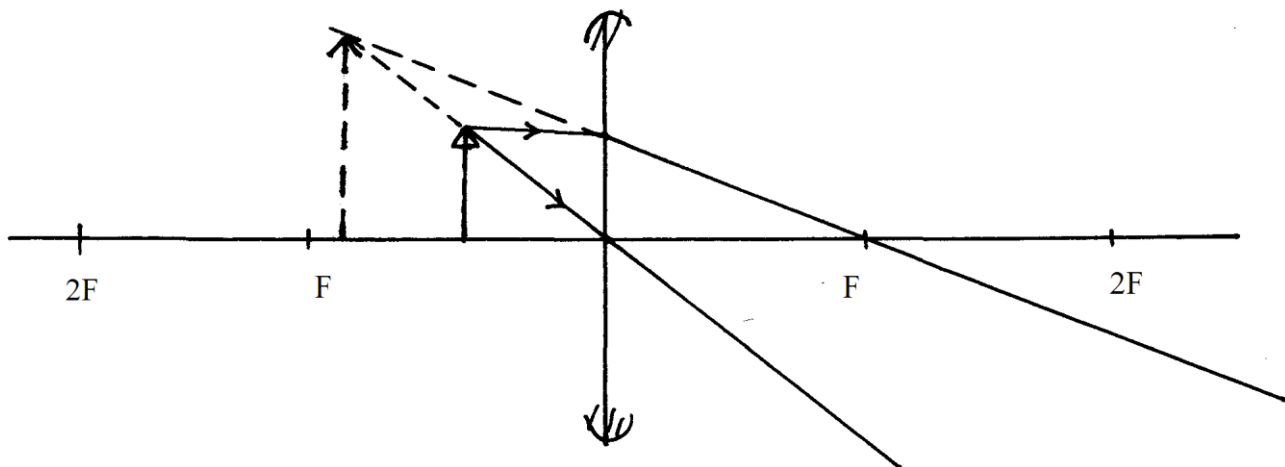
10.



; \checkmark Correct circuit connection by closing the switch current flow as shown and AB becomes magnetised

11. Angle of incidence = Angle of reflection; \checkmark

12.



13. A is the mass number while z is the atomic number; \checkmark

14. a) Hard X-rays; \checkmark
 b) i) A focusing cathode, B-Electron beam, C-copper anode, D- lead shield ; $\checkmark \frac{1}{2}$ each.
 ii) Filament is heated it heats the cathode and electrons are emitted thermionically; \checkmark emitted electrons are accelerated to the target by accelerating potential; \checkmark upon hitting the target, X-rays are produced; \checkmark
 iii) The moving electrons possesses kinetic energy; \checkmark most of this energy is converted into heat when the electrons meet the target.
 iv) X-rays are able to ionise the air particles; \checkmark ionises air particles are used to discharge cloth materials to remove static charges; \checkmark the static charges on the cloth can cause fire outbreak; \checkmark



v) $\lambda = \frac{C}{f}$

$$\frac{3.0 \times 10^8}{1.0 \times 10^{+16}} = 1.0 \times 10^{-11} \text{ m}; \checkmark$$

