KCSE PREDICTION 1
ALL SUBJECTS

Class of KCSE March 2022 candidates are encouraged to take this exam serious.

All the best!

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PREDICTION 1

Name _____ **Index No**_____

School _____ **Candidate's Signature** _____

Date _____

121/1
MATHEMATICS ALT A
PAPER 1

2021
2 ½ Hours

Instructions to Candidates

a) *Write your name and index number in the space provided above.*
b) *Sign and write the date of examination in the space provided above.*
c) *This paper consists of **TWO** sections: **section I** and **section II***
d) *Answer **all** the questions in **section I** and on only **five** questions from **section II***
e) ***Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question**.*
f) *Marks may be given for correct marking even if the answer is wrong*
g) ***Non-programmable** silent calculator **and** KNEC Mathematical tables may be used, except where stated otherwise.*
h) The paper consists of 15 printed pages.
i) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
j) ***Candidates should answer the questions in English***

For Examiner's Use Only

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	**Total**

Section II

17	18	19	20	21	22	23	24

Grand Total

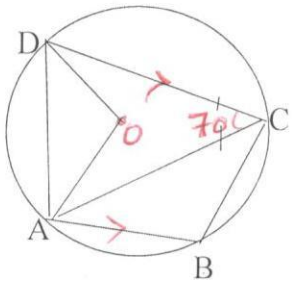
SECTION I [50 marks]
Attempt All the Questions

1. Evaluate $\frac{\text{½ of } 3\text{ ½} + 1\text{ ½ } (2^1/_2 - {}^2/_3)}{\text{¾ of } 2\text{ ½} \div \text{½}}$ (3 marks)

2. Mr.Rotich decided to honour his top 3 students in Mathematics by sharing sh 12,000 in the ratio 6:5:x for the first, second and third student respectively. If student number 2 got sh 4,000, find the value of x. . (3 marks)

3. Express $3.02\dot{3}$ as a fraction. (2 marks)

4. O is the center of the circle below and AB is parallel to DC. Angle ACD=70^o and angle ACB=10^o (3 marks)



Calculate the angles:

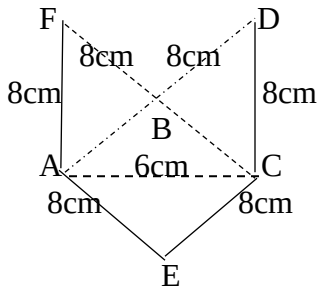
(i) ABC (2 marks)

(ii) OAD (2marks)

5. A sphere has a radius of 3.0cm. Find its density if the sphere has a mass of 100grams. (3 marks)

6. Use reciprocal table to evaluate reciprocal of 0.3654. Hence find $\frac{\sqrt{3.24}}{0.3654}$ to 3 significant figures (3 marks)

7. Below is a net of a model of a 3- dimensional figure. The lengths AB=BC=AC=6cm and lengths AF = FB = BD = CD = CE = AE = 8.0 cm. (3 marks)



(a) Sketch the solid model taking ABC as the base and height 5cm. (2 marks)

(b) Name the figure sketched. (1 mark)

8. Using logarithm tables, evaluate. (4 marks)

$$\frac{\sqrt[3]{47.26x0.866^2}}{345.8}$$

9. A line has the equation $3x - 2y - 5 = 0$. Find:

(a) The gradient of the line. (1mark)

(b) The equation of the line in the form $y = mx+c$ that passes through the point (4,6) and is perpendicular to the given line. (3 marks)

10. The exterior angle of a regular polygon is $(x-50)^o$ and the interior angle is $(2x+20)^o$. Find the number of sides of the polygon. (3 marks)

11. Simplify $\frac{x-5}{x+5} - \frac{7x-35}{x-25}$ (3 marks)

12. The cost of a camera outside Kenya is US $1,000 Jane intends to buy one camera through an agent who deals in Japanese. The agent charges her a commission of 5% on the price of the camera and further 1260 Yen as importation tax. How much Ksh will she need to send to the agent to obtain the camera, given that (4 marks)

    1 U $ = 105.00 Yen
    1 US$ = Ksh 63.00

13. Given that **a** $\binom{2}{3}$ and **c** = $\binom{3}{5}$ and **a** + 2**b** = **c**. Find:

(i) **b** (2 marks)

(ii) Magnitude of (**a** + **b**) correct to 2 decimal places (2 marks)

14. A circle of radius 10.5cm has a sector whose angle at the centre of 12^o is cut off. Find the perimeter of the resulting sector. (2 marks)

15. Find all integral values of x which satisfy the inequalities $x + 11 > 4x - 19 \geq (2 - x)$

(3 marks)

16. A number q is such that when it is divided by 27, 30 and 45 the remainder is always 3. Find the smallest value of q. (2 marks)

SECTION II – 50
Attempt Only Five Questions

17. A passenger train travelling at 25Km/hr is moving in the same direction as the truck travelling at 30km/hr. The railway line runs parallel to the road and the truck takes 1 ½ minutes to overtake the train completely.

(a) Given that the truck is 5m long determine the length of the train in metres. (6 marks)

(b) The truck and the train continue moving parallel to each other at their original speeds. Calculate the distance between them after 4 minutes and 48 seconds after the truck overtake the train. (2 marks)

(c) The truck stopped 45 minutes after overtaking the train. How long did the train take to catch up with the truck? (2 marks)

18. The table below shows the distribution of marks scored by 40 students in an examination.

Class interval	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99
Frequency	2	3	6	11	8	x	2	1

(a) Find the value of x (1 mark)

(b) State the modal class (1 mark)

(c) Calculate the mean mark correct to 2 d.p (4 marks)

(d) Calculate the median mark (4 marks)

19. A school water tank is in the shape of a frustum of a cone, the height of the tank is 7.2m and the top and bottom radii are 6m and 12m respectively.

(a) Calculate the slant height of the frustum, correct to one decimal place. (2 marks)

(b) Calculate the area of the curved surface of the tank correct to 2 d.p. (3 marks)

(c) Find the capacity of the tank, in litres correct to the nearest litre. (3 marks)

(d) On a certain day, the tank was filled with water. If the school has 500 students and each student uses an average of 40 litres of water per day, determine the number of days the student s would use the water. (2 marks)

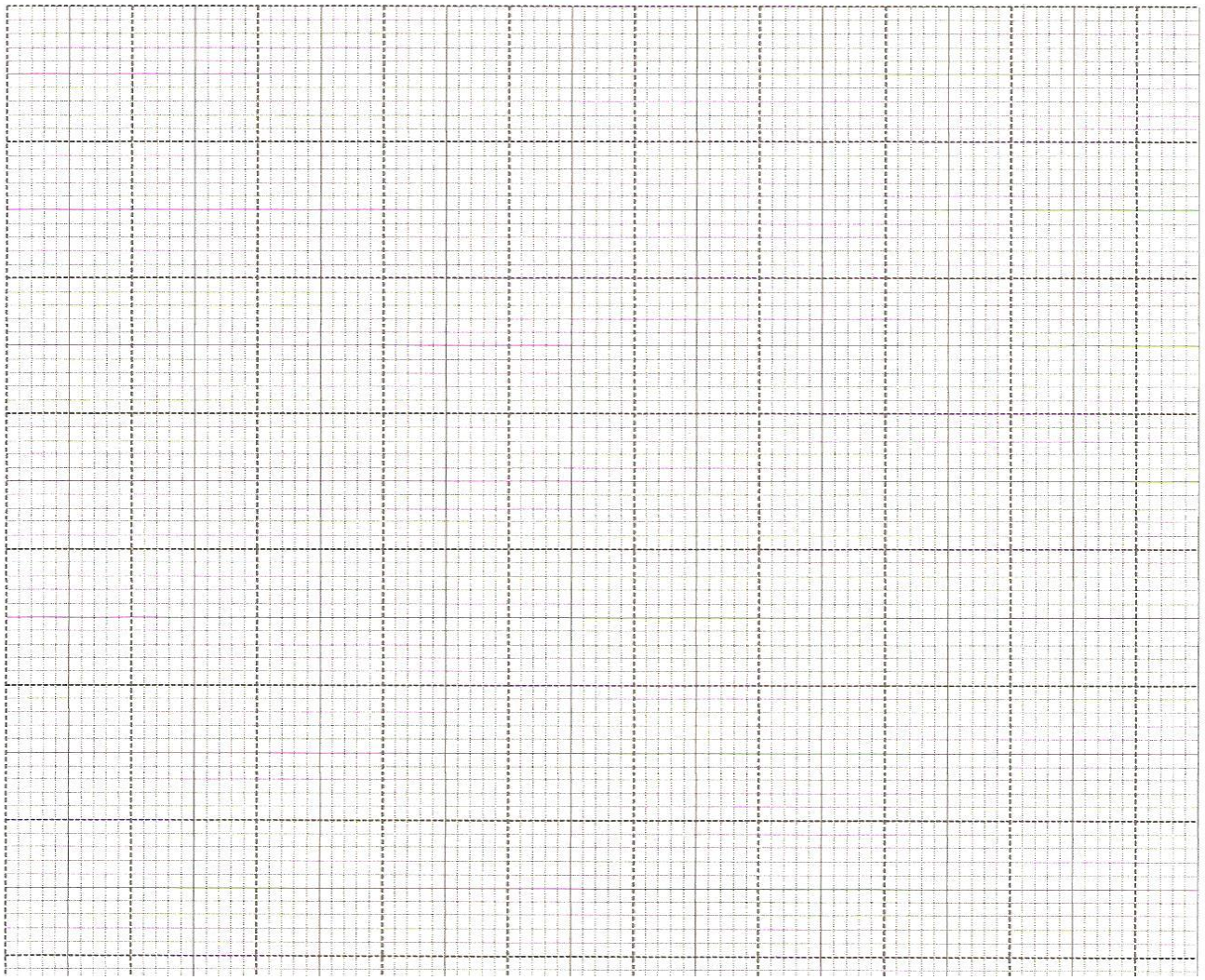
20. In Bomet country, a tailor bought a number of suits at a cost of sh 57,600 from wholesaler. Had he bought the same number of suits from a supermarket, it would have cost him sh 480 less per unit. This would have enabled him to buy four extra suits for the same amount of money.

(a) Find the number of suits the tailor bought. (7 marks)

(b) The tailor later sold each suit for sh 720 more than he paid for it. Determine the percentage profit he made. (3 marks)

21. A triangle BC with vertices A A(-4,2), B(-6,6) and C(-6,2) undergoes enlargement scale factor -1 and centre (-2,6) to produce triangle $A^IB^IC^I$.

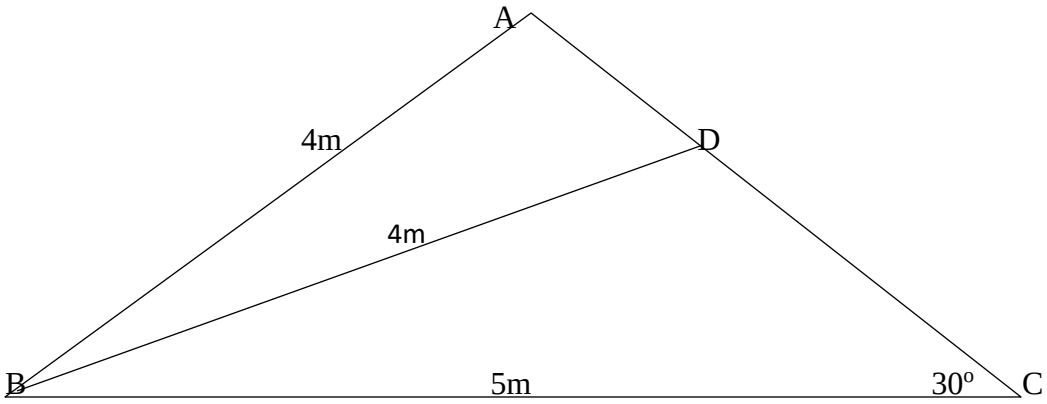
(a) On the grid provided draw triangle ABC and its image $A^IB^IC^I$, state the co-ordinates of $\Delta A^IB^IC^I$ (4 marks)



(b) Triangle $A^{I}B^{I}C^{I}$ is the reflected in the line y+x to give $A^{II}B^{II}C^{II}$. Draw triangle $A^{II}B^{II}C^{II}$ and state the co-ordinates of its vertices. (3 marks)

(c) If triangle $A^{II}B^{II}C^{II}$ is mapped onto a triangle whose co-ordinates are A^{III} (-4,-2), B^{III} (-6,-6) and C^{III} (-6,-2) by a rotation, find the centre and angle of rotation. (3 marks)

22. The figure below shows a piece of land ABC not drawn to scale. Angle BDC is obtuse.



Calculate correct to 2 decimal places

(a) Angle BC (3 marks)

(b) Length AD (3 marks)

(c) Length DC (2 marks)

(d) Area of triangle ABC (2 marks)

23. The following measurements were recorded in a field book of a farm in metres (xy = 400m)

	Y	
	400	
C60	340	
	300	120D
	240	100E
	220	160F
B100	140	
A120	80	
	X	

(a) Using a scale of 1cm representing 40m draw an accurate map of the farm. (4 marks)

(b) If the farm is on sale at Ksh 80,000.00 per hectare, find how much it costs. (6 marks)

24. A trader bought 5 shirts and 2 trousers at a cost of sh 2400. If he had bought 2 shirts and 4 trousers, he would have spent sh.3200.

(a) (i). Form two equations to represent the information above. (2 marks)

(ii). Using matrix method find the cost of a shirt and a trouser. (4 marks)

(b) If the trader bought 16 shirts and 20 trousers and sold them making a profit of 20% per shirt and 15% per trouser, find the percentage profit made on the total sale. (4 marks)

PREDICTION 1

NAME..... INDEX NO .....

SCHOOL..... Date .....

FORM 4
MATHEMATICS PAPER 2 2021
TIME 2 ½ HOURS

Instructions to candidates:

1. Write your name and index number in the spaces provided above in this page.
2. The paper consists of two sections; section 1 and 2
3. Answer all questions in section 1 and only five questions in section 2.
4. All working and answers must be written on the question paper in the spaces below each question.
5. Marks may be given for correct working even if the answer is wrong.
6. Use mathematical tables and electronic calculator where necessary.

For examiners use only

Section 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	**Total**

Section 2

17	18	19	20	21	22	23	24	**Total**

Grand Total | |

Section 1 (compulsory section – 50 marks)

1.Solve the equation $\frac{x+1}{2} - \frac{x-3}{3} = 4$
(2mks)

2. If point A (1,3), B(5, -2) and C(-11, y) are collinear, calculate the value of y.
(3mks)

3.Simplify $\frac{12x^2 - 16x}{20-11x-3x^2}$ (3mks)

4.Vector **a** passes through the point (5,10) and (3,5) and vector **b** passes through (x, 6) and (-5, -4). If a and b are parellel, find the value of x. (3mks)

5.Make t the subject of the formula

$P = \frac{1}{n}$

6.Find the equation of a line that passes through (3,7) and which is perpendicular to another line whose equation is $3y = 9x - 5$. (3mks)

7.Two similar containers have masses of 256kg and 108kg respectively. If the surface area of the smaller container is $810cm^2$, calculate the surface area of the larger container.(3mks)

8.In the figure below, O is the center of the circle $<BCA = 80^o$ and $<CBO = 10^o$. Determine the size of $< CAB$ (3mks)

9.Expand $(1 - a)^8$ Hence use the expansion to evaluate 0.98^8 to 4 Significant figures. (4mks)

10.Simplify the expression

$\frac{\sqrt{3-\sqrt{2}}}{\sqrt{3+\sqrt{2}}}$ giving your answer in the for $a+b\sqrt{c}$,where a, b and c are real numbers (3mks)

11.The dimensions of a rectangle are given as 12.5cm and 6.75cm respectively. Calculate the percentage error in its area correct to 2 decimal places (4mks)

12.Factorise the expression $2x^2 + x - 15$, and hence value the equation $2x^2 + x - 15 = 0$ (3mks)

13.Find the integral value of x for which. (3mks)

$5 \leq 3x + 2$

$3x - 7 \leq 2$

14. Wanjiru Ayuma and Atieno shared the profits from their joint business in the ratio 3:7:9 respectively. If Ayuma received sh. 60,000. Find how much profit they realized. (2mks)

15. Basket A contain 5 oranges and 3 lemons while basket B contain 4 oranges and 3 lemons. A basket is selected at random and two fruits picked from it, one at a time without replacement. Find the probability that the fruits picked are of the same type. (3mks)

16.The fiqure below shows atringle PQR, PR = 15CM, TR= 5cm and ST is parallel to QR. If the area of triangle PQR is 315cm^2 find the area of the quadrilateral QRTS.(4mks)

SECTION II (Attempt only five questions 50)

17.Using a ruler and a pair of compasses only construct a triangle ABC in which BC = AC= 6cm and <ACB = 135º measure AB. (3mks)

a)Measure AB (3mks)

b)From A drop aperpendicular to meet BC, extended at D.(3mks)

c)Measure the length of AD (1mk)

ii) Calculate the area of the triangle ABC. (3mks)

18.The table below shows marks scored by 38 students in a test.