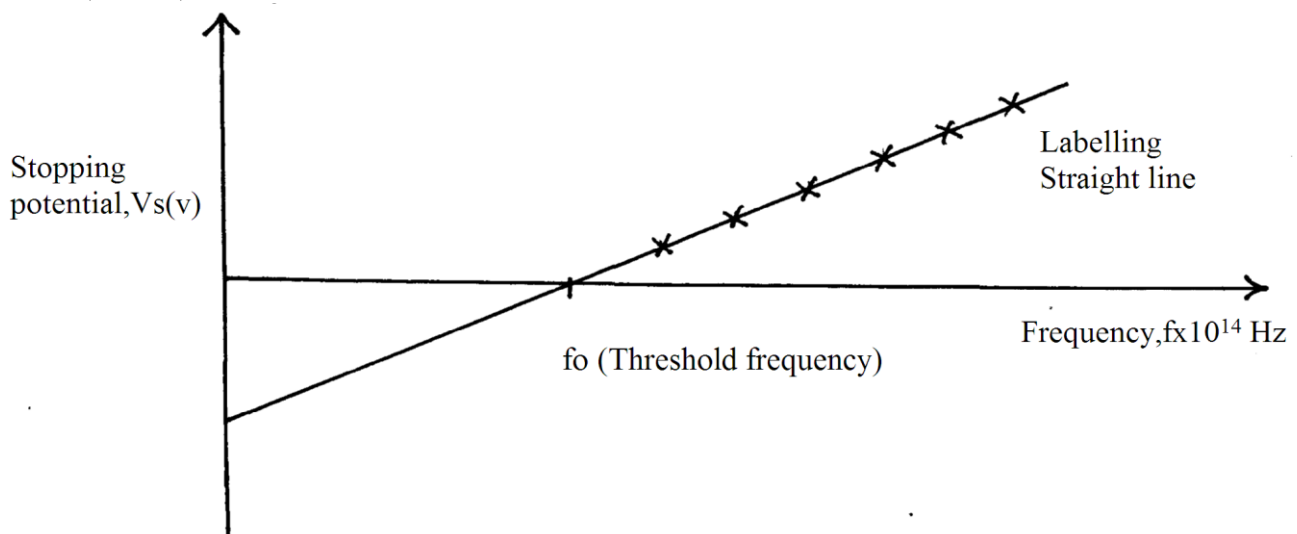
Also $\lambda = \frac{C}{f}$

$$\frac{3.0 \times 10^8}{1.0 \times 10^{+19}} = 1.0 \times 10^{-11} \text{ m}; \checkmark$$

Range $\lambda \pm 5 \text{ } 1.0 \times 10^{-11} \text{ m to } 1.0 \times 10^{-8} \text{ m}; \checkmark$

15. a) Is the process by which electrons are emitted from metal surface when irradiated with UV radiations of sufficient energy; \checkmark
- b) i) To remove impurities from the metal surface for photo electric emission; \checkmark
 ii) Gold leaf electroscope diverges / rises; \checkmark
 -Electrons are emitted from zinc surface which make electrons to move from gold leaf and stem making them positive and like charges repel; \checkmark electrons become positively charged; \checkmark

c) i)

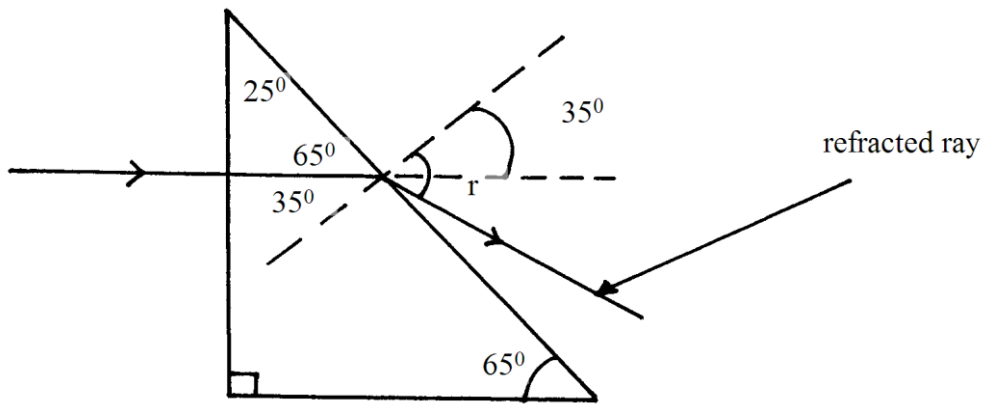


ii) Stopping potential is the potential at the anode that completely stops the electrons from getting to it; \checkmark

d) Max K.E = eVs; \checkmark
 $= 1.6 \times 10^{-19} \times 0.5$; \checkmark
 $= 1.2 \times 10^{-19}$; \checkmark

16. a) Ratio of sine of angle of incidence in air to sine of angle of refraction in denser medium is always a constant; \checkmark

b) i)



$$\text{ii) } \frac{\sin i}{\sin r} = n; \checkmark$$

$$\frac{\sin 2\sqrt{5}}{\sin 25} = 1.5; \checkmark$$

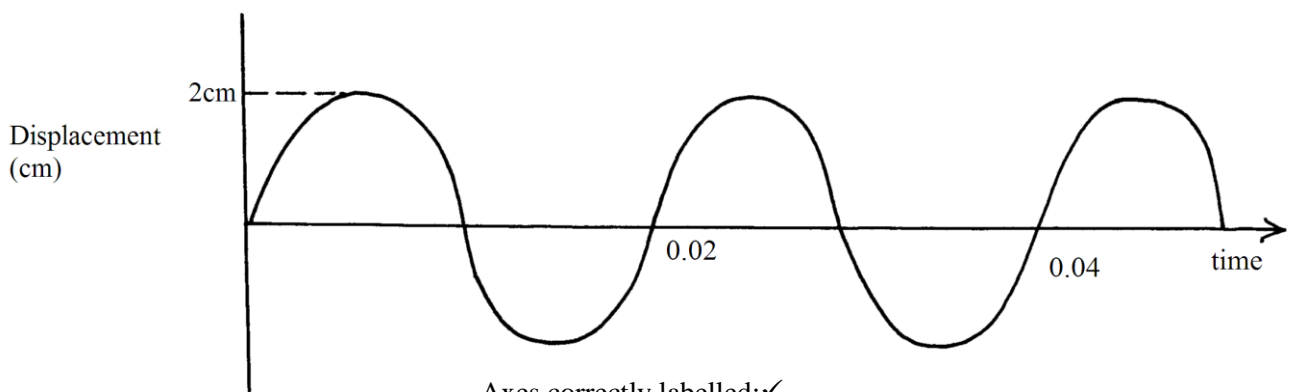
$$r = 59.4^\circ; \checkmark$$

$$\text{c) } \text{Angle of deviation} = 59.4 - 35; \checkmark$$

$$= 24.4^\circ; \checkmark$$

d) is because angle of incidence from dewer glass is less than the critical angle for glass; \checkmark

17. a)



Axes correctly labelled; \checkmark
 2 complete circles; \checkmark
 $T = 1/50 = 0.025$; \checkmark correct time indicated; \checkmark

b) Electromagnetic waves do not require a material medium; \checkmark while mechanical waves require material medium for their transmission; \checkmark

$$\text{c) } v = \lambda f; \checkmark$$

$$= 21 \times 10^3 \times 7.5 \times 10^{-2}$$

$$= 1575 \text{ m/s}; \checkmark$$

$$2d = v \lambda; \checkmark$$

$$d = \frac{1575 \times 0.4}{2}$$

$$= 315 \text{ m}; \checkmark$$

18. a) Iron keeps from closed loops; \checkmark it makes the end of the bar magnets not to lose their magnetism by self demagnetisation; \checkmark



- b) when a magnet is being magnetised, the dipoles are arranged in the domains facing in all directions; ✓ as magnetising process continues the dipole in all the domain align themselves in same direction such that further magnetisation has no effect; ✓
- c) i) When current is switched on electromagnet A becomes magnetised; ✓ B get attracted towards A and the horn makes sound; ✓ circuit is broken at C, Electromagnet loses magnetism and contact is again made, process repeats itself; ✓
- ii) By increasing amount of current in circuit; ✓
By using a U-shaped electromagnet; ✓

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PHYSICS

PAPER 3

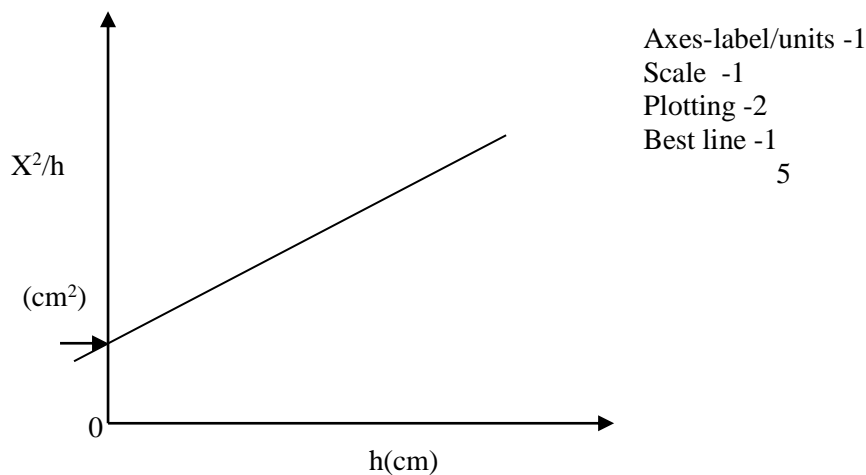
MARKING SCHEMEQ1. $h = 5.0\text{cm} \pm 1.0$

Xcm	Hcm	X ² cm(cm ²)	X ² /h(cm)
20.0	5.0	400	400
25.0	7.0	625	89.29
30.0	10.0	900	90.00
35.0	13.0	1225	94.23
40.0	18.0	1600	88.89
45.0	24.0	2025	84.38

 ± 1.0

Use students own values.

Vi)



Vii) Shown on graph -by student graph.

Xi) 28sec for 20 oscillations (student value within ± 1 seconds).

X) $T = \frac{28}{20} = 1.4\text{secs.}$

Xi) Making P subject and correct substitution best value of student.