35	47	69	57	75	58	48	56
46	49	81	67	63	56	80	72
62	70	46	26	41	58	68	73
64	49	64	54	74	35	51	
25	41	61	56	57	28	40	

a)Starting with the mark of 25 and using a class internal of 10, make a frequency distribution table.) (3mks)

b)State the modal class. (1mk)

c)Calculate the mean mark. (3mks)

d)Calculate the median mark. (3mks)

19.a) Complete the table below for the equation $y = x^3 + 4x^2 - 5x - 5$ for the range $-5 \leq \times \leq 2$ (2mks)

X	-5	-4	-3	-2	-1	0	1	2	3
Y			19			-5			

b) On the grid provided,draw the graph of $y=x^3 + 5x^2\ 5x^5$ for $-5 \leq \times \leq 2$. Using a scale of 1cm to represent 1 unit in the horizontal axis and 1cm to represent 5 units vertically. (3mks)

c)Use the graph to solve the equation $x^3 + 4x^2 - 5x - 5 = 0$ (2mks)

ii)By drawing a suitable line graph, solve the equation $x^3 + 4x^2 - 5x - 5 = -4x.- 1$ (3mks)

20) In the figure below, PQR is a tangent to the circle at Q. TS is a diameter and TSR and QUV are straight lines. QS is parallel to TV. <SQR = 40º And < TQV =55º

a)Find the angles below giving reasons for each answer.

i)QTS (2mks)

ii)QRS(2mks)

iii)QVT(2mks)

iv)UTV(2mks)

v)USQ(2mks)

21.In the diagram below OPQ in such that QN : NP = 1:2, OT:TN =3:2, and M is the mid point of OQ

a)Given that OP = p and OQ = q. Express the following vectors in terms of p and q

i)PQ

ii)ON

iii)PT

iv)PM

b) i) Show that point P,T and M are collinear (3mks)

ii) Determine the ratio MT:TP (1km)

22.The first term of an AP is 2. The sum of the first 8 terms is 156

i)Find the common difference of the AP (2mks)

ii)Given that the sum of the first n in terms of the AP. is 416. Find n. (2mks)

b)The 3^{rd} , 5^{th} and 8^{th} terms of another AP correspond to the first three consecutive terms of a GP . If the common difference of the AP in 3, find

i) The first term of the AP (3mks)

ii)The sum of the first 8 term of the GP to 4 significant figures (3mks)

23)Three variables P, Q and R are such that P various directly as Q and inverserly as the square of R

a)When P = 9, Q=12 and R=2 Find P when Q = 15 and R=5 (4mks)

b)Express Q in terms of P and R (1mk)

c)If P is increased by 20% and R reduced by 10%, find

i)a simplified expression for the change in Q in terms of P and R (3mks)

ii)The percentage charge in Q (2mks)

24. OABC is a parallelogram with verities 0(0,0), A(2,0) B(3,2) and C(1,2). O,A,B,C is the image of OABC under transformation matrix. $\begin{pmatrix} -2 & 0 \\ 0 & -2 \end{pmatrix}$

a) Find the coordinates of $O^1A^1B^1C^1$ (2mks)

ii)On the grid provided, draw OABC and $O^1A^1B^1C^1$ (2mks)

b) Find $O^{11}A^{11}B^{11}C^{11}$, the image of $O^{1}A^{1}B^{1}C^{1}$ under transformation matrix $\begin{pmatrix} 1 & 0 \\ 0 & -2 \end{pmatrix}$

(2mks)

ii) On the same grid draw $O^{11}A^{11}B^{11}C^{11}$ (1mk)

c) Find a single matrix that maps $O^{11}A^{11}B^{11}C^{11}$ onto OABC (3mks)

PREDICTION 1

NAME: _____SCHOOL: _____

INDEX NO: _____ DATE: _____

101/1

ENGLISH PAPER 1
[Functional Skills]
FORM 4 2021

1. FUNCTIONAL WRITING (20 MARKS)

You are the manager of Bomet Transport Sacco. Of late, you have realized that some of the workers, mainly drivers and conductors are no longer working as before, hence the company has got into loss.

(a) Write an internal memo to the workers, warning them of disciplinary actions if they do not change their behavior and attitude. Some of the areas you wish to address are; punctuality, lack of courtesy, bribery and any other relevant area. (12 marks)

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(b) Write a congratulatory note to Mr. Mark Otieno, a conductor who has recently been promoted to the post of a driver because of his exemplary performance. (8 marks)

2. CLOZE TEST

Perhaps the best way to _____1_____ reading poetry responsively is not to allow yourself to be intimidated ____2_____ it. Come to it, initially at least, the way you might ____3_____ to a song several times before you ___4_____ it all, before you have a sense of how it works ___5_____ it's going and how it gets there. You don't worry about analyzing a song when you listen to it, even though after ___6_____ experiences with it you know and anticipate a favourite part and know, on some level, why it works for you. __7_____ yourself a chance to respond to poetry. The hardest work has already ___8_____ done by the poet, so all you need to do at the start __9_____ listen for the pleasure produced by ____10_____ poet's arrangement of words.

3. ORAL SKILLS (30 MARKS)

(a) ***Read the following riddling session and then answer the questions that follow.***

Challenger:	Catch a riddle!
Respondent:	I catch it!
Challenger:	My coat changes colour with age and when unclothed, I feed you.
Respondent 1:	A tree
Challenger:	No
Respondent 2:	A coconut?
Challenger:	Still not correct. Try harder.
Respondent 3:	Then we are beaten. Give us the answer.
Challenger:	Only if you give me a reward.
Respondent 1:	We give you Kijiji
Challenger:	No. I will not take Kijiji. The people are as cold and unwelcoming as can be.
Respondent 2:	We give you Mugunda with its entire fertile land and fat cattle.
Challenger:	I went to Mugunda and the people of Mugunda asked me to greet you. Do you receive the greetings?
Respondents:	Yes, we do.

Challenger: The answer is - - - banana.

(i) Identify the six stages of riddling cycle in this riddling session. (6 marks)

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(ii) What non-verbal cues would the challenger use in response to each offer of the prizes? (2 marks)

_____

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(iii)How would you say the following statement? The answer is - - - banana (2 marks)

_____

_____

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_____

(b) You speak to a group of form ones about an issue of concern and you notice during the talk that many of them are dozing, yawning, fidgeting and sitting carelessly. What would this mean to you? (4 marks)

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_____

(c) Who and when would one do the following? (2 marks)

(i) Curtsy

_____

_____

(ii) Bow

_____

_____

(d) Provide another word that is identical in pronunciation to the underlined words in the sentences below. (5 marks)

(i) Why did the idle bridal party groan?

_____

_____

_____

(ii) The bear caught the whale.

_____

_____

(e) Indicate the intonation in the following sentences (3 marks)

(i) Are you going to the meeting?

_____

_____

(ii) Where is your friend?

_____

_____

(iii)I saw him yesterday.

_____

_____

(f) You are a member of a discussion group.

(i) Identify three ways through which you would know that it is your turn to speak. (4 marks)

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(ii) How would you encourage the other person to continue talking in a conversation? (2 marks)

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PREDICTION 1

101/2
ENGLISH
CREATIVE COMPOSITION AND ESSAYS BASED ON SET TEXTS)
Paper 2
Time: 2 ½ Hours

Kenya Certificate of Secondary Education

INSTRUCTIONS TO THE CANDIDATES: -

- *Answer **three** questions only*
- *Questions **one** and **two** are compulsory*
- *In question **three** choose only **one** of the optional texts you have prepared on*
-

FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1	20	
2	25	
3	20	
4	15	
Total Score	80	

This paper consists of 11 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

1.READ THE PASSAGE BELOW AND ANSWER THE QUESTIONS THAT FOLLOW

We live in a world that is finite in many ways. The size of the world, and natural resources like water and minerals are also finite. We, therefore, face the challenge of ensuring that we manage the natural resources in a sustainable way. This will not only ensure humanity continues to inhabit the planet, but that other living things, like animals, insects and plants will also not become extinct.

One critical natural resources that we should manage efficiently and effectively is water. Researchers have revealed that although there is enough land, water and human capacity to produce sufficient food for a growing population for the next 50 years, there is already a global water crisis. But one could wonder how on the one hand, there is enough water and, on the other hand there is a crisis.

The global crisis exists in the context of the numerous local crises. Whereas in some parts of the world the amount of water available is much more than the demand, there are many parts of the world the amount of water is a crisis. However, the crisis is not due to shortage but mismanagement of the water resources. We need to develop and implement urgent strategies to reverse this trend. A major area to address in water resources management is water scarcity.

Experts define water scarcity from the perspective of individual water users rather than the amount of water available in an area. Individuals are w3ater insecure when they lack secure access to safe and affordable water to consistently satisfy their needs for drinking, washing, food production and livelihoods. An area is considered to be water insecure when a large number of people are water insecure. In many cases this leads to food insecurity, diseases and conflict.

The united nations have designated 22nd March as the World Water day. On this day, we are all advised to take time to focus our attention on the critical water issues of our time and the future. This day has been observed since 1993. However, access to safe and adequate clean water for all has remained a major challenge. The Government of Kenya had set a target of ensuring that all citizens have access to safe and clean drinking water by the year 2000, but this unfortunately was not realized. Many people continue to experience physical and economic water scarcity.

According to experts, physical water scarcity occurs when water resources are insufficient to meet demands, including minimum environmental flow requirement. Arid and semi-arid areas of the country, like parts of Eastern and Northern Kenya are most often associated with physical water scarcity. However, another trend is emerging of an artificially created physical water scarcity, even where water is apparently abundant. This is due to the over allocation and overdevelopment of water resources.

The effects of physical water scarcity include severe environmental degradation, such as river desiccation and pollution; declining ground water demand stables; water allocation disputes; and failure to meet needs of some groups. The solution to physical water scarcity lies in good management of water resources and the related factors.

Economic water scarcity is the other type of scarcity that affects many Kenyans. This occurs when investments needed to keep up with growing water demands are constrained by financial, human or institutional capacity.

The international Water Management Institute has identified the following as causes of economic water scarcity- favouring one group over another, and not listening to the voices of women and disadvantaged groups.

The Institute, further, gives the symptoms of economic water scarcity to include inadequate infrastructural development, so that people have trouble getting enough water for agriculture and domestic purposes; high vulnerability to seasonal water fluctuations, including floods and long-and short –term drought; and inequitable distribution of water though infrastructure exists.

The late Professor Wangari Maathai not only raised the awareness of the whole world on the importance of taking care of our water resources, but resources, but also started the Green Belt Movement, which spearheaded planting of millions of trees in Kenya and practicing sustainable agriculture. Her efforts were recognized by many international organizations and she received many awards, including the Nobel Peace Prize. We have a responsibility, as Kenyans, to emulate the example of Professor Wangari Maathai in order to reverse the global water crisis

Questions

1. From the paragraph, identify two forms of global water crisis. (2mks)

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2. What is the main intervention required to help reduce the global water crisis? (2mks)

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3. Identify irony in the second paragraph. (2ks

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…….

4. What are the two forms of water scarcity discussed in the passage? (2mks)

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5. What is the importance of the World Water Day? (3mks)

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6. In about 35 words summarize Professor Wangari Mathai's contribution to issues of water management. (4mks)

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7. The global crisis exists in the context of the numerous local crises ……. (Add a question tag) (1mk)

8. Explain the meaning of the following words as used in the passage. (3mks)

I. Desiccation……..
II. Emulate…….
III. Constrained…….

2.Read the excerpt below and answer the questions that follow.

Nora: No; yesterday it was very noticeable. I must tell you that he suffers from a very dangerous Disease.

He has consumption of the spine, poor creature. His father was a horrible man who committed all Sorts of excesses; and that is why his son was sickly from childhood, do you understand?

Mrs. Linde: *(dropping her sewing)* But, my dearest Nora, how do you know anything about such things?

Nora*: (walking about*) Pooh! When you have three children, you get visits now and then from - from married women, who know something of medical matters, and they talk about one One thing and another.

Mrs. Linde: *(goes on sewing a short silence)* Does Doctor Rank come here every day?

Nora: Everyday regularly. He is Torvalds's most intimate friend, and a great friend of mine too. He is just like one of the family.

Mrs. Linde: But tell me this – is he perfectly sincere? I mean, isn't he the kind of man that is very anxious to make himself agreeable?

Nora: Not in the least. What makes you think that?

Mrs. Linde: When you introduced him to me yesterday, he declared he had often heard my name mentioned in this house; but afterwards I noticed that your husband hadn't the slightest idea who I was. So how could Doctor Rank -?

Nora: That is quite right, Christine. Torvald is so absurdly fond of me that he wants me absolutely to himself, as he says. At first he used to seem almost jealous if I mentioned any of the dear folk at home; so naturally I gave up doing so. But I often talk about such things with Doctor Rank, because he likes hearing about them.

Mrs. Linde: Listen to me, Nora. You are still like a child in many ways and have a little more experience. Let me tell you this – you ought to make an end of it with Doctor Rank.

Nora: What ought I to make an end of?

Mrs. Linde: Of two things, I think. Yesterday you talked some nonsense about a rich admirer who was to leave you money -

Nora: An admirer who doesn't exist, unfortunately! But what then?

Mrs. Linde: Is Doctor Rank a man of means

Nora: Yes, he is.

Mrs. Linde: And has no one to provide for?

Nora: No, no one; but -

Mrs. Linde: And comes here every day?

Nora: Yes, I told you so.

Mrs. Linde: And comes here every day?

Nora: Yes, I told you so.

Mrs. Linde: But how can this well-bred man be so tactless?

Nora: I don't understand you at all.

Mrs. Linde: Don't prevaricate, Nora. Do you suppose I don't guess who lent you the two hundred and fifty pounds?

Questions

1. Explain briefly what happens immediately before this excerpt. (3mks)

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2. Identify the humour in Nora's answer on how she came to know "anything about such things." (2mks)

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3. Why does Mrs. Linde ask so many questions about Dr. Rank's character? (2mks)

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4. Identify and explain dramatic irony in this excerpt. (3mks)

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5. What does this passage reveal about the character of Dr. Rank? (4mks)

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6. 'I don't understand you all.' (Rewrite in reported speech) (1mk)

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7. Identify and illustrate two theme two themes evident in this excerpt. (4mks)

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8. Explain briefly what happens after this extract. (3mk)

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9. Explain the meaning of the following words and phrases as used in this excerpt. (3mks)

i. Excesses ……..

ii. Make an end of it…….

iii. A man of means……

3. Read the song below and answer the questions that follow.

Let the enemy come, ah

They came with guns,

From the West,

Look, look, look.

There they arrive,

They attacked us in our land

They attacked us at Kivachenge,

In our land of Chavambe,

We fought and we were arrested, ah

There our war started, ah

It was Ngutoka son of Watila,

Kituyi, son of Namuyonga, ah

With youthful zest and energy,

They fought them, ah,

They defended our people,

They fought

Like Wabomba son Kalenda,

The brother of Nasurutia, ah

Our people's secrets are ours

Revealing people's secret vexes the heart

Ah, vexes the heart

Clansmen,

There was a traitor from Wanga, ah,

Murunga was his name

There was a traitor from Wanga, ah.

Mumia, son Shikundu

Oh, fame is a curse

Wangamati son of Wawire,

Circumcised in 1840's, ah

He Bukholo.

We fought, ah

With their machine guns from the West,

We fought them

Ah, we fought them.

Questions

a) What type of song is this?(2mks)

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……

b) What is the singer's attitude towards:

i. The heroes (3mks)

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……

ii. The enemy (3mks)

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……
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c) Identify and illustrate two features common to oral poems in this song(4mks)

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d) State and illustrate two elements of culture of the singer's people (4mks)

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e) Explain one thing that this community abhors. (2mks)

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f) Write synonym for each of the following words (2mks)

I. Zest ……...
II. Revealing ……..

4. Grammar

a) Rewrite the following sentences according to the instructions. (5mks)

I. When the speaker saw the enthusiasm of the student audience, she promised to come again. (Begin: Seeing……)

……
……

II. The boy's height shocked all the other students. (Rewrite beginning: All the other students……..)

……
……

III. The farmers only decided to plant maize after the rains started. (Begin: Not until……..)

……
……..

IV. The students have cleaned the classrooms. (Begin: The classrooms ……...)

……
……

V. This is a beautiful work of art. (Begin: What…….)

……
……

b) Use the correct form of the verb in the brackets to fill in the blanks. (3mks)

I. Among those present ……. the government and cabinet secretary for educator. (be)
II. My sister …… with when I came home late. (quarrel)
III. The anthem is ……. on important state occasions. (sing)

c) Choose the correct word to fill in the blanks in each of the following sentences. (2mks)

i. Take care not to ……the money for your school fees. (lose loose)
ii. I did not find ……. milk in the jug. (some/any)

d) Complete the following sentences by filling in the blanks with the correct prepositions. (3mks)

i. Our school bus is parked ……. the gate.
ii. Mary kicked the ball ……. the neighbour's compound.
iii. The girl threw a shawl …… her shoulders.

e) Replace the underlined words with the appropriate phrasal verbs. (2mks)

i. Grace <u>removed</u> her shoes

……..

ii. The doctor remarked that the little girl <u>resembled</u> her father.