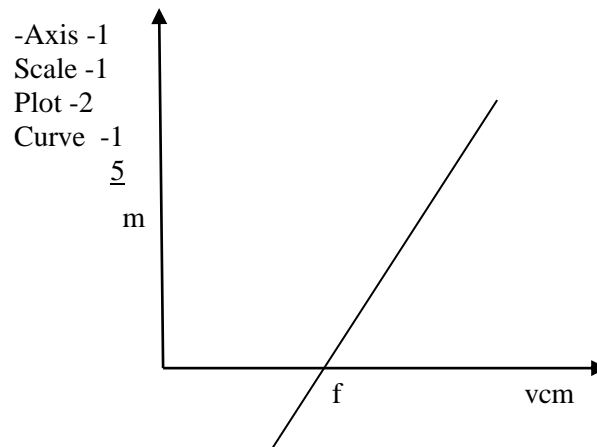
Q2. $F = 20 \pm 0.1.$



e)

U	30	35	40	45	50	55
V	58	47.0	42.0	46	34.5	32.5
$M = v/u$	1.93	1.34	1.05	1.02	0.69	0.59

F) Plot.

g) Slope = $\frac{1}{f}$ h) Use the x intercept
When $M=0$, $v = f$.Or reciprocal of slope = f .



Kenya Certificate of Secondary Education (K.C.S.E).

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AGRICULTURE

PAPER 1

TIME: 2 HOURS

MARKING SCHEME

SECTION A

1. (a) (i) Plantation farming – i.e the growing of only one type of crop on large scale. (1x1=1mk)
- (ii) Large scale farming is the growing of crops and rearing of animals in large numbers for commercial purposes. (1x1=1mk)
- (b) Arid and semi arid areas do not support crops, rather suitable for natural grasses and legume plants.
Ranching requires large or wide grazing land which is available in marginal areas. (Any 1 x 1 = 1mk)
2. (a) (i) Some implements or tools cannot produce a fine tilth required by small planting materials (1x1=1mk) OR ANY OTHER ALTERNATIVE RESPONSE
- (ii) Cost of the tool is required for budgeting and this depends on the financial status of the farmer, choose a tool the farmer can afford. (1x1=1mk)
OR ANY OTHER ALTERNATIVE RESPONSE
- (b) - Ridging
- Rolling
- Leveling (2x ½ = 1mk)
3. - Temperature
- Wind
- Rainfall (Any 2 x ½ = 1mk)
4. - Soils with rough texture have a low water holding capacity crops growing in them may lack adequate moisture (crops can wilt)
- Rough soils get easily leached and they lose nutrients easily
- Rough soils can be easily washed away hence lose of soil fertility. (Any 2 x 1 = 2mks)
5. - Increases the water holding capacity of the soil
- It improves soil fertility by releasing a wide range of nutrients into the soil.
- It improves soil structure / Birds soil particles
- Buffers soil PH
- Provide food for the soil organisms (Any 1x1=1mk)
6. - Respiration
- Combustion
- Decomposition. (Any 2x1=2mks)
7. - Marcotting / Aerial layering
- Tip layering
- Trench layering
- Compound / serpentine layering
8. Topping is the cutting of the stemy, fibrous remains of pasture after direct grazing by the use of a sharp Panga. While top dressing is the application of Nitrogenous fertilizer in the field of established crops. (1x1=1mk)



9. - Too much nitrogen in early stages of growth
 - Irregular or frequent watering
 - Calcium deficiency compounds in the soil
 (Any 2x1=2mks)
10. - To ease population pressure from over populated areas.
 - To increase agricultural production through making better use of uninhabited or idle land.
 - To create employment – when people are given land to do farming they get self employment.
 - To control tse tse flies – when land is cultivated it became a barrier to the movement of tsetse flies.
 (Any 2x1=2mks)
11. (a) Decision making
 - Gathering information
 - Compare standards of one's enterprise with the set standards
 - Detects weaknesses and constraints and find ways and means of overcoming them.
 - Keep farm records up-to-date and use them in the day – to – day running of the farm
 - Implements from decisions and taking responsibility.
 (Any 4 x ½ = 2mks)
- (b) - Stalk borers
 - Nematodes
 (2x1=2mks)
12. - Use healthy plantating materials
 - Practice field hygiene e.g burning diseased crop residues.
 - Proper seed preparation before planting
 - Proper spacing in the nursery and seedbed
 - Proper drying of cereals and pulses to recommended moisture before storage.
 - Use disease resistant crop varieties
 - Crop rotation
 (Any 2 x ½ = 1mk)
13. - Invoice
 - Statements
 - Receipts
 (Any 2x1=2mks)
14. - Threshing / shelling
 - Drying
 - Cleaning
 - Sorting and grading
 - Dusting
 (Any 2x1=2mks)
15. Environmental factors that affect the effectiveness of herbicides. (2mks)
 - wind
 - rainfall
 - soil
 - temperature
 - light
 (4x ½ =2mks)
16. ways of improving land as a factor of production
 - irrigation
 - Pests and disease control
 - fencing
 - Fertilize application
 - Paddockking
 (4x ½ = 2mks)
17. Ways of improving labour in the farm
 - training



- farm mechanization
- giving incentives
- labour supervision
- improving terms and conditions of service.