……..

PREDICTION 1

101/3
ENGLISH
CREATIVE COMPOSITION AND ESSAYS BASED ON SET TEXTS)
Paper 3
Time: 2 ½ Hours
FORM 4 2021

Kenya Certificate of Secondary Education

INSTRUCTIONS TO THE CANDIDATES: -

- *Answer **three** questions only*
- *Questions **one** and **two** are compulsory*
- *In question **three** choose only **one** of the optional texts you have prepared on*
- . **FOR EXAMINER'S USE ONLY:**

Question	Maximum Score	Candidate's Score
1	**20**	
2	**20**	
3	**20**	
Total Score	**60**	

This paper consists of 2 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

Answer three questions only.

1. **Imaginative composition**(compulsory)

Either

(a) Write a story beginning with: (20 marks)

"As he walked in through the door, I noticed he was not one of the usual customers…"

OR

(b) Write a composition explaining why students cheat in National Exams.

(20marks)

2. The compulsory set text **(20marks)**

The novel:

Blossoms of the Savanna – By Henry Ole Kaelo

Choices have consequences. Show the truthfulness of the above statement in reference to the novel.

3. The optional set texts

a) **The Short Story – 'Light' by Lesley Nneka Arimah**

"Parenting is a role of every parent."
Write an essay in support of this statement drawing your Illustrations from story '**Light.'**

b) The play.

David Mulwa 'Inheritance'

Write an essay to show how citizens suffer due to bad leadership. Base your arguments on the play **'Inheritance.'**

c) The Novel.

The pearl by John Steinbeck

"Our lives are controlled by destiny."
Write a composition in support of this statement with illustrations from the novel, **'The pearl.'**

PREDICTION 1

Jina: _____ Nambari ya Mtahiniwa: _____

Shule: _____ Sahihi: _____

Tarehe: _____

KISWAHILI
102/1
KARATASI YA KWANZA
KIDATO CHA NNE 2021
Muda: Saa 1 ¾

Maagizo

a) Andika jina lako na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu.
b) Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.
c) Andika insha **mbili**. Insha ya kwanza ni ya **Lazima**
d) Kisha chagua insha nyingine moja kati ya hizo tatu zilizobakia
e) Kila insha isipungue maneno **400.**
f) Kila insha ina alama 20
g) Kila insha **lazima** iandikwe kwa lugha ya Kiswahili
h) Insha zote **sharti** ziandikwe kwa kijitabu cha majibu
i) Karatasi hii ina kurasa mbili zilizopigwa chapa.

Kwa matumizi ya matahini pekee

Swali	Upeo	Alama
1	20	
2	20	
Jumla	40	

MASWALI

1. Lazima

Wewe ni mhariri wa Gazeti la mwanzo mpya. Andika Tahariri kuhusu umuhimu wa vyama vya wanafunzi shuleni. (alama 20)

2. Uhuru unaopewa Vijana leo katika nchi yetu una hasara nyingi kuliko faida. Jadili. (alama 20)

3. Andika insha itakayodhihirisha maana ya methali ifuatayo: Adhihakiye kovu hajaona jeraha. (alama 20)
4. Andika kisa kitakachoanza kwa maneno haya: Nilisimama kama ilivyotuamuru sauti nzito ya kutisha,huku nikijikuta na kujawa mawazo tete ya kuhamia sehemu nisiyoifahamu…..(alama 20)

PREDICTION 1

Jina: _____Nambari ya Mtahiniwa: _____

Shule: _____Sahihi: _____

Tarehe: _____

102/2

KISWAHILI
Karatasi ya 2

LUGHA

KIDATO CHA NNE 2021

Muda: Saa 2 ½

Maagizo

i. Andika jina lako na Nambari yako katika nafasi ulizoachiwa hapo juu.
ii. Weka sahihi yako kisha tarehe ya mtihani katika nafasi ulizoachiwa
iii. Jibu maswali yote.
iv. Majibu yaandikwe katika nafasi zilizoachwa wazi katika kijitabu hiki cha maswali

Kwa Matumizi ya Mtahini Pekee

Swali	Upeo	Alama
1	15	
2	15	
3	40	
4	10	
JUMLA	**80**	

Kitabu hiki cha maswali kina kurasa 10 zilizopigwa chapa. Watahiniwa ni lazima wahakikishe kuwa kurasa zote za karatasi ya mtihani zimepigwa chapa sawasawa na kuwa maswali yote yamo

1. **UFAHAMU: (Alama 15)**

Soma kifungu kifuatacho kisha ujibu maswali.

Gari lake kuukuu lilikuwa linapambana na barabara yenye mashimo yaliyoshiba na kutapika maji ya mvua ambayo sasa ilikuwa inaanza kupusa. Japo daima alipambana na usukani kunako mashimo haya barabara iliyosakafishwa nayo ikahitimu? Magurudumu haya yaliyong'ara kama upara wa shaibu aliyekula chumvii hadi ikamwogopa yangetii uelekezi wake? Mara ngapi gari hili limetaka kumwasi barabarani? Haya yalikuwa baadhi ya maswali yaliyompitikia akilini. Hakujitakilifu kutaka **kuyapa mji** maana mara ile mawazo yake yalitekwa na kubwagwa katika nchi ya mbali – nchi ambayo sasa aliiona kama sinema akilini mwake.

Alipofika nyumbani aliliegesha gari lake na kufululiza ndani. Siku mbili zilikuwa zimepita akiwa pale kazini. Madaktari kama yeye hawakuwa wengi. Alikuwa miongoni mwa madaktari wenye ujuzi katika hospitali hii ya kitaifa. Wenzake wengi walikuwa wamehamia ughaibuni walikokwenda kutafuta maisha. Mshahara wao wa mkia wa mbuzi uliwasukuma na kuwatema nje ya nchi yao. Wengi wa waliohamia ng'ambo waliona vigumu kubaki katika ajira ambayo kivuno chake kilishindwa kumvusha mtu hata nusu ya kwanza ya mwezi. Malalamishi ya kulilia ujira wa heshima yaligonga kwenye masikio yaliyotiwa zege. Na kweli wanavyosema, mwenye macho haambiwi tazama. Basi walitazama hapana pale wakaona penye mianya ya matumaini,nao wakaiandama.

Hadi leo hii hamna la mno lililofanyika. Ndiyo maana Daktari Tabibu anarudi nyumbani tangu kuingia kazini hiyo juzi alfajiri. Hafanyi kwa kuwa katosheka,maana pia yeye an dukuduku. Ana shaka ya mustakabali wake ikiwa mazingira ni haya kumsoza,maana umri nao unazidi kumla. Japo anatia na kutoa,mizani ya hesabu yake imeasi ulinganifu.

Daktari Tabibu ni mfungwa. Ametekwa na kuzuiwa kwenye kipenda na kuchukia mambo. Ni kama mti uliodumaa. Anatami barabara nzuri lami. Anatamani mshabara wa kumwezesha kukidhi mahitaji yake ya kutimiza majukumu yake ya kimsingi. Jana amesema na rafiki yake aliye ng'ambo kwa simu ambayo sasa imetulia mkabala naye. Ingawa mwenzake huyu alikuwa mchangamfu na kumdokolea hali ya maisha ya kuridhisha kule ugenini kama vile wanataaluma kuenziwa,yapo vilevile yaliyomtia unyonge moyoni. Upweke ndio ulimtia **fukuto** kuu. Licha ya hela zote hizo za kupigiwa mfano,watu hawana muda wa kutembeleana nakujuliana hali au hata kukutana tu mkahawani wakashiriki mlo. Eti ni kila mtu na hamsini zake. Halafu ipo changamoto ya hali ya hewa. Baridi ya ng'ambo haifanyi mzaha katika kumtafuna mtu. Ni hali tofauti na ile aliyoizoea.

Daktari Tabibu alizitia kauli za rafiki yake kwenye mizani ya moyo wake. Akawaza ikiwa kweli si bora kulemazwa na mzizio ugenini badala ya kuishi katika kinamasi cha kuumbuliwa nyubani. Kisha punde lilimjia wazo la marehemu nyanyake na wengine kama yeye waliofadhili masomo yake kupitia kwa serikali ya njia ya kodi. Je si usaliti huu?Vipi aikimbie nchi kabla ya kuihudumia ilhali imemjenga hadi kuwa daktari? Na je wafanyakazi wake wa nyumbani

watakwenda wapi? Atawaambiaje kuwa sasa hahitaji huduma zao kwa kuwa anakimbia nchi yake?

Mawazo yake yalikatizwa na simu iliyolia na kumshtua. Alipoitazama aliiona imeng'ara kwa mwangaza ulioweka wazi jina la mpigaji. Alifahamu kuwa leo hii tena dharura nyingine ilikuwa inamwalika hospitalini. Hapo ndipo alipoiinua ile simu tayari kusema na mwenzake upande wa pili.

"Haloo!" sauti nyororo kutoka upande wa pili iliita.

"haloo!"

"Naam!Dharura nyingine tena daktari. Unaombwa kuokoa maisha mengine tena!"

"Haya. Ila mwanzo nitahitaji kujimwagia maji," na pale pale akaikata ile simu.

Daktari Tabibu aliingia hamamuni huku kajifunga taulo kiunoni tayari kuoga. Aliyafungulia maji lakini ule mfereji uligoma kutapika maji. Ulikuwa umekauka kabisa. Daktari Tabibu aliduwaa pale. Aliufunga ule mfereji kabla ya kuiaga bafu.

Maswali

(a). Eleza sababu nne zinazowafanya wataalamu kuhamia nchi za nje. (Alama 4)

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(b). "Hakuna masika yasiyokuwa na mbu" Thibitisha kauli hii kwa kurejelea hali ya waliohamia ng;ambo. (Alama 3)

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c). Fafanua athari tatu zinazoikumba nchi ya msimulizi kutokana na uhamiaji ng'ambo wa wataalamu (alama3).

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(d). Eleza mchango wa teknolojia kwa kurejelea kifungu. (Alama 3)

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(e).Eleza maana za msamiati ufuato kulingan na taarifa. (Alama 2)

(i). Kuyapa mji

……

……

(ii). Fukuto

…….

2. **UFUPISHO (Alama 15)**

Wakenya walipolipata katiba mpya waliidhinisha mfumo wa ugatuzi. Katika mfumo huu,mamlaka ya serikali kuu katika uongozi,usimamizi na utumiaji wa rasilimali za nchi hupunguzwa. Kiasi Fulani cha mamlaka hutwaliwa na maeneo ya ugatuzi. Suala hili halikuzingatiwa katika katiba ya awali ambapo mamlaka yote yalikuwa mikononi mwa serikali kuu. Kutokana na upana na wingi wa maeneo,iliiwia vigumu serikali kuu kuhakikisha kwamba kulikuwa na usawa wa kimaendeleo katika sehemu nchini.

Kwa mujibu wa katiba mpya,serikali kuu haina budi kuyasidia maeneo yote ya ugatuzi ili yaweze kujinyanyua kiuchumi na kuboresha hali za maisha za wakazi wake. Vilevile ni jukumu la kila eneo la ugatuzi kuweka mikakati madhubuti ili kuchunguza na kubainisha rasilimali zote katika maeneo husika. Hili litasaidia kufumba rasilimali ambazo zinaweza kuchangia katika ustawishaji wa maeneo haya. Maeneo haya pia yanatakiwa kutafuta mbinu zitakazofanikisha uzalishaji na utumiaji wa rasilimali hizi kwa njia endelevu. Mojawapo ya mbinu hizi ni uongezaji thamani katika rasilimali yoyote inayozalisha kwenye eneo mahususi.
Maeneo mengi ya ugatuzi nchini humu yanategemea kilimo cha ufugaji kama mhimili wa uchumi. Licha wenyeji kikamilifu. Aghalabu kuwa nguzo,kilimo hiki hakijawahi kupigiwa darubini vizuri kwa lengo la kukiimarisha ili kiwanufaishe wenjeji kikamilifu. Aghalabu wafugaji wengi huandama mbinu za jadi za ufugaji ambazo haziwahakikishii ongezeko la mapato. Isitoshe,wafugaji hawa wanakabiliwa na tatizo katika soko la mifugo ambapo wengi hupunjwa na matapeli. Pamoja na haya,baadhi ya wakazi huuza mifugo nje ya nchi wakiwa wazimawazima bila kuwazia matokeo ya kitendo hiki. Si ajabu kuwaona ng'ombe, ngamia,mbuzi, na kondoo wakipakiwa kwenye malori na kusafirishwa nje ya nchi. Ukweli ni kwamba jambo hili ni hatari sana,si kwa uchumi wa maeneo husika tu,bali pia kwa Kenya kwa jumla . Hii ni kwa kuwa walionunua mifugo wazimawazima wanaweza kuhiari kutowachinja na badala yake kuwatumia kama mbegu kwani baada ya muda huenda wanaonunu mifugo wakijitosheleza na kukosa kununua mifugo wengine. Hali ikiwa hivyo, maeneo yaliyotegemea soko hili huenda yakalipoteza taratibu,na bila shaka kupoteza natija inayotokana na soko lenyewe

Ili kudhibitisha hali hii,itakuwa bora ikiwa viwanda vya kuchinjia mifugo na kupakia nyama vitajengwa katika maeneo haya ya ugatuzi. Hili litawawezesha wakazi kuuza nyama badala ya kuuza mifugo wazimawazima. Fauka ya hayo maeneo haya yatajikinga dhidi ya kupoteza bidhaa zinazotokana na mifugo. Hizi ni kama vile ngozi, kwato na pembe ambazo bila shaka zina natija kuu. Ngozi kwa mfano,ni bidhaa muhimu sana katika sekta ya utengenezaji wa mavazi na mifuko. Viwanda vinavyotumia ngozi kama malighafi vikijengwa katika maeneo haya,wakazi wake watanufaika si haba. Madhalani,viwanda vya kutengenezea viatu,mishipi,mifuko na nguo vikianzishwa,wawekezaji watalazimika kuanzisha viwanda vingine tegemezi. Kathalika,ni dhahiri kwamba bidhaa zinazotokana na ngozi huhitaji kutiwa nakshi. Kuanzishwa kwa viwanda hivi basi kutazua haja ya kuanzishwa kwa viwanda vingine vya kutengeneza rangi,pamoja na maduka ya kuuza bidhaa zenyewe. Isitoshe,gundi ya kugandisha bidhaa hizi itahitajika,hivyo kusababisha haja ya kuanzishwa kwa kiwanda cha gundi. Matokeo ya shughuli hizi zote ni kuzalishwa kwa nafasi anuwaiza kazi kwa wakazi. Hili litakuwa na matokeo zaidi chanya,hususan kwa vijana. Badala ya kushiriki ulevi na burudani zinazowahatarisha, wataweza kumjitafutia riziki katika viwanda hivi.

Juu ya hayo,mfumo wa ugatuzi utayaweza maeneo husika kuongeza thamani,utoaji wa huduma za kijamii na kuitawala kulingana na mahitaji ya maeneo haya. Ni muhimu hata hivyo kuzingatia kwamba kila eneo laugatuzi lina upekee wake,navyo vipaumbele hutofautiana kulingana na maeneo. Kuna yale ambayo yatasisitiza usalama, mengine ujezi na uimirishaji wa miundomusingi kama vile barabara,vituo vya afya na hata taasizi za elimu. La muhimu ni wakazi wa maeneo husika kubainisha ni lipi litatekelezwa kwanza.

Kinga na kinga ndipo moto uwakapo. Kufanikiwa kwa mfumo wa ugatuzi kutategemea juhudi za kila mkazi wa eneo husika. Ni muhimu kila mkazi kujiona kuwa mmiliki wa eneo zima la ugatuzi na kuwajibika katika kuliendeleza kwa hali na mali. Uwajibikaji huu unajumuisha uteuzi wa viongozi wenye muono mzuri na mabao utawawezesha kuyafikia malengo yao ya kimaendeleo. Hakika,mustakabali na uwepo wa eneo la ugatuzi utakuwa zao la mamuzi ya wanaeneo. Vilevile ufanisi wa maeneo ya ugatuzi utakuwa msingi wa ufanisi wa taifa kwa jumla.

(a). Fupisha ujumbe wa aya tatu za mwanzo kwa maneno 85-90 (alama 8,1 mtiririko Mtayarisho)

Matayarisho

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Jibu

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a) Kwa kutumia maneno 75-80, bainisha masuala ambayo mwandishi anaibua katika aya tatu za mwisho. (alama 7,1 mtiririko) (Alama 8)

Matayarisho

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Jibu

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3. MATUMIZI YA LUGHA(Alama 40)

a. Andika sifa mbili mbili za sauti zifuatazo. (alama 2)
(i). /e/

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……

(ii). /ch/

……

……

……

b). Unda maneno yenye muundo ufuatao wa sauti. (Alama 2)
KIKIKI……..

IKKI……

c). Onyesha miundo miwili ya nomino katika ngeli ya U-ZI (alama 2)

……

……..

d). Tunga sentensi moja moja kuonyesha matumizi ya viakifishi vifuatavyo. (alama.2)
i). Vifungo ……

ii). Kibainishi ……..

e). Bainisha aina za virai vilivyopigiwa mstari (alama 2)
Mhadhara huo tata ulitolewa jana jioni.