(4x ½ = 2mks)

18. Name two methods of harvesting agro forestry trees.

(1mk)

- Coppicing
- Lopping
- Pollarding

(2 x ½ = 1mk)

SECTION B

19. (a) Cost of fertilizer

When 3 bags were used

$$= 3 \text{ bags} \times \text{Ksh } 300 = \text{Ksh } 900$$

(1 x ½ = ½ mk)

When 4 bags were used

$$= 4 \text{ bags} \times \text{Ksh } 300 = \text{Ksh } 1200$$

(1 x ½ = ½ mk)

(b) Marginal revenue at level 5 and 6 can be found after completing the question table as follows.

DAP fert. In (10kgbag)	Maize yield in (20kgbag)	TR (Ksh)	TC(Ksh)	MR	MC
0	10.5	2,100	-	-	
1	20.5	4,100	300	2000	
2	42.5	8,500	600	4400	
3	58.5	11,700	900	3200	
4	60.0	12,000	1,200		
5	60.5	12,700	1,500		
6	58.5	11,700	1,800		
7	56	7,200	2,100		

$$MR_2 = 8,500 - 4100 = 4400 \checkmark 1mk$$

$$MR_3 = 11,700 - 8500 = 3200 \checkmark 1mk$$

20. (a) Chitting / sprouting

(1x1=1mk)

(b) P – Rose end

(1x1=1mk)

Q – Heel end

(1x1=1mk)

- (c) - Crop originating from vegetative material mature faster
- Crops show uniformity
- Can be used because Irish potatoes do not produce seeds.

(Any 1 x 1 = 1mk)

21. (a) NPK (25:20:15)

25 – 25kg or %

Nitrogen

20 – 20kg or %

Phosphorus Pentaoxide

15-15kg or %

Potassium oxide / chloride

(b)

Fertilizer	Class	Reason
NPK (25:20:15)	Complete compound fertilizer ✓ 1mk	Contains all the three primary macro-element. ✓ 1mk
Urea (46:18:0)	Incomplete compound fertilizer ✓ 1mk	Contains only two of the primary macro-nutrients ✓ 1mk

22. (a) Sorghum shoot fly / shoot fly

(1x1=1mk)

(b) Dead shoot of the sorghum crop

(c) - Early planting

- Closed season

- Application of insecticides



23. (a) (i) Broad based terrace (1x1=1mk)
 (ii) Bund terrace (1x1=1mk)
 (b) (i) Top channel = 1.5m (1x ½ = ½ mk)
 (ii) Bottom channel = 90cm (1 x ½ = ½ mk)

SECTION C

24. (a) Reasons for controlling weeds.
- Avoid weeds which compete with crop nutrients, space, light and soil moisture.
 - Remove parasite weeds like the witch weed.
 - Improve the quality of produce which can be reduced by presence of weed seeds, and bad weed smells
 - Avoid farm poisoning by poisonous weeds like thorn apple.
 - To control some pests which can be hosted by some weeds.
 - To allow better crop germination by removing weeds that are allelopathic.
 - Open irrigation channels
 - improves the quality of pastures
 - Ease work by killing irritating weeds.
- (Any 5 correctly explained x 2 = 10mks)
- (b) (i) Cut the crop when 50% of the plant has flowered. Spread out the cut material on the ground evenly to dry for 2-3 days
- (ii) Spread out the cut material on the ground evenly to dry for 2-3 days.
- (iii) The hay is windrowed and then baled.
- (iv) The hay bales are then stored in a shed out of reach by rain water and sunshine.
 (Step (i) – (ii) correctly followed = 4 mks)
- (c)
- Source to firewood / food fuel
 - Agro forestry trees or products can be sold to earn income.
 - Trees protect soil from strong rains, sun and wind and consequently reduce soil erosion.
 - Sales time wasted to look for firewood
 - Makes farms beautiful
 - Source of construction materials
 - Marks farm boundaries
 - Provide shade to crops and livestock
 - Can be eaten as food
 - Can be used as livestock feeds
- (Any 6 correctly explained = 6mks)
25. (a) (i)
- Dig deeply to remove all weeds
 - Carry out secondary to produce fine tilth
 - Level the ground to ensure even germination
- (3x1=3mks)
- (ii)
- Plant at the onset of rains
 - Plant by broadcasting, if planted in rows, the furrows should be 30-33 cm apart.
 - Plant shallowly not more than 2.5cm deep.
 - Plant using phosphate fertilizers.
- (4x1=4mks)
- (iii)
- Hand knives are used for cutting heads
 - Harvest when heads have dried
 - Harvest into bags, dry, thresh and winnow
- (3x1=3mks)
- (c) (i) Biotic factors



Usefulness	Harmful effects
-Some help in the decomposition of organic matter -Predators reduce pest population -Nitrogen fixing Bacteria improve soil fertility -Pollination carry out pollination (Any 2x ½ =1mk)	-Pests destroy crops -Parasites suck blood and transmit livestock diseases -Pathogens cause diseases -Predators kill livestock (Any 2x ½ =1mk)

(ii)

How government policy encourage agriculture	How the government discourages agriculture
-Gives subsidies or make part payment for the farmers -Boost the control of pests, diseases and parasites -Conserves environment -Give financial support to farmers (Any 2x ½ =1mk)	-Heavy taxation -Prohibits production of some good e.g. local beer -Use of quote system e.g. in coffee production. -Predators kill livestock (Any 2x ½ =1mk)

26. (a) (i) - Cattle bomas may have high levels of soil nutrients which is not a true picture of that soil fertility.
 - Animals might have trampled soil to destroy soil structure. (2x1=2mks)
- (ii) - Along water ways soil erosion has taken place
 - Along water ways soil deposition takes place (2x1=2mks)
- (b) - Near source of water to some time and labour
 - Site previously not planted crops of the same family to control pests, diseases and weeds.
 - Away from natural sheds
 - Seared from thieves and animals to avoid destruction
 - Gently sloping ground for easy drainage
 - Accessible place for easy transportation
 - Fertile soil for better provision of plant nutrients. (Any 4x1=4mks)
- Reject**
- Availability of water
 - Security
 - Topography
 - Accessibility
 - Soil fertility
- (c) (i) Clear vegetation from the soil sampling spots and make vertical cut of 15-25cm for crop level and 5cm for pasture land.
 (ii) Take a slice from the vertical cut using a spade or soil anger.
 (iii) Put the sampled soil in a clean polythene bag or any suitable container.
 (iv) Repeat steps (i), (ii) and (iii) in different pairs of the field 15-20 spots.
 (v) Mix thoroughly the soil sample and mix thoroughly, dry and crush
 (vi) Send a sub-sample from the mixture and to the laboratory (6steps x 1 = 6mks)
- Note:** Steps should be strictly followed if otherwise reject.
- (d) - Can be used to secure loans
 - Help in making management decisions
 - Help to determine wether the farm is making profits
 - Help in farm budgets i.e to draw estimates for future income and expenditure.
 - For evaluating assets and liabilities
 - Helps farmers to estimate the amount of tax that can be charged so that the farm is fairly taxed. (6x1=6mks)



Kenya Certificate of Secondary Education (K.C.S.E).

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AGRICULTURE

PAPER 2

TIME: 2 HOURS

MARKING SCHEME

SECTION A

1. Routes of pathogens
 - Mouth
 - Nose
 - Eyes
 - Anus
 - Ears
 - Navel / Umbilical cord
 - Genital / reproductive organs

(First 4x ½ =2mks)

2. Duties of a worker bee
 - To feed the aneen drones and brooden
 - To collect nectar, pollen gum and water
 - To clean the hive
 - To make honey and bees wax
 - To guard / defend the hive against intruders.
 - To build combs
 - To seal cracks and crevices in hives with propolis / wax
 - To control the temperature of the hive

(First 4 x ½ = 2mks)

3. Large white
Charolais
Angora goat
Corriedale

(4x ½ = 2mks)

4. Signs of heat in sows.
 - Frenenturination
 - Clear / colourless / slimy mucus discharge from the vulva.
 - Vulva swells and becomes reddich
 - Tendency to mount on others and accepting to be mounted upon
 - Stands still when pressure is applied on her back.