……

f). Andika sentensi ifuatayo katika ukubwa. (Alama 2)

Ndege hao wana manyoya mengi

……

……

g). Andika visawe vya maneno yafuatayo. (Alama 2)

i). Doa

……

ii). Omba

……

(h) Tunga sentensi moja kutofautisha maana ya riti na ridhi (Alama 2)

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……

……

i). Bainisha silabi katika neno (Alama 1)
Wanyweshavyo

……

j). Bainisha kiima na chagizo katika sentensi ifuatayo (alama.2)

Mwenyewe alikipenda kwa dhati

……

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……

k). Tumia kielezi cha kiasi badala ya kile kilichopigiwa mstari. (alama.2)

Msichana yule alizungumza <u>kitausi.</u>

……

……

l). Geuza sentensi ifuatayo katika usemi halisi (alama.2)

safina alimwambia Asha kuwa angetembelea wazazi wao siku hiyo jioni.

……

……

……

m). Changanua sentensi ifuatayo kwa kielelezo cha matawi (Alama 3)
Mvua kubwa inayonyesha itasababisha mafuriko.

……

……

……

n). Kanusha sentensi ifuatayo kwa wakati ujao hali ya kuendelea (Alama 2)
Walimu wanafunza

……

……

o). Andika upya setensi ifuatayo wa kuzingatia kauli iliyowekwa katika mabano (Alama 2)
yeye ni bahili itakuwa vigumu kumkopesha pesa. (kutendesheka)

……

……

(p) Tunga sentensi mbili kuonyesha matumizi mawili tofauti ya ‘na’ (alama 2)

……

……

……

……

q). Andika sentensi ifuatayo upya ukianzia yambwa tendewa (alama.2)
kirwa alimjengea mama huyo nyumba kwa mawe

……

……

r). Ainisha vishazi katika sentesi ifuatayo. (alama 2)
ingawa alitia bidi masomoni,alifeli mtihani.

……

……

s). Andika sentensi upya ukitumia vinyume vya maneno yaliyopigiwa mstari. (Alama 2)

Mama <u>alijitwika</u> kikapu mgongoni baada ya <u>kuinjika</u> chungu mekoni.

……

……

t). Andika sentensi zifuatazo upya kwa kufuata maagizo uliyopewa.

i). umekuja (alama 2)

ii) Tumefurahi sana (unganisha sentensi hizi kwa kuanza na kuja…….)

……

……

……

<u>ISIMU JAMII (Alama 10)</u>

“Mwite mhandisi aukarabati mtambo huo”

(a). Taja sajili inayorejelewa hapo juu. (Alama 2)

……

……

(b). Fafanua sifa zozote nne za sajili uliyoichagua (Alama 8)

……

……

PREDICTION 1

Jina_____Nambari ya Mtahiniwa: _____

Shule: _____Sahihi: _____

Tarehe: _____

102/3

KISWAHILI
Karatasi ya 3

FASIHI 102/3

KIDATO CHA NNE 2021
Muda: Saa 2 ½

Maagizo

a) Andika jina lako, shule na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu.
b) Tia sahihi kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.
c) Jibu maswali manne pekee.
d) Swali la **kwanza** ni la lazima.
e) Maswali hayo mengine yachaguliwe kutoka sehemu nne zilizobaki ; yaani ; Tamthilia, Riwaya, Hadithi fupi na Fasihi Simulizi.
f) Majibu yote lazima yaandikwe kwa lugha ya kiswahili.
g) Majibu yote sharti yaandikwe kwenye kijitabu cha majibu ulichopewa.
h) Karatasi hii ina kurasa nne zilizopigwa chapa.
i) Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.
j) Usijibu maswali mawili kutoka sehemu moja

Kwa matumizi ya mtahini pekee

Swali	Upeo	Alama
1	20	
2	20	
3	20	
4	20	
Jumla	**80**	

SWALI LA KWANZA, SWALI LA LAZIMA

SEHEMU YA A: USHAIRI- (Alama 20)

Niokoa muokozi, uniondolee mashaka
Kuyatukua siwezi, mjayo nimedhikika
Nimekitiri simanzi,ni katika kuudhika
Mja wako nasumbuka,nipate niyatakayo

Mja wako nasumbuka,nataka kwao afua
Nirehemu kwa haraka,nami nipate pumua
Naomba hisikitika,na mikono hiinua
Mtenda ndiwe moliwa,nipate niyatakayo

Mtenda ndiwe moliwa,we ndiwe mola wa anga
Mazito kuyaondoa,pamoja na kuyatenga
Ukauepusha ukiwa,ya pingu zilonifunya
Nikundulia muwanga,nipate niyatakayo

Nikundulia muwanga,nipate toka kizani
Na huzuni n'ondolea,itoke kwangu moyoni
Mambo mema niegheshea,maovu nisitamani
Nitendea wa manani,nipate niyatakayo

Igeuze yangunia,dhaifu unipe mema
Nili katika dunia,kwa afia na uzima
Moliwa nitimizia,yatimize yawe mema
Nifurahike mtima,nipate niyatakayo.

Maswali

(a). Eleza bahari zozote mbili za shairi hili (alama 4)

(b). Eleza muundo wa shairi hili (Alama 4)

(c). Mshairi ametumia uhuru wake wa utunzi. Eleza mifano minne huku ukitoa mifano (alama 4)

(d). Andika ubeti wa pili katika lugha tutumbi (alama 4)

(e). Fafanua dhamira ya mtunzi wa shairi hili (alama.2)

(f). Eleza maana ya misamiati ifuatayo kama ilivyotumika katika shairi (alama 2)

(i). Nimedhihika

(ii). Nifurahike mtima

SEHEMU B: RIWAYA – ASSUMPTAMATEI - CHOZI LA HERI

2. Haki za watoto hazitiliwi maanane katika jamii nyingi za kiafrika. Eleza ukweli wa kauli hii kwa kurejelea Riwaya ya chozi la heri (Alama 20)

au

3. "Kuukata mkono niliostahili kuubusu yalinifika ya kunifika" (Alama 20)

a. Eleza muktadha wa dondoo hili (Alama 4)

b. Eleza namna msemaji alivyoukata mkono aliostahili kuuibusu. (alama 6)

(alama 14)

c. Eleza tamathali ya usemi unaojitokeza katika dondoo hili. (alama.2)

d. Fafanua sifa nne za msemaji wa kauli hii (alama 8)

SEHEMU C: TATHILIA KIGOGO NA PAULINE KEA

4. ''Na hawa wafadhili wao nao lazima wavunje kambi zao. Sagamoyo twajiweza''

a. Eleza muktadha wa dondoo hili (alama 4)

b. Kwa kutolea mifano saba kwenye tamthilia eleza jinsi kauli hii ''Sagamoyo twajiweza'' ni kinaya ?

(alama 14)

c. Mbali na kinaya tambua mbinu nyingine ya kisanaa katika dondoo hili (alama 2)

AU

5. Jadili mbinu wanazotumia wanasagamoyo kujikomboa kutoka utawala dhalimu wa Majoka

(Alama 20)

SEHEMU D: HADITHI FUPI - TUMBO LISILOSHIBA

6. "… Ningeondoka…..mapema niende niibe au niue ili niwe mtu wa maana"

a) Eleza muktadha wa maneno haya (Alama 4)
b) Onyesha vile Kinaya kinavyojitokeza katika dondoo hili (Alama 2)
c) ''Kinaya kimetumika kwingine katika hadithi husika. Thibitisha kwa kutumia hoja tisa

(Alama 9)

d). Eleza umuhimu wa msemaji katika hadithi hii (alama.5)

AU

7. (a). Eleza namna maudhui ya ndoa yalivyosawiriwa katika hadithi ya Masharti ya Kisasa (alama 13)

(b). Kwa kurejelea hadithi ya Shibe inatumaliza,eleza namna maudhui ya ufisadi yanavyojitokeza

(alama 7)

SEHEMU E: FASIHI SIMULIZI

8 (a) Miviga ni nini? (Alama 2)

(b) Fafanua sifa sita za miviga (Alama 6)

(c) Kwa nini jamii huthamini miviga (Alama 8)

(d). Onyesha udhaifu unaohusishwa na miviga (Alama 4)

PREDICTION 1

NAME_____INDEX NO _____

SCHOOL_____ CANDIDATE'S SIGN _____

DATE _____

231/1

BIOLOGY
Paper 1 Form 4 2021
Time: 2 Hours.

Instructions

1. Write your name, Index Number and School in the spaces provided above.
2. Sign and write the date of the examination in the spaces provided above.
3. Answer all the questions in the spaces provided.
4. Additional pages must not be inserted.
5. Check the question paper to ascertain that all the pages are printed and that no questions are missing.

FOR EXAMINER'S USE ONLY

Question	Maximum Score	Candidate's Score
1-27	**80**	

1. State the function of the diaphragm in a light microscope. (1mark)

……

……

2. State the function of the following cell organelles
   a.) Centriole (1mark)

……

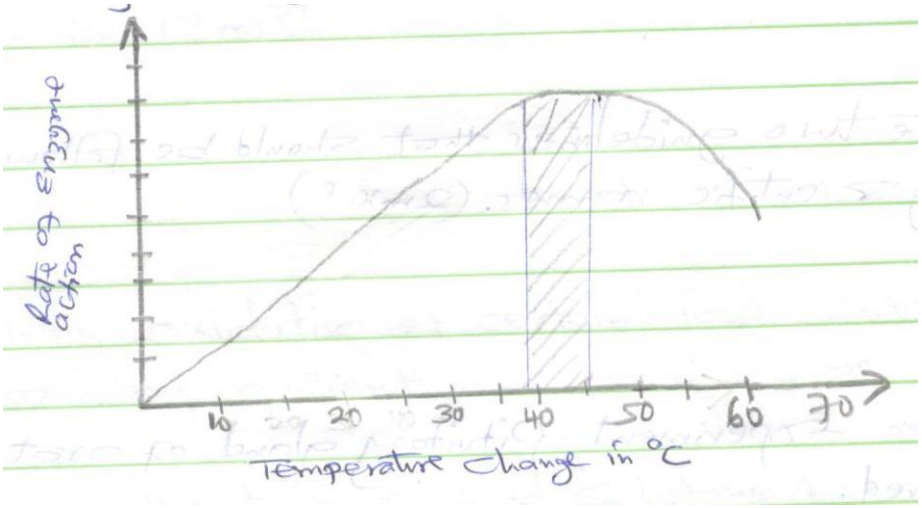
……

b.) Golgi bodies (1mark)

……

……

3. Study the graph below.



Account for the rate of reaction at:

i.) 10^{O} C (2marks)

……

……

……

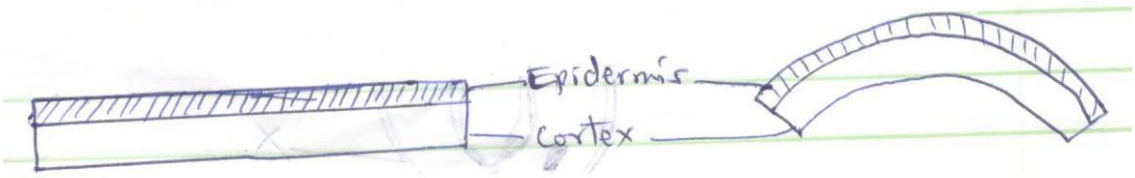
ii.) 50^{O} C (2marks)

……

……

……

4. Strips were cut lengthwise from the stem of a herbaceous plant and placed in a salt solution for 30 minutes as shown below.



Account for the results obtained when the strip was placed in the salt solution. (4marks)

……

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……

5. (i) Name the main products of the dark stage of photosynthesis. (1mark)

……

……

(ii) State the importance of chlorophyll in photosynthesis. (1mark)

……

……

6. State the two guidelines that should be followed when typing scientific names. (2marks)

……

……

7. In an experiment, Pituitary gland of a rat was removed.
   a.) State the effect this will have on the quantity of urine produced by the rat. (1 mark)

……

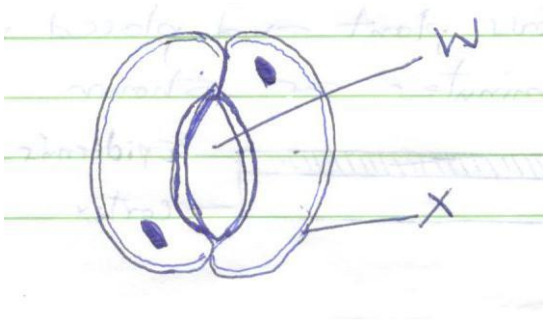
……

   b.) Give a reason for your answer in (a) above. (1mark)

……

……

8. The diagram below shows part of a plant.



   a.) Name the cell labelled X and part labelled W. (2marks)

   X ……

   W ……

   b.) State two adaptations of cell labeled X to its function (2marks)

……

……

9. Explain why a baby loses more heat per unit weight than an adult when exposed to the same environmental conditions. (2marks)

……

……

……

……

10. During oxidation of certain food substances, the respiratory quotient was found to be 0.718.

i) Name the type of food substance being oxidized. (1mark)

……

ii) State two advantages of using the food substances named. (2marks)

……

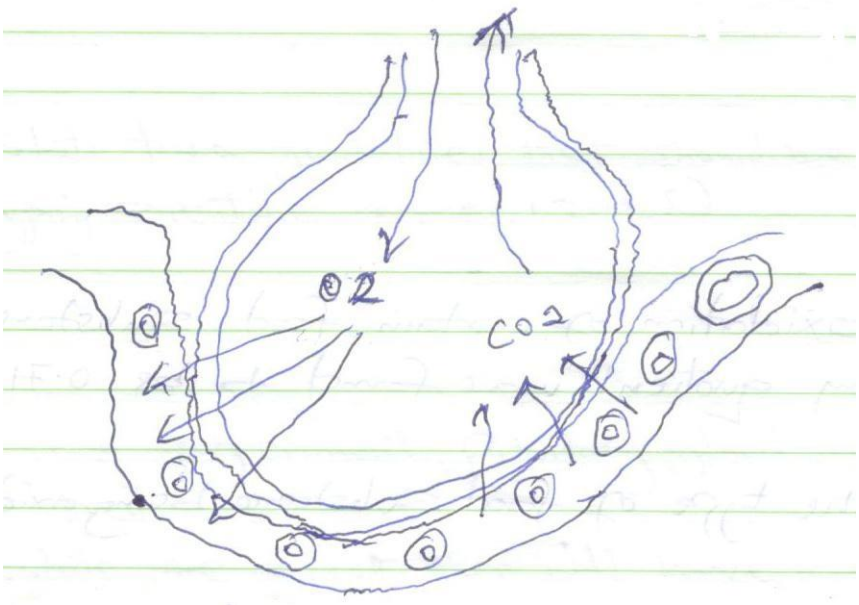
……

11. Name two structures used for gaseous exchange in plants. (2marks)

……

……

12. The diagram below shows the exchange of gases in alveolus.



a) State how the alveoli are adapted for their function. (3marks)

……

……

……

……

b) Name the cell labeled A (1mark)

……

13. During germination and early growth, the weight of the endosperm decreases while that of the embryo increases. Explain (2marks)

……

……

……

……

14. a) What is the importance of metamorphosis? (1mark)

……

……

b) Give an example of insect that undergoes :

i) complete metamorphosis (1mark)

……

ii) incomplete metamorphosis (1mark)

……

15. Define the following terms used in ecology

i) biosphere (1mark)

……

……

ii) population (1mark)

……

……

iii) synecology (1mark)

……

……

iv) carrying capacity (1 mark)

……

……

16. The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.

a.) Name the evolutionary process that may have given rise to these structures. (1mark)

……

b.) What is the name given to such structures? (1 mark)

……

……

c.) Give two examples of vestigial organs in man. (1 mark)

……

……

17. a.) Define polyploidy (1 mark)

……

……

b.) Name three disorders resulting from gene mutations. (3marks)

……

……

……

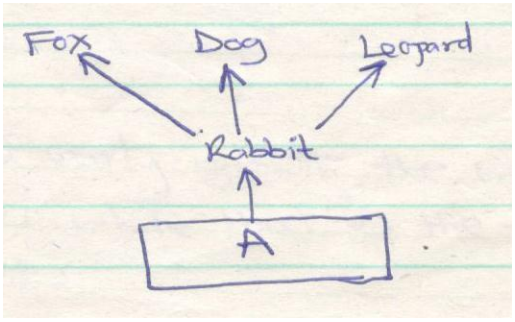
18. State the importance of sexual reproduction. (2marks)

……

……

……

19. The diagram below shows part of a food relationship in an ecosystem.



a) Name the food relationship shown in the diagram. (1mark)

……

b) Name the trophic level occupied by organism A. (1mark)

……

c) What is the main source of energy in the ecosystem shown in the diagram above? (1mark)

……

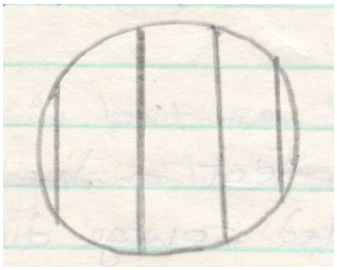
20. Name three supportive tissues in plants. (3marks)

i.) ……..