(First 4 x ½ = 2mks)

5. Tools used for hoof trimming
 - Hoof trimmer / foot trimming knife/ trimming knife
 - Hoof cutter / sharp knife

(2x1=2mks)

6. Precautions in seasoning timber
 - provide roofed shade to keep off direct sunshine or rain
 - Stack timber in heaps supported off the ground to allow free air circulation.
 - Separated the timber using wooden rods (sticks) to allow passage of air.
 - Keep the support and rods close to avoid sliding and bending

(3 x ½ = 1 ½ mks)

7. Reasons for raddling
 - To identify the ram that has served the ewe.
 - To shoe fertile animals
 - To identify the ewes that have been served.



- (First 2x ½ = 1mk)
8. Methods of selection
- Mass selection
 - Progeny testing
 - Contemporary comparison.
- (3x ½ = 1 ½ mks)
9. Breeding systems
- Close breeding
 - Line breeding
- (2x ½ = 1mk)
10. Stocking in a fish pond
- Fertility of the pond
 - Addition of artificial feeds
 - Type of fish in the pond
 - Frequency of harvesting
 - Method of harvesting
- (First 4 x ½ = 2mks)
11. Depreciation of Equipments
- Age of the farm equipment
 - Intensity of use of the equipment
 - Manufactural materials of the equipment
 - Maintenance of the farm equipment
 - Field / existing conditions where it is used.
- (4x ½ = 2mks)
12. Reasons for dehorning
- To avoid inquiries to the farmer and other animals / hide
 - To make animals docile and easy to handle
 - For economical use of space when either transporting or feeding
 - To avoid destruction of farm structures
 - To make animals look better.
- (first 4 x ½ = 2mks)
13. Quantities of avation
- Should be balanced in terms of nutrients
 - Should be palatable to the animal
 - Should be highly digestible
 - Free from the contaminants
 - Free from poisonous substances
- (First 2 x ½ = 1mk)
14. Livestock diseases caused by viruses
- Food and mouth disease
 - rinder pest
 - Rabies
 - Rift valley fever
 - New castle
 - Gumboro disease of poultry
 - Swine influenza
 - Marek's disease/ fowl paralysis
- (First 4 x ½ = 2mks)
15. (a) a roughage is a feed stuff with high fibre content and a low energy content while a concentrate is a feed stuff with high protein and / or energy content and low in crude fibre content
(marked a s a whole)
- (b) Qualities of a creep feed
- It is palatable



- Highly digestible
- It is attractive to piglets

($\frac{1}{2} \times 2 = 1\text{mk}$)

16. Maintenance services on a tractor

- Check the tyre pressure and adjust accordingly
- Check the level of electrolyte
- Check the oil level with a dipstick
- Check the water level in the radiator and add if low
- Tighten bolts and nuts if loose
- Remove trash from the machine.

(First 4 x $\frac{1}{2} = 2\text{mks}$)

17. Preventive measures for bloat

- Giving hay before releasing animals to fresh pasture
- Giving fairly wilted grasses after cutting
- Spraying pasture with vegetable oil or liquid paraffin before grazing animals in the field
- Animals should be taken for grazing after the dew has cleared from vegetation

($\frac{1}{2} \times 2 = 1\text{mk}$)

18. Management practices in a crush

- Hand dressing
- drenching / deworming / dosing against internal parasites
- Vaccination
- Identification i.e branding
- Pregnancy diagnosis
- Artificial insemination (AI)
- Milking
- Dehorning
- Collection of semen
- Taking body temperature
- Hoof trimming

(First 4 x $\frac{1}{2} = 2\text{mks}$)

SECTION B (20 marks)

19. (a) Head retraction in chicks

(b) Manganese deficiency

- (c)
- Sterility in birds / delay in sexual maturity
 - Reduced hatchability
 - Reduced shell thickness
 - Irregular ovulation

(First 2 x 1 = 2mks)

(d) Activates enzymes

- Used in metabolism to carbohydrates
- Used in metabolism of proteins and fats

(1 x 1 = 1mk)

20. (i) 1 - Piston

2 - Crankshaft

3 - Propeller shaft

4 - Differential

(4 x $\frac{1}{2} = 2\text{mks}$)

(ii) Hitching

(1 x 1 = 1mk)

(iii) One – point hitch

Two – point hitch

(2 x $\frac{1}{2} = 1\text{mk}$)

21. A – Chicks are crowding around the heat source because the temperatures are low.

B – Chicks move farther away from the heat source because the temperatures are high.

C – Chicks are evenly distributed within the brooder because the temperatures are favourable.

D – Chicks move towards one side because the temperatures on the side of the brooder are unfavourable due to effect of drought.