ii.) …….

iii.) ……

21. A form one student trying to estimate the size of onion cells observed the following on the microscope's field of view.



a) Explain the resolving power of a microscope. (1mark)

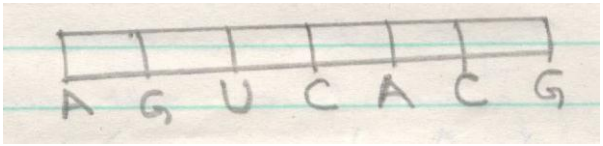
……

……

……

b) If the student counted 20 cells across the field of view calculate the size of one cell in micrometers. (2marks)

22. Below is a nucleic acid strand.



a) Name the nucleic acid. (1 mark)

……

b) Explain the reason of your answer in (a) above. (1mark)

……

……

……

23. a) Explain three ways in which a red blood cell is adapted to its function .(3marks)

……

……

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……

……

……

b) In which form is carbon (IV) oxide transported. (1mark)

……

24. Explain the likely effect on humans and other organisms of untreated sewage discharge into water body that supplies water for domestic use. (3marks)

……

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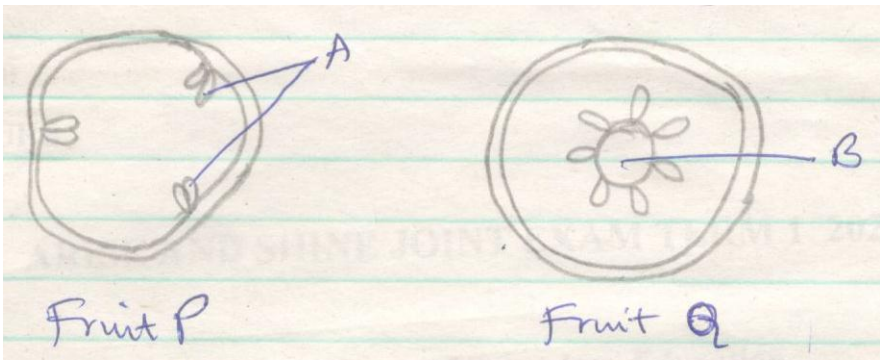
……

25. Below are cross sections of two fruits. Study them and answer the questions that follow.



a.) Name the parts labeled

A…… (1 mark)

B…… (1 mark)

b.) Name the type of placentation in fruit. (2marks)

P……

Q……

26. a) Differentiate between hypogeal germination and epigeal germination. (2marks)

……

……

……

……

b) Explain two causes of dormancy in seed. (2 marks)

……

……

……

……

27. Identify two divisions in the kingdom plantae that show alternation of generations. (2marks)

……

……

……

……

PREDICTION 1

NAME _____SCHOOL _____

INDEX NO_____ CANDIDATE'S SIGNATURE _____

DATE _____

231/2

BIOLOGY
FORM 4 2021

Paper 2
Time: hours.

Instructions to the candidates

- Write your name and index in the spaces provided above.
- Sign and write the date of examination.
- This paper consists of **TWO** sections A and B
- Answer **ALL** questions in section A in the spaces provided.
- In section B answer question **6 (compulsory)** and either question 7 or 8 in the spaces provided after question 8.
- Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

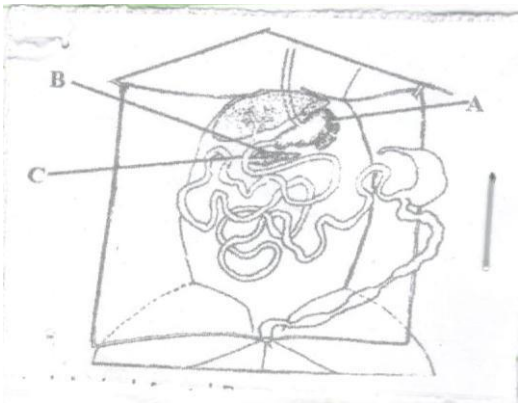
For Examiner's Use Only

Section	Question	Maximum score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	

	TOTAL	**80**	

SECTION A – (40 MARKS)
Answer ALL Questions in This Section In The Spaces Provided.

1. The diagram below shows the mammalian digestive system. Study it carefully and answer the questions that follow.



a) i) Name the parts labeled A and B (2marks)

……

……

ii) How is the structure labeled A in the diagram adapted to carry out its function. (2marks)

……

……

b) i) Name the hormone secreted by the walls of the part labeled C (1mark)

……

ii) Explain the role of the hormone in b) (i) above in digestion. (3marks)

……

……

……

……

2. In human beings a download pointed frontal hairline ("window peak") is a heritable trait from an expression of recessive gene in a somatic cell. Use 'W' for a dominant gene.
   a) Determine the F1 generation if a homozygous peak male is married to a homozygous frontal hairlined female parent. (4marks)

b) State two causes of variations. (2marks)

……

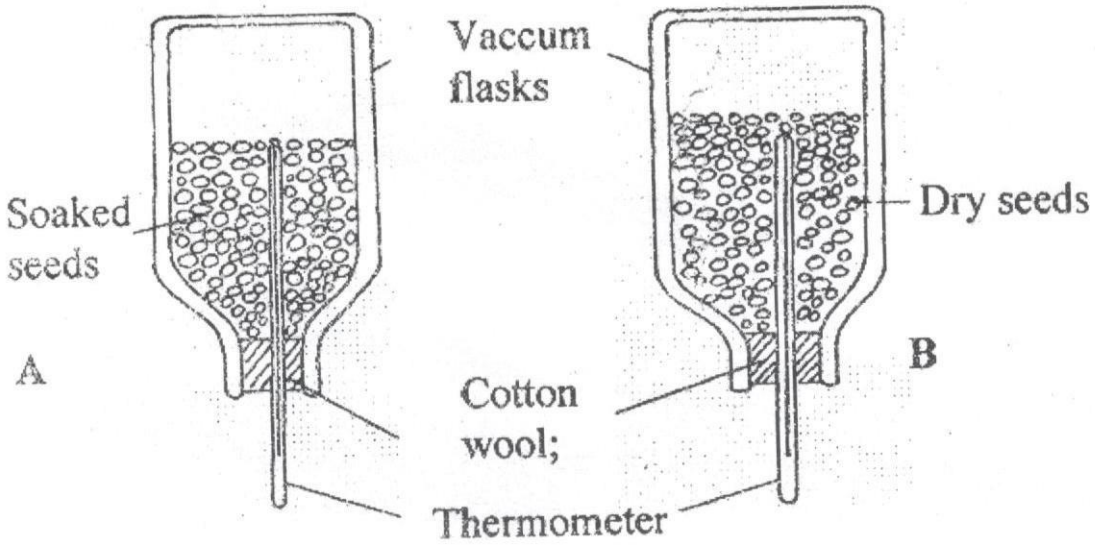
……

c) Name two sex linked genetic disorders that can affect both human females and males. (2marks)

……

……

3. A student set up an experiment using soaked and dry seeds as shown below



a) State the objective of this experiment (1mark)

……

……

b) State the observations made in each of the flasks after 24 hours (2marks)

……

……

……

c) Account for the observation made in (b) above (2marks)

……

……

d) Suggest why vacuum flasks were used in this experiment. (1mark)

……

……

e) What alteration would you make in the set up to make the results more reliable (1mark)

……

……

f) Why should the seeds be washed with antiseptic 10% formalin? (1mark)

……

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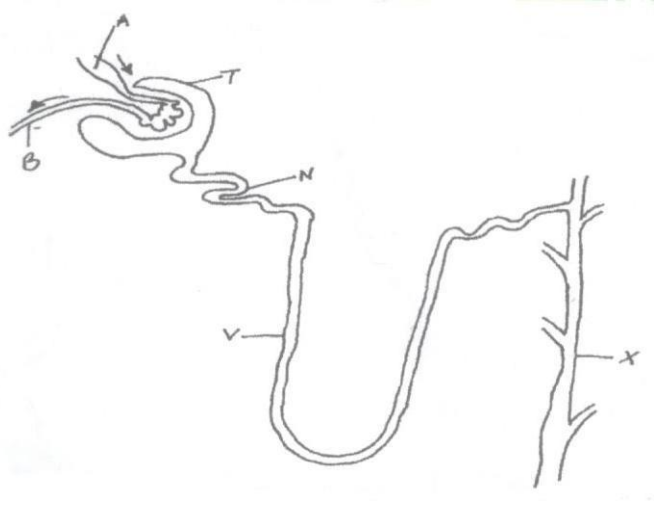
……

4. Shown below is a section through the mammalian nephron.



a) Name the structures labeled A and N. (2marks)

……

b) Name all the structures in a nephron which are normally present in the cortex region of a kidney (1mark)

……

……

c) Which region in a kidney deals with conservation of body water? (1mark)

……

d) Name one hormone that has an effect on part labeled X (1mark)

……

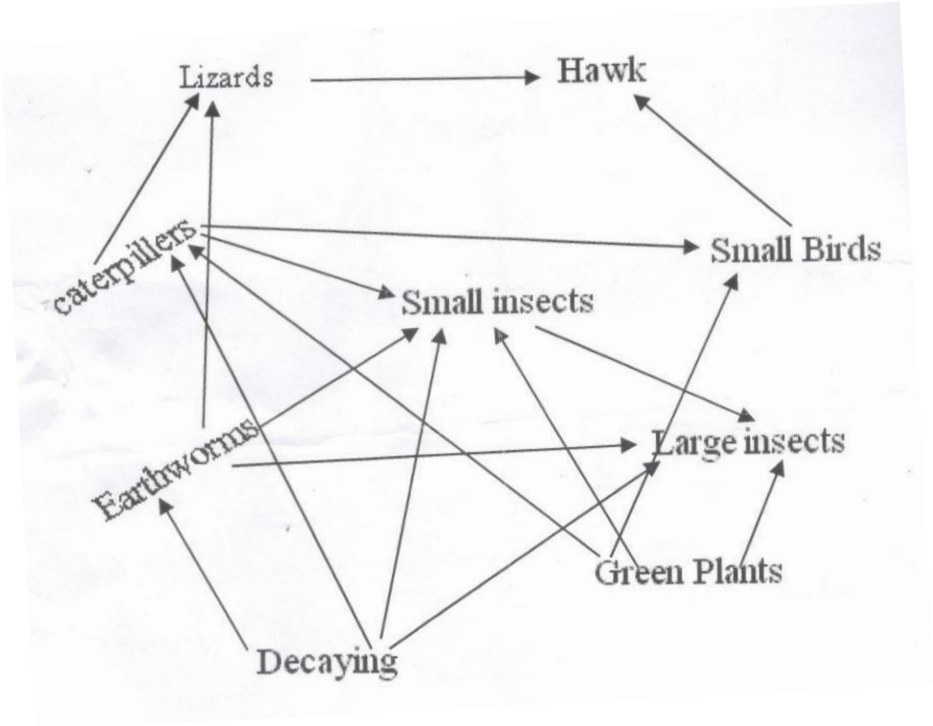
e) How is part labeled N adapted to its function. (3marks)

……

……

……

5. The diagram below represents a food web in a certain ecosystem.



a) Name the trophic level occupied by each of the following:
   i) Caterpillars (1mark)

……

   ii) Small insects (1mark)

……

b) From the food web, construct two food chains which end with lizards as tertiary consumer. (2marks)

c) i) Which organisms have the least biomass in this ecosystem (1mark)

……

……

ii) Explain the answer in (i) above. (3marks)

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SECTION B - (40 MARKS)

Answer Question 6 (Compulsory) and Either Question 7 Or 8 in The Spaces Provided After Question 8

6. The relationship between oxygen concentration, sugar consumption and potassium ion uptake in isolated wheat roots was determined. The results obtained were tabulated as shown below. The loss of sugar and potassium uptake or gain are in arbitrary units.

		Percentage oxygen in aerotun stream						
		0	5	10	15	20	30	100
Sugar loss		15	20	43	45	45	44	43
Potassium ion gain		5	55	70	75	75	72	70

a) Plot graphs of sugar loss and potassium ions gain against oxygen concentration on the same axes.

b) i) Identify the process by which potassium ions is taken by the roots . (1mark)

……

……

ii) Give reasons for your answer in b (i) above (3 marks)

……

……

……

……

c) Account for sugar loss and potassium ions gain.

(i) 0% oxygen concentration (2 marks)

……

……

……

……

……

(ii) Between 5% and 20% oxygen concentration (2 marks)

……

……

……

……

……

d) Suggest **two** factors necessary for the above process apart from oxygen (2 marks)

……

……

……

e) State **two** ways by which the process above can be stopped. (2 marks)

……

……

……

f) Name **two** main areas in a mammalian body where the above process occurs. (2 marks)

……

……

7. Explain the various ways in which seeds and fruits are adapted to dispersal. (20 marks)

8. (a) Describe how the digestion of a protein is achieved in the following portions of the alimentary canal.

(i) Stomach (4 marks)

(ii) Duodenum (4 marks)

(b) (i) Describe the process of absorption at the root hair to the xylem of the root. (8 marks)

(ii) Describe how temperature and light intensity affect the rate of transpiration. (4 marks)

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PREDICTION 1

231/3
BIOLOGY
FORM 4 2021

PRACTICAL CONFIDENTIAL

Each Candidate Should Be Provided With the Following Items

- Solution A about 10mls (amylase enzyme solution)
- Solution B (benedict's solution)
- Solution C (10 mls starch solution labeled as solution C)
- NaCl solution 0.1% NaCl
- 1.4% NaCl solution
- Iodine solution labeled D
- Means of timing. A wall clock will be appropriate
- 10 ml measuring cylinder
- Scalpel
- Means of labeling (5 labels)
- Four test tubes
- Means of heating
- Distilled water labeled as solution Y
- Mortar and pestle
- Cork borer
- 2 medium irish potatoes
- 20mls concentrated salt solution labeled as solution Z
- 2mls hydrogen peroxide labeled as solution C

PREDICTION 1

NAME _____ SCHOOL _____

INDEX NO_____CANDIDATE'S SIGNATURE _____

DATE _____

231/3

BIOLOGY
PRACTICAL
FORM 4 2021

Paper 3
Time: 1 ¾ hours.

INSTRUCTIONS TO THE CANDIDATES

- Answer **ALL** questions in the spaces provided.
- You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole question paper carefully before commencing your work.
- Answers **MUST** be written in the spaces provided in the question paper.
- Additional pages **MUST** not be inserted.
- Candidates will be penalized for recording irrelevant information and wrong spelling especially technical terms.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	14	
2	12	
3	14	
Total Score	**40**	

1. You are provided with the following:
   - Solution A
   - Benedict's solution labelled as solution B
   - Solution C

- 0.1% NaCl solution
- 1.4% NaCl solution
- Iodine solution labeled as solution D

    - Label the test tubes as P, Q and R; in each test tube place 3mls of solution C into each test tube:

a) Carry out iodine test on portion of the solution from test tubes P, Q and R and record the observation in the table below. (3 marks)

Test tube	Observation
P	
Q	
R	

b) To test tube Q, add 3 drops of 0.1 % sodium chloride solution and 2ml of solution A. Place test tube P, Q and R in a water bath and maintain at 37^{o}C for 30 minutes. Using a drop of the solution from each test tube, repeat the procedure in (a) above and spare the rest for the next question. Record your observation in the table below (2 marks)

Test tube	Observation at the end of the experiment
Q	
R	

c) Put 2cm^{3}of solution from test tube P in a clean test tube and add 2cm^{3}of Benedict's (solution B) shake then heat the mixture to boil in a hot water bath. Record your final observation in the table below. (2 marks)

Test tube	Observation after experiment
Q	
R	

d) Why was test tube P included in the experiment? (1 mark)

e) Account for the observations made in test tube Q and R at the end of the experiment (4 marks)

i) Test tube Q

ii) Test tube R

f) Suggest the identity of solution A (1 mark)

g) Why was the water bath maintained at 37^{o}C? (1 mark)

2. a) Study the photographs below for specimen R and S.

S

R

(i) State four observable differences between the specimen R and S (4 marks)

Specimen R	Specimen S

(ii) Suggest the advantages of the adaptations on the limbs of specimen S (2marks)

b) Name the phylum and class to which the specimen belongs. (2 marks)

Phylum ----------

Class ----------

c) i) Give the type of metamorphosis in S (1 mark)

ii) Draw the life cycle of the type of metamorphosis in the organism mentioned in C (i) above (3 marks)

3. (a) You are provided with specimen Q, using a cork borer, remove eight strips of 2cm length from specimen Q. Place two into solution labeled Y and another two strips into solution labeled Z. Leave the set up to stand for 20 minutes.

NB Preserve the other two for use later in question 3(b) (i)

(i) State the observation after 20 minutes when the strips are touched. (6 marks)

	Initial length	Final length	Change in length	Flexibility	Texture
Strips in solution Y	2cm				
Strips in solution Z	2cm				

(ii) Account for the observations in (c) (i) above (4 marks)

(b) (i) using a mortar and a pestle crush one of the remaining strip, place the extract in a test tube and add solution C. State your observation. (1 mark)

(ii) Repeat the procedure in (b) (i) with distilled water instead of hydrogen peroxide. State your observation. (1 mark)

(c) Explain why:

(i) It was necessary to crush specimens in the experiment. (1 mark)

(ii) Hydrogen peroxide should not accumulate in living tissue. (1 mark)

PREDICTION 1

Name: _____ Adm. No_____Index No: _____

School:_____Candidate's Sign_____

Date: _____

233/1
CHEMISTRY
Paper 1
THEORY
FORM 4 2021
Time: 2 Hours

Instructions to candidates:

a) *Write your name, Admission Number, index number and school in the spaces provided* ***above***
b) Sign and write the date of examination in the spaces ***above***
c) Answer ***ALL*** *the questions in the spaces provided below each question.*
d) Mathematical tables and silent electronic calculators may be used.
e) All working ***MUST*** *be clearly shown where necessary*
f) This paper consists of 10 printed pages.

FOR EXAMINER'S USE ONLY

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1 -28	80	
TOTAL SCORE	80	

1. (a). Under what condition does the Bunsen burner produce luminous flame? (1 mark)

_____

(b). Luminous flame is yellow and sooty. Explain. (2 marks)

2. (a). Distinguish between isotopes and allotropes (2 marks)

(b). Name one allotrope of Sulphur that is stable at temperature above 96^{o}C (1 mark)

3. Sodium metal burns with a yellow flame in excess oxygen forming yellow solid. The yellow solid react with water to form gas F.

(a). Name the yellow solid (1 mark)

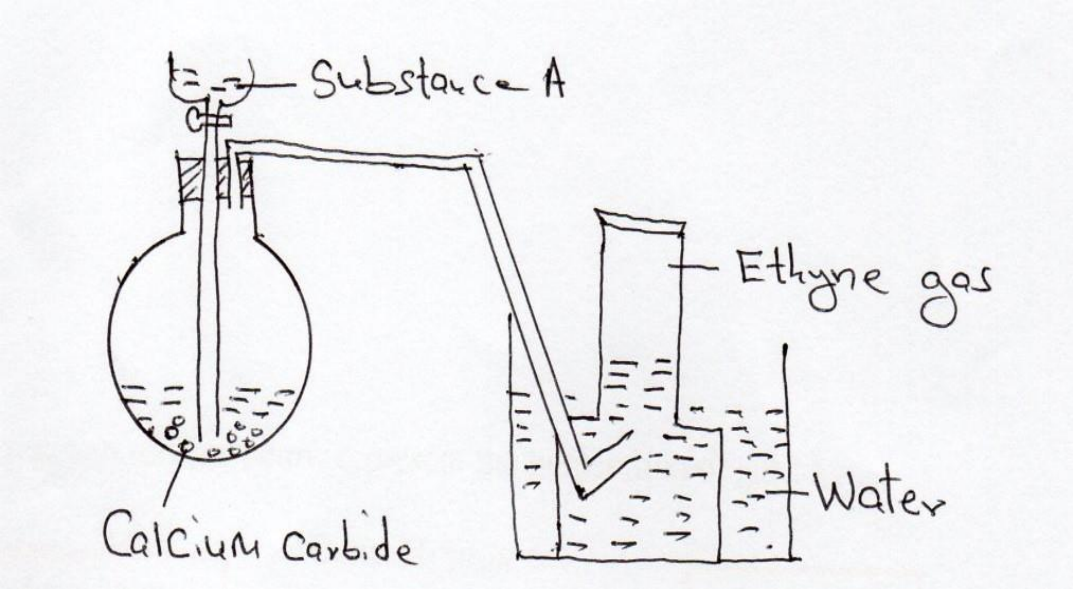
(b). Identify gas F (1 mark)

(c). Write an equation for the reaction of the yellow solid with water. (1 mark)

4. (a). State Boyle's law. (1 mark)

(b). Explain why the pressure of a fixed mass of a gas increases with increase in temperature in a fixed volume container. (2 marks)

5. The set up in figure 1 can be used to prepare ethyne gas. Use it to answer the questions that follow.



[a]. Name substance A (1 mark)

_____

[b]. Write an equation for the reaction which occurred in the flask (1 mark)

_____

_____

(c). Draw and name the structure of the compound formed when one mole of ethyne reacts with one mole of chlorine gas. (1 mark)

6. Starting with zinc carbonate solid describe how zinc hydroxide can be prepared in the laboratory. (3 marks)

_____

_____

_____

_____

_____

7. 24.0cm^3 of 0.18M hydrochloric acid was added to 0.38g of sodium carbonate solid. Calculate the mass of sodium carbonate that did not react. (0=16, Na=23 C=12) (3 marks)

_____

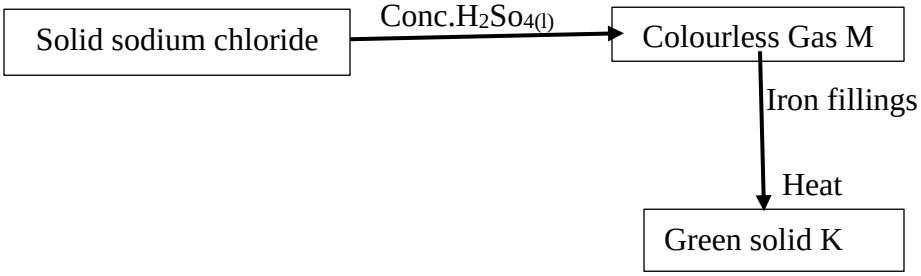
_____

_____

_____

_____

8. The reaction scheme below represent the preparation of gas M.



[a]. Identify gas M and solid K

Gas M_____ ($^1/_2$ mark)

Green solid K _____ ($^1/_2$ mark)

[b]. Describe a chemical test for gas M (2 marks)

_____

_____

_____

9. (a). 0.95g of Magnesium Chloride was dissolved in 250cm^3 of water. Calculate the molar concentration of Chloride ions in the solution. (Mg=24 Cl=35.5) (3 marks)

_____

_____

_____

10. (a). What is an acid-base indictor? (1 mark)

_____

_____

(b). Describe how the pH of a soil sample can be determined in the laboratory. (2 marks)

_____

_____

11. In an experiment, Hydrogen sulphide gas was bubbled into a solution of iron (III) chloride. State and explain the observations made. (3 marks)

_____

_____

_____

_____

_____

_____

_____

12. The diagram below represents part of the periodic table. Use it to answer the questions that follow. The letters are not the actual symbols of the elements. (2 marks)

M						Q			
T	V		W						

(a). Write the Electronic arrangement for the stable ion formed by **M**. (1 mark)

_____

_____

(b). Write an equation for the reaction between T and **Q**. (1 mark)

_____

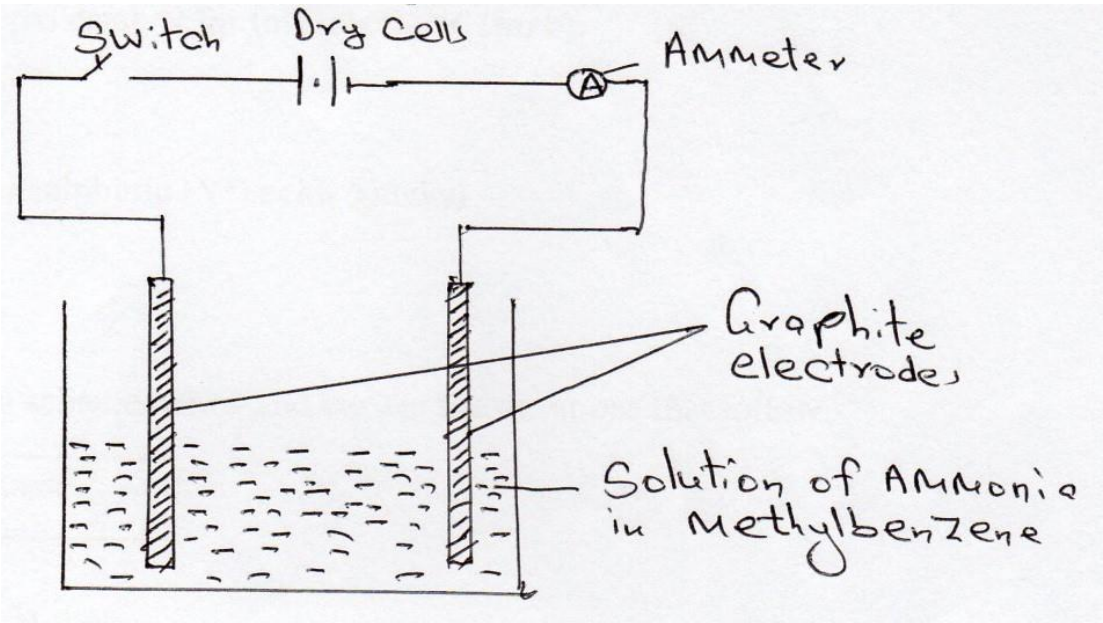
_____

(c). Compare the melting point of element T and V. (1 mark)

_____

_____

13. Study the set-up below and answer the questions that follow.



State and explain the observation made when the switch is closed. (2 marks)

14. (a). Define molar heat of combustion. (1 mark)

_____

_____

(b). X g of element Q was completely burned in air. The heat evolved was used to heat $250cm^3$ of water. The temperature of water rose from 32^oC to 50^oC. Molar heat of combustion of element Q is -360 $kJmol^-$ .Calculate the value of X. (Density of water is $1gcm^{-3}$ and specific heat capacity of water is 4.2kJ mol^{-3} R.A.M of Q=24) (2 marks)

_____

_____

_____

_____

15. A sample of water is suspected to contain chloride ions. Describe an experiment that can be carried out to determine the presence of chloride ions. (3 marks)

_____

_____

_____

_____

16. In contact process, Sulphur (IV) oxide reacts with oxygen to form Sulphur (VI) oxide in presence of a catalyst.

(a). Name the preferred catalyst for this reaction. (1 mark)

_____

_____

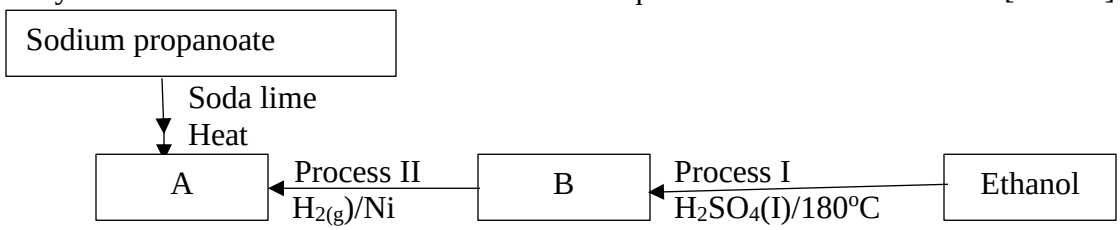
(b). Give two uses of sulphuric (VI) acid (2 marks)

_____

_____

_____

17. Study the reaction scheme below and answer the questions that follow. [1 mark]



a). Identify substances (1 mark)

A-

B-

[b]. Name process I (1 mark)

_____

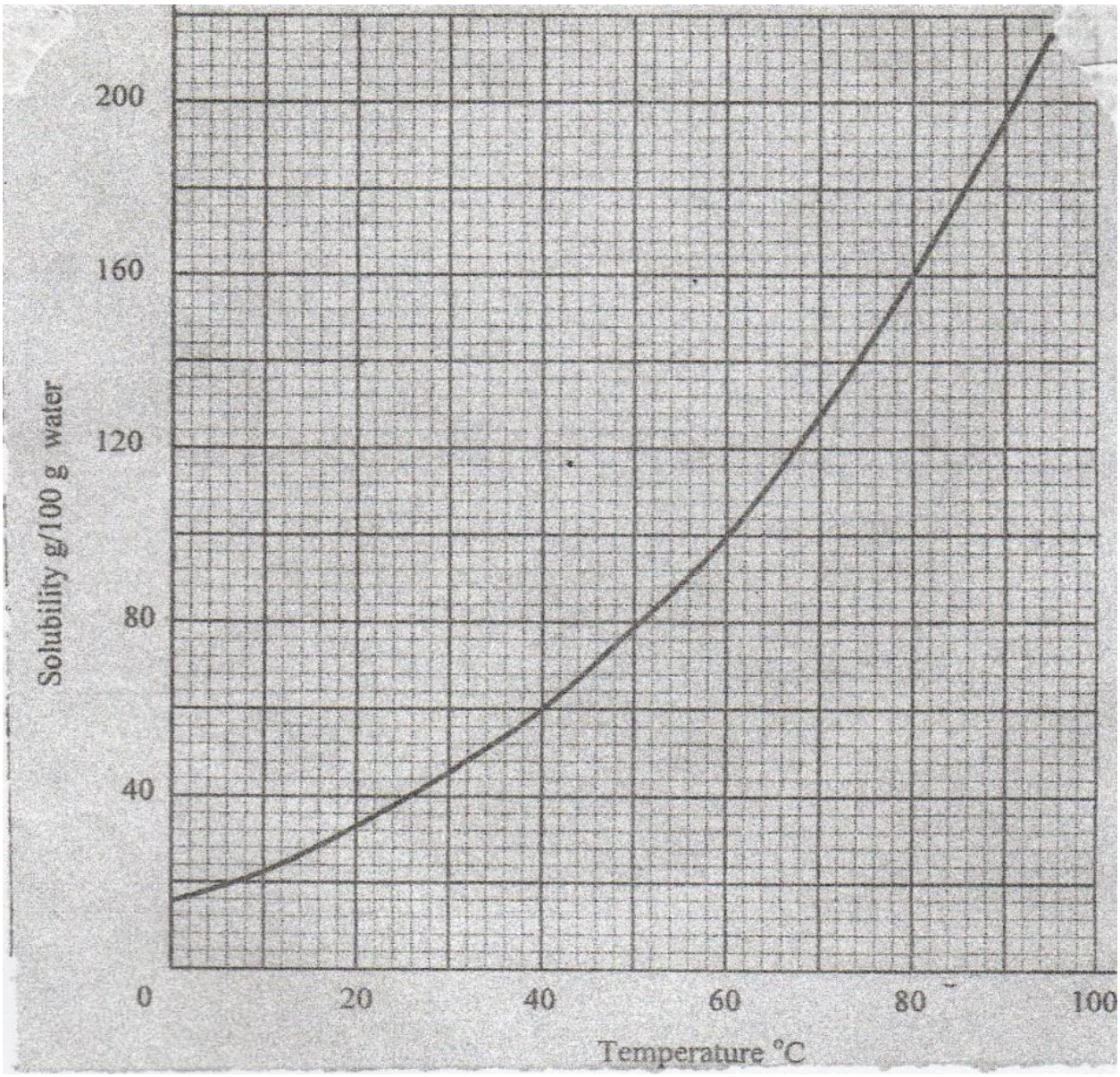
_____

(c). Name the substance produced when Sodium Propanoate react with Soda lime. (1 mark)

_____

_____

18. The solubility curve of potassium nitrate is shown below.



[a]. Determine the solubility of potassium nitrate at 40^{o}C (1 mark)

_____

_____

[b]. Determine the molar concentration of saturated potassium nitrate at 40^{o}C
(K = 39.0, O =16.0 N=14.0 and density of water 1g/cm^{3} (2 marks)

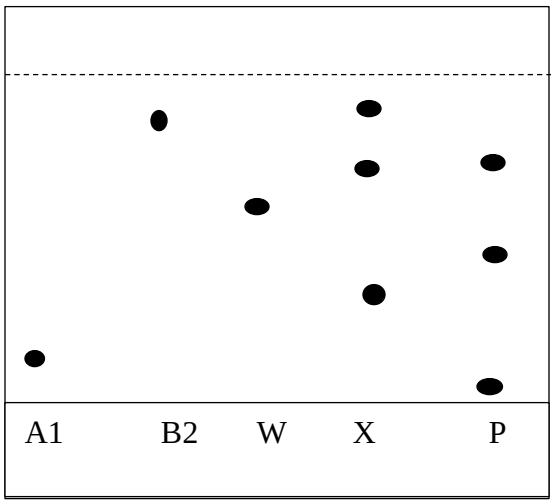
_____

_____

_____

_____

19. Sample of urine from three participants W, X and P at an international sports meeting were spotted onto a chromatography paper alongside two from illegal drugs, A_1 B_2. A Chromatogram was run using methanol. The figure below shows the chromatogram.



(a). Identify the athlete who had used an illegal drug. (1 mark)

_____

(b). Which drug is more soluble in methanol. Give a reason. (2 marks)

_____

_____

20. State and explain the change in mass that occur when the following substances are separately heated in open crucibles.

(a). Magnesium ribbon (1 mark)

_____

_____

(b). Sodium carbonate (1 mark)

_____

_____

21. With the help of a well labeled diagram, draw a set-up of an arrangement of assembled apparatus that can be used to prepare dry hydrogen gas, including the appropriate reagents.