(4 x $\frac{1}{2} = 2\text{mks}$)



Four requirements of a brooder

- Should be well aerated and warm
- Should have enough feeders and waterers
- Should be spacious enough
- Should be clean
- Should be properly drained

(4x ½ = 2mks)

22. (a) D – Rafter
E – crosstie
F – Purlin
G – gutter

(4x ½ = 2mks)

- (b) - To support roofing materials
- To ensure that roofing materials are firmly held after nailing unto the iron sheets.

(2 x ½ = 1mk)

- (c) To collect water to be stored in water tanks
To prevent rain water from splashing directly on the walls

(2x ½ = 1mk)

23. (i) L – wire strainer / monkey
M – sahs clamp
N – Dibber
O – Spokeshave

(4 x ½ = 2mks)

- (ii) L – Tightening wires during fencing
M – Holding timber firmly while carrying out operations
N – Making holes for transplanting
O – Smoothing curved wooden surfaces.

(4x ½ = 2mks)

SECTION C (40 Marks)

24. (a) - For fast growth rate and maturity
- For longer economic and productive life
- For maximum production or performance
- For good quality products
- To reduce spread of diseases to man and other animals.
- Health animals are economical and easy to keep.
- To reduce the cost of production

(7x1=7mks)

- (b) - Cause anaemia
- Deprive the host animal of its food
- Damage tissues and organs
- Disease transmission
- Cause irritation
- Obstruct internal organs

(5x1=5mks)

- (c) Farrowing pen – For farrowing and releasing piglets
Boar's pen – Houses the boar and used for mating
Weaner's / Fattener's pen – houses piglets from weaning to marketing stage.
Gilt's pen - Houses young females / gilts upto service age / 12 months
In-pig pen - Houses pregnant pigs before they are moved to the farrowing pen.

(4x2 = 8mks)

25. (a) (i) Wear protective clothings like overalls, veil, gumboots and carry beehive tool and



insecticide for emergency and appropriate containers and smoke.

- (ii) Approach the beehive early in the morning or late in the evening from behind
- (iii) Work the smoker and apply smoke into the hive through entrance to make bees less active.
- (iv) Remove the top lid and check each comb in turn and scrub the bees and cut the honey combs.
- (v) Place the honey combs in a rust roof container.
- (vi) Replace back the bars and the lid to original position

(5x1=5mks)

- (b) - Age
- Poor health
- Physical deformities
- Hereditary defects
- Low lipids
- To avoid inbreeding

(5x1=5mks)

- (c) (i) - Over crowding
- Sudden change of routine operations
- Sudden loud noise
- Sudden change in weather conditions
- Presence of strangers
- Parasite infestation
- Poor feeding / unbalanced diet
- Introduction of new birds
- Rough handling

(First 5x1=5mks)

- (ii) - make laying boxes / nests dark / dim
- Provide adequate floor space
- Feed birds on adequate balanced diet
- Feed birds according to age groups
- control external parasites
- hang greens in the poultry house
- Debeak perpetual cannibals
- Cull perpetual cannibals.

(First 5x1=5mks)

26. (a) - Locate the area to be fenced off.
- Measure the area and determine the amount of material needed.
 - Mark out the fencing posts and locate the gates.
 - Dig the holes using auger to a depth of 0.6m deep or appropriate depth.
 - Put the poles / posts in the holes and align them using a string making sure the fence is straight.
 - Reinforce the poles / posts with concrete or affirm the soil all around them till they are firm.
 - Lay out the barbed wire leaving a space of 24-36cm between each wire line although this can vary.
 - Drive in the staples or fencing nails
 - Brace the corner and gate posts securely to ensure proper wire tension
 - Use wire strainer to tighten the wire
 - Install the gates

(10x1=10mks)

- (b) - The sow is put in a farrowing pen with creep area set aside for piglets
- When piglets are born ensure they are able to breathe.
- Cut and disinfect the navel cord using iodine solution
- Put the piglets in the creep area which has warm litter and possibly a source of heat to prevent chilling.



- Ensure the piglets suckle the sow
- Administer iron infection to prevent anaemia
- Provide creep feed to piglets adlibitum / to satisfaction
- Provide clean water
- Weigh the piglets to determine birth weight.
- Provide piglet pellets as from the third day after birth.
- Weigh the piglets after 18th day and possibly weekly to determine growth rates.
- Remove the milk teeth / canine teeth to prevent injury to the sow's titter which can lead to mastitis disease.
- Ensure cleanliness in the creep area
- Control external parasites by use of appropriate pesticide.
- Gradually introduce the piglets to other feeds and wear them at 8 weeks after birth.
(10x1=10mks)