(3 marks)

22. Dry carbon (II) oxide gas was passed over heated lead (II) oxide.
(a). Write an equation for the reaction. (1 mark)

_____

_____

(b). Give one industrial application of the above reaction. (1 mark)

_____

23. A student burnt magnesium ribbon in a gas jar full of Sulphur (IV) oxide gas
(i). State two observations made in the gas jar. (2 marks)

_____

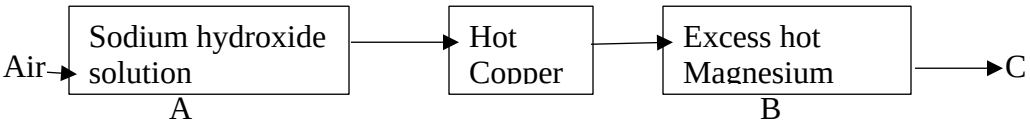
_____

(ii). Write an equation for the reaction that took place. (1 mark)

_____

_____

24. Air was passed through reagent as shown below.



(i).State the role of sodium hydroxide solution. (1 mark)

_____

(ii). Name one component in C. Explain. (1 mark)

_____

_____

25. Analysis of a compound showed that it had the following composition. 69.42% Carbon, 4.13% Hydrogen and the rest Oxygen
Determine the empirical formula of the compounds. (3 marks)
(C=12.0, H=1.0 , O=16.0

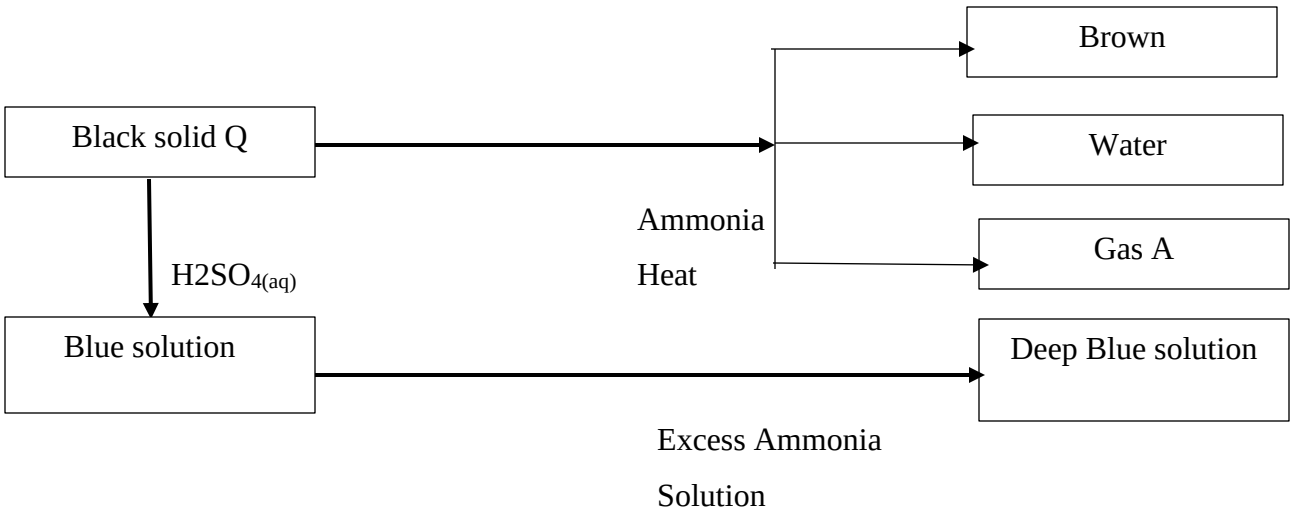
_____

_____

_____

_____

26. Study the reaction scheme below and answer the questions that follow. (1 mark)



(a).Identify

i. Black solid Q (1 mark)

_____

ii. Gas A (1 mark)

_____

(b). Write an equation for the reaction between ammonia and black solid Q. (1 mark)

_____

_____

(c). Write the formula of the complex ion in deep blue solution. (1 mark)

_____

_____

27. Element **S** has an atomic number of 14 and **R** has an atomic number of 17

(a). Write the formula of the ion of element S. (1 mark)

_____

(b). Using dot (**.**) and cross (x) diagrams show how **S** an **R** combine to form a compound.

(2 marks)

_____

_____

_____

28. Explain why the following substances conduct an electric current.

(a). Aluminium metal (1mark)

_____

(b). Molten magnesium chloride (1 mark)

_____

PREDICTION 1

Name …….. Adm. No……...……..

Candidate's Signature……..…… Date……..……

233/2
CHEMISTRY PAPER 2
(Theory)
FORM 4 2021
2 hours

Instructions to candidates

(a) Write your name and index number in the spaces above
(b) Sign and write the data
(c) Answer all the questions in the spaces provided.
(d) **KNEC** tables and non-programmable calculators may be used.
(e) **ALL** working must be clearly shown where necessary
(f) **ALL** answers **MUST** be written in English.

For Examiners Use Only

Question	Maximum Score	Candidates Score
1	12	
2	13	
3	12	
4	11	
5	10	
6	11	
7	11	
Total Score	**80**	

1. (a). Crude oil is a source of many compounds that contain carbon and hydrogen only.
(i). Name the process used to separate the components of crude oil. (1 mark)

……
……

(ii). On what two physical properties of the above components does the separation depends. (2 marks)

……
……
……

(b). Under certain conditions, hexane can be converted to two products. The formula of one of the products is C_3H_8.

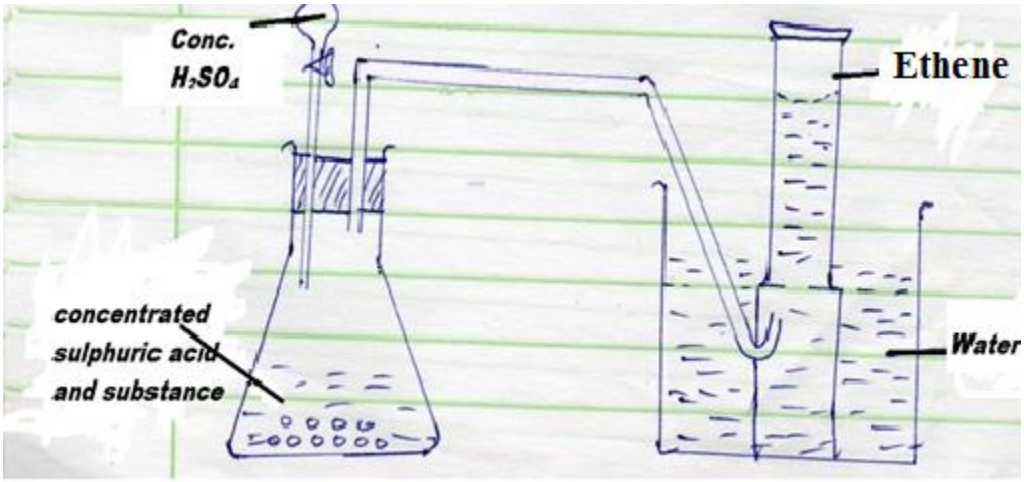
i) Write the formula of the other product. (1mark)

……
……

(ii). Describe a simple chemical test to show the difference between the two products formed in b(i) above (2 marks)

……
……
……
……

(c). The set up below was used to prepare and collect ethene gas. Study it and answer the questions that follow



(i).Name the substance T. (1 mark)

……

(ii) Give the property of ethene that allows it to be collected as shown in the set-up above (1 mark)

……
……

(d). On of the reaction undergone by ethene is addition polymerization. Give the name of the polymer and one disadvantage of the polymer it forms. (2 marks)

……..

Name: ……..…. (1 mark)

Disadvantage of the polymer …….. (1 mark)

2.(a) Name the method that can be used to obtain pure Iron (III) chloride from a mixture of iron (III) chloride and sodium chloride. (1 mark)

……...

……

(b) A student was provided with a mixture of sunflower flour, common salt and a red dye. The characteristics of the three substances in the mixture are given in the table below. (1 mark)

Substance	Solubility in water	Solubility in ethanol
Sunflower flour	Insoluble	Insoluble
Common salt	Soluble	Insoluble
Solid red dye	Soluble	soluble

The student was provided with ethanol and any other materials needed. Describe how the student can separate the mixture into its three components. (3 marks)

……..

……

(c) The diagram shows part of the periodic table. The letters do not represent the actual symbols of the elements. Use the diagram to answer the questions that follow.

								Q
R						T		
	Z		N			V	W	
Y							X	

(i) Explain why the Oxidizing power of W is more than of X. (2 marks)

……

……

(ii) How do the melting points of R and T compare. Explain. (2 marks)

……

……

(iii). Give the formula of the compounds formed between Z ad W (1mark)

.....

……...

(iv). Element K is in group (v) and period 2 of the periodic table. Locate the element in the grid above. (1mark)

……

……

(v) Using dots (.) and crosses (x), show the bonding between K and hydrogen. (1 mark)

(vi) Select an element that coulf be used:-

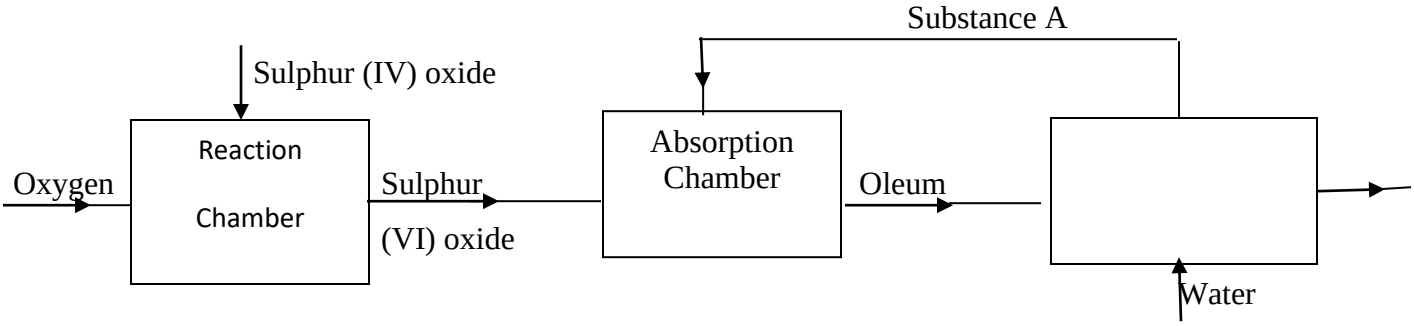
(I) in weather balloons (1 mark)

……

(II). For making cooking pots. (1 mark)

……..

3. The flow chart below shows some of the processes involved in large scale production of sulphuric (VI) acid. Use it to answer the questions that follow.



(a). Describe how oxygen is obtained from air on large scale. (3 marks)

……

……

……..

(b). (i). Name substance A (1mark)

……..

(ii). Write an equation for the process that takes place in the absorption chamber (1 mark)

……

….……...

(c). Vanadium (v) oxide is a commonly used catalyst in the contact process. (1 mark)

……

(i). Name another catalysts which can be used for this process. (1 mark)

……..

(ii). Give two reasons why vanadium (IV) oxide is the commonly used catalyst (1 mark)

……

……..

(d). State and explain the observation made which concentrated sulphuric (VI) acid is added to crystals of copper (II) sulphate in the beaker. (2 marks)

……

…….. …..

(e) The reactions of concentration sulphuric (VI) acid with sodium chloride produces hydrogen chloride gas. State three property of concentrated sulphuric (VI) acid illustrated in this reaction. (1mark)

……...

……

(f). Name four uses of sulphuric (VI) acid (2 marks)

……...

……

4.(a). What is meant by molar heat of combustion? (1 mark)

……

(b). State the Hess's law (1 mark)

……

(c). Use the standard enthalpies of combustion of graphite, hydrogen and enthalpy of formation of propane to answer the questions that follow.

ΔH^{o}_{c} (Graphite) = - 393kJmol^{-1}

ΔH^{o}_{c} ($CH_{2(g)}$) = - 286kJmol^{-1}

ΔH^{o}_{f}($C_3H_{8(g)}$) = -104 kJmol^{-1}

(i). Write the equation for the formation of propane. (1 mark)

……

(ii). Draw an energy cycle diagram that links the heat of formation of propane with its heat of combustion of graphite and hydrogen. (3 marks)

(iii). Calculate the standard enthalpy of combustion of propane. (2 marks)

……

……

……

……

(d). Other than the enthalpy of combustion, state one other factor which should be considered when choosing a fuel. (1 mark)

……

……

(e). The molar enthalpies of neutralization of dilute hydrochloric acid and dilute nitric (V) acid are -57.2kJmol^{-1} while that of ethanoic acid is -55.2kJ/mol. Explain this observation. (2 marks)

……

……

5.(a). At 25^{o}C, 50g of potassium nitrate were added to 100g of water to make a saturated solution. What is meant by a saturated solution? (1 mark)

……

……

(b). The table below gives the solubilities of potassium nitrate at different temperatures

Temperature (^{o}C)	12	20	28	36	44	52
Solubility g/100g of water	22	31	42	55	70	90

(i). Plot a graph of the solubility of potassium nitrate (vertical axis) against temperature. (3 marks)

(ii). Using the graph:

I. Determine the solubility of potassium nitrate at 15^{o}C. (1 mark)

……

……

II. Determine the mass of potassium nitrate that remained undissolved given that 80g of potassium nitrate were added to 100cm^{3} of water and warmed to 40^{o}C. (2 marks)

……

……

……

(c). Determine the molar concentration of potassium nitrate at 15^{o}C

(Assume there is no change in density of water at this temperature. (K=39, N=14, O=16) (3 marks)

……

……

……

……

6.a)(i). Carbon (IV) oxide is present in soft drinks. State two roles of carbon (IV) oxide. (1 mark)

……

……

(ii). Explain the observation made when a bottle containing a soft drink is opened. (2 marks)

……

……

……

……

(iii). Carbon (IV). Oxide dissolves slightly in water to give acidic solution. Give the formula of the acid. (1 mark)

……

……

(b). Zinc oxide can be obtained by heating zinc nitrate. A student heated 5.76g of zinc nitrate.

(i). Write the equation or the reaction that occurred. (1 mark)

……

……

(ii). Calculate the total volume of gases produced (Molar gas volume = $24dm^3$, Zn = 64.5, O =16, N=14.0) (2 marks)

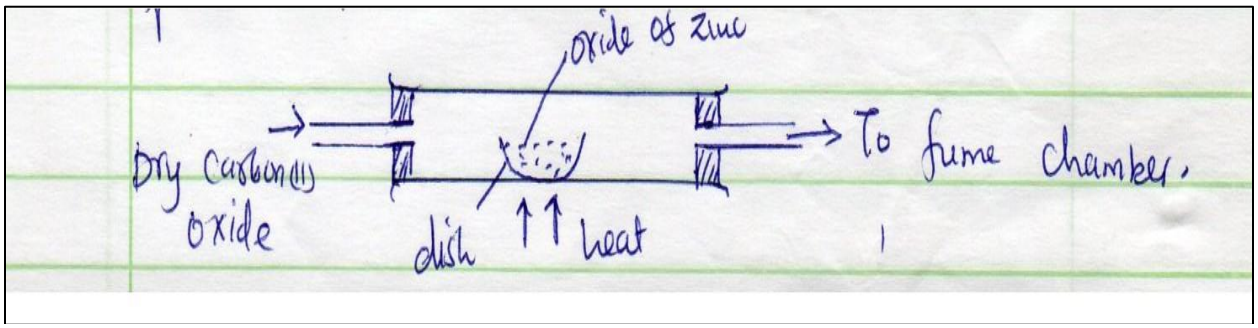
……

……

……

……

(c). Excess carbon (II) oxide gas was passed over a heated sample of an oxide of zinc as shown in the diagram below. Use it to answer the questions that follow.



(i). State and explain the observations made in the combustion tube. (3 marks)

……

……

……

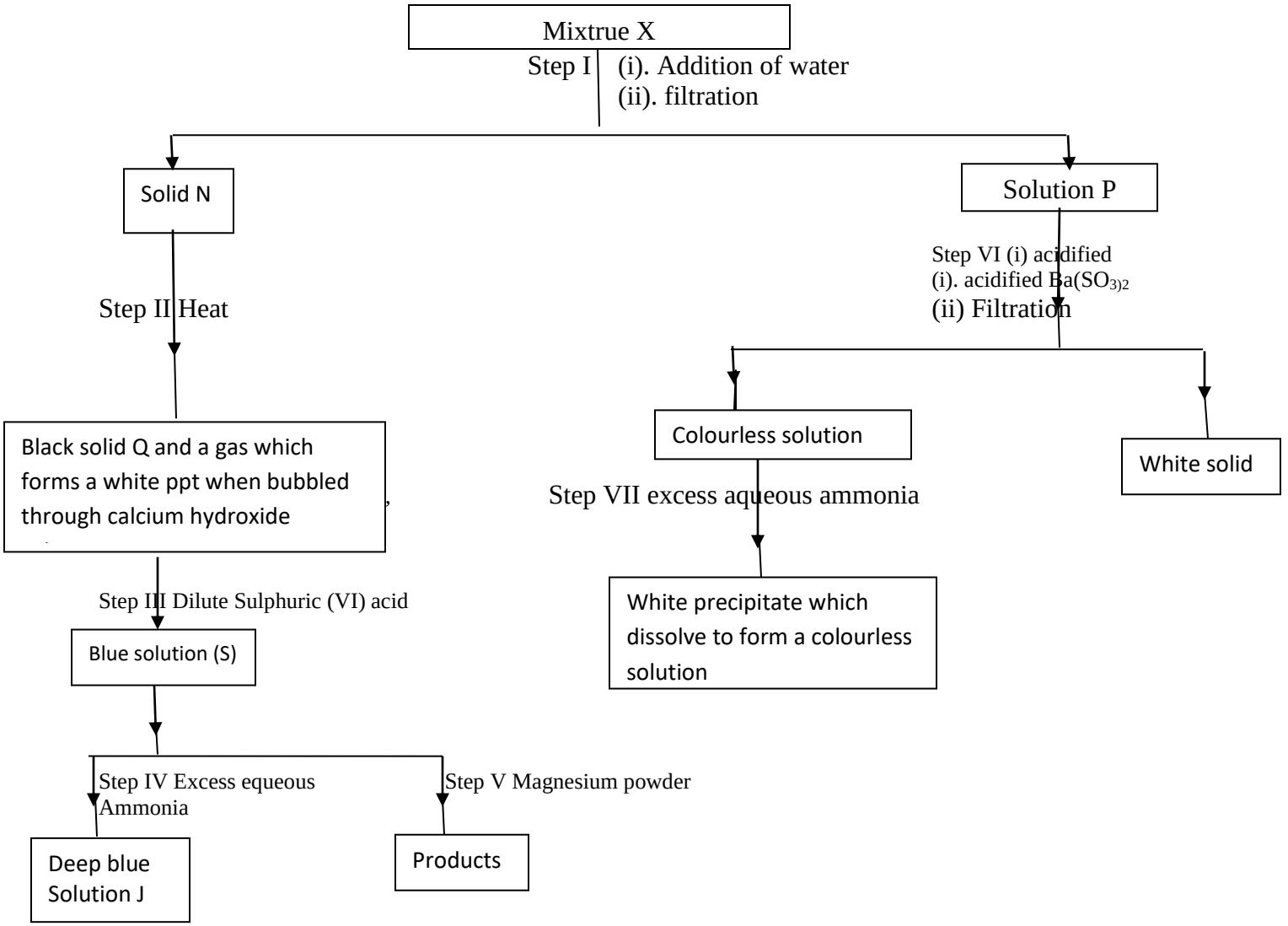
……

(ii). Write an equation or the reaction which took place in the dish. (1 mark)

……

……

7. The flow chart below shows a sequence of reactions involving a mixture of two salts, mixture X. Study it and answer the questions that follow.



(a). Write the formula of the following

(i). anious in solid Q (1 mark)

……

……

(ii). The two salts present in mixruew M. (2 marks)

……

……

(b). Write an ionic equation for the reaction in step (VI). (1mark)

……

……

(c).State and explain the observations made in step (V) (3 marks)

……

……

……

……

(d)(i). Starting with lead (II) oxide,describe how a pure solid sample of lead (II) sulphate can be prepared in the laboratory. (2 marks)

……

……

(ii). How can one determine whether the lead (II) Sulphate prepared is pure? (2 marks)

……

……

PREDICTION 1

CONFIDENTIAL

CHEMISTRY - PAPER 3

1.0M hydrochloric acid, solution Y
0.5M sodium hydroxide solution Z
Solid X 1g sodium carbonate
Solid L Hydrated aluminium sulphate
Solid M paraffin wax
2 boiling tubes
Thermometer
Stopwatch
Tripod stand
250ml glass beaker
6 test tubes
Test tube rack
Test tube holder
Spatula
PH chart
Blue litmus paper
Red litmus paper
Burette
Pipette
100cm^3 measuring cylinder
100cm^3 beaker
Solid S: Mallleic acid
Burette stand

Access
2M sodium hydroxide
0.5M lead (II) nitrate
Aqueous sodium sulphate
Bromine water
Source of heat
Phenolphthalein indicator
Universal indicator

PREDICTION 1

Name: …… .Adm. No……Index No: ……

School:……Candidate's Sign……
Date: …….

233/3
CHEMISTRY
Paper 3
FORM 4 2021
[PRACTICAL]
Time: 2 Hours

Instructions to candidates:

- Write your name and Index Number in the spaces provided above.
- Sign and write date of examination in the spaces provided above.
- Answer **ALL** questions in the spaces provided in the question paper.
- You are not allowed to start working with the apparatus for the first 15 minutes of the 2 ¼ hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus that you may need.
- All workings **MUST** be clearly shown where necessary.
- Mathematical tables and silent electronic calculators may be used.

For Examiners use only.

Question	Maximum Score	Candidate's Score
1	14	
2	09	
3	17	
Total marks	**40**	

1. You are provided with the following:
   - 1.0M Hydrochloric acid; solution Y
   - 0.5M Sodium hydroxide; solution Z

Anhydrous sodium carbonate of unknown mass; solid X

You are required to determine the mass of sodium carbonate that was used in the reaction.

Procedure

Using a measuring cylinder, measure 60cm^3 of 1M hydrochloric acid, solution Y and transfer into 100cm^3 beaker. Add all sodium carbonate (solid X) and stir gently until there is no effervescence. Transfer the solution into a clean 100ml measuring cylinder and add distilled water to make 100cm^3 of the solution. Transfer the solution onto 250cm^3 beaker and shake. Label this solution F.

Fill the burette with solution Z. Pipette 25.0cm^3 of solution F and transfer to a conical flask. Add 3 drops of Phenolphthalein indicator and titrate with solution Z. Record your results in the table 1 below. Repeat the procedure to complete the table.

(a).Table 1. **(4 marks)**

Final burette readings (cm^3)	I	II	III
Initial burette reading (cm^3)			
Volume of solution Z (cm^3)			

(i). Determine the average volume of solution Z. (1 mark)

_____

_____

(ii).Calculate the number of moles of sodium hydroxide (solution Z) used. (1 mark)

_____

_____

_____

_____

_____

_____

(iii). Find the number of moles of hydrochloric acid in 25.00cm^3 of solution F (2 marks)

_____

_____

(iv). Determine the number of moles of hydrochloric acid in $100cm^3$ of solution F (2 marks)

Calculate the number of moles of hydrochloric acid in the original $60cm^3$ of solution Y. (1 mark)

(v). Calculate the number of moles of hydrochloric acid in the original $60cm^3$ of solution Y. (1 mark)

(vi). Calculate the number of moles of hydrochloric acid that reacted with sodium carbonate. (1 mark)

(vii). Determine the mass of sodium carbonate that reacted with the acid (Na=23, C=12, O=16) (2 marks)

2. A. You are provided with

- Solid M
- A thermometer
- A test tube

You are required to determine the melting point of solid M

PROCEDURE

a). Place $150cm^3$ of tap water in a 200 ml or 250 ml beaker

b). Heat the water to near boiling.

c). Insert a thermometer in the test tube containing solid M and take its temperature then record it in the table below under time 0.

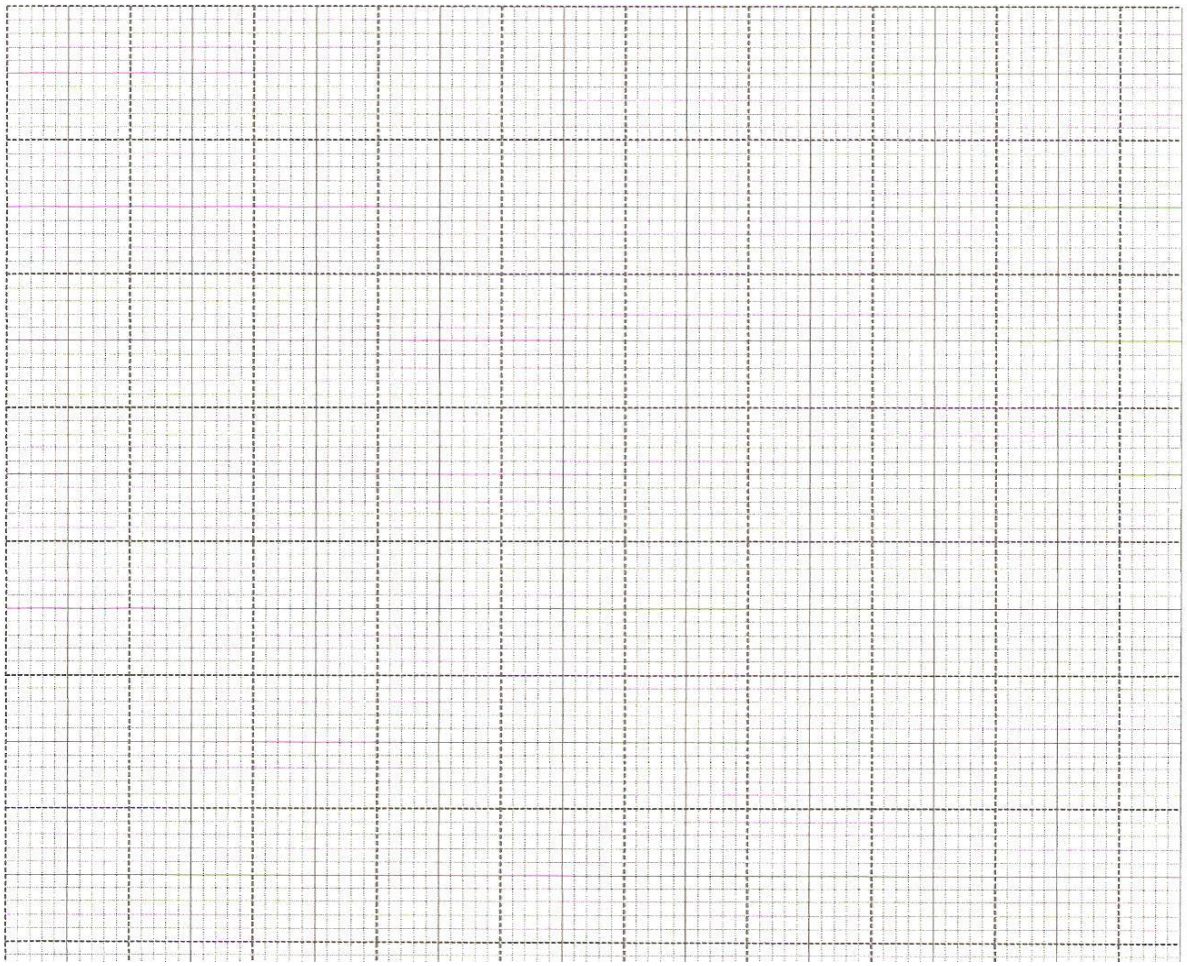
d). Using a test-tube holder, immerse the test-tube containing solid M into the hot water

(Ensure that half of the test-tube is immersed) and immediately start a stop Watch/clock and record the temperature of the contents of the test-tube after every Half-minute and complete the table.

e). Dip the thermometer into the hot bath to clean it then wipe it with tissue paper (4 marks)

Time (Min)	0	½	1	1 ½	2	2 ½	3	3 ½
Temperature (^oC)								

(i). On the grid provided, plot a graph of time, (Horizontal axis) against temperature. (3 marks)



(ii). From the graph, determine the melting point of solid M. (1 mark)

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(iii). Name the type of heat change at the melting point. (1 mark)

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_____

3. (a). You are provided with solid L. Carry out the tests below and record your observations and inferences in the spaces provided.

(i). Heat gently then strongly half of solid L in a clean dry test tube, test any gas produced using red and blue litmus papers

Observations	Inferences
[1 mark]	[1 mark]

Take the remainder of solid L and put into a boiling tube. Add about $10cm^3$ of distilled water and shake. Divide the solution into 3 portions.

(ii). To the first portion, add aqueous sodium hydroxide dropwise until in excess.

Observations	Inferences
[1 mark]	[1 mark]

iii). To the second portion, add about $5cm^3$ of aqueous sodium sulphate.

Observations	Inferences
[1 mark]	[1 marks]

(iv). To the third portion, add about $2cm^3$ of lead (II) nitrate.

Observations	Inferences

[1 mark]	[1 marks]

3.(b). You are provided with solid S perform the following tests and record your observations and inferences in the spaces provided.

(a). Put half of the solid on a clean METALLIC SPATULA ignite it in a non-luminous flame.

Observations	Inferences
[$^1/_2$ mark]	[$^1/_2$ mark]

(b). Put the remaining solid in a clean boiling tube, add water and shake thoroughly. (Retain this mixture for test bi-biii)

Observations	Inferences
[1 mark]	[1 mark]

(b).(i). In about $2cm^3$ of the mixture add 2 drops of bromine water.

Observations	Inferences
[1 mark]	[1 mark]

(ii). in about $5cm^3$ of the mixture add both blue and red litmus paper.

Observations	Inferences

[1 mark]	[1 mark]

(iii). use the remaining mixture to determine the pH of the mixture.

observations	**Inferences**
[1 mark]	[1 mark]

PREDICTION 1

Name …….…… ……Index No……..……..

Candidate's Signature: ……..…….. ADM.NO…… Date:

……..

232/1

PHYSICS

FORM 4 2021

Paper 1

2**Hours**

INSTRUCTION TO CANDIDATES

- Write your name, index number and school in the spaces provided.
- This paper consists of TWO sections: A and B
- Answer ALL questions in section I and II in the spaces provided.
- ALL workings MUST be clearly shown.
- Mathematical tables and electronic calculators may be used.

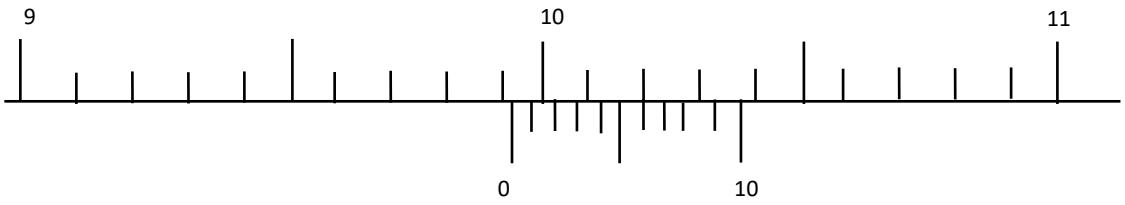
For examiner's use only.

Section	Question	Maximum score	Candidate's score
A	1 – 10	25	
B	11	11	
	12	11	
	13	11	
	14	10	
	15	12	
	Total	80	

SECTION A 25 MARKS

Answer all questions in this section

1. The figure I below shows the reading of a vernier calipers used to get the diameter of a cylindrical tin.



If the vernier caliper had a negative error of 0.02 cm, what is the actual diameter of the tin?
(2 marks)

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2 .A body is projected vertically upwards from the top of a building. Assuming that it lands at the base of the building. Sketch the velocity time graph of the motion.
(2marks

3 The stability of a body can be increased by increasing the base area and lowering its centre of gravity. State how the position centre of gravity can be lowered.
(1mark)

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4. When a mercury thermometer is used to measure the temperature of hot water, it is observed that the mercury level first drops before beginning to rise. Explain.
(2marks)
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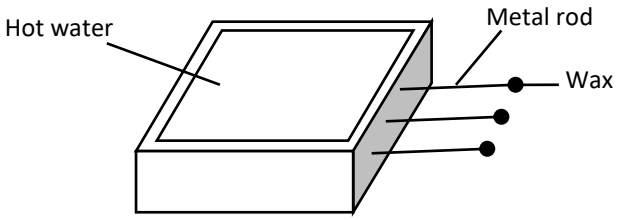
5.The figure below shows a hot water bath with metal rods inserted through one of its sides. Some wax is fixed at the end of each rod.



(a) What property of metals could be tested using this set-up? (1 mark)

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(b) besides the length of the rods that is kept constant, what else should be kept constant when comparing the property for different metal rods (1 mark)

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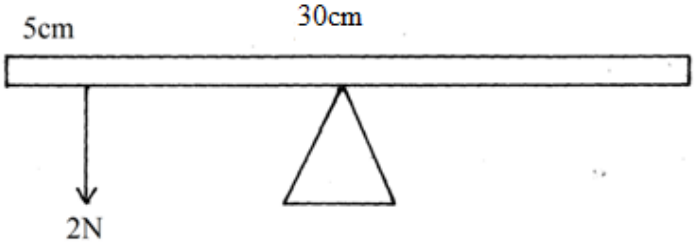
6.The figure below shows a uniform meter rule pivoted at 30cm mark. It is balanced by a weight of 2N suspended at the 5cm mark.



Determine the weight of the meter rule. (2 marks)

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7. using the idea of particles, explain why the pressure inside the tyre is increased when it is pumped up …

.(2marks)

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8. A trolley of mass 0.5kg moving with a velocity of 1.2ms^{-1} collides inelastically with a second trolley of mass 1.5kg moving in the same direction with a velocity of 0.2ms^{-1}.

(a) What is an inelastic collision?

(1mark)

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(b) Determine the velocity of the trolleys after collision.

(3marks)

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9 Ventilations in a house are normally placed high on a wall near the ceiling. Explain.
(1mark)

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10. State the reason why mercury is preferred as a barometric liquid and not water. (1mark)

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11.The figure below shows a small toy boat floating in water in a basin. **P** and **Q** are two points near the toy.

Drops of Soup solution was added at point Q.

a) State what was observed (1 mark)

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b) Explain the observation (2 marks)

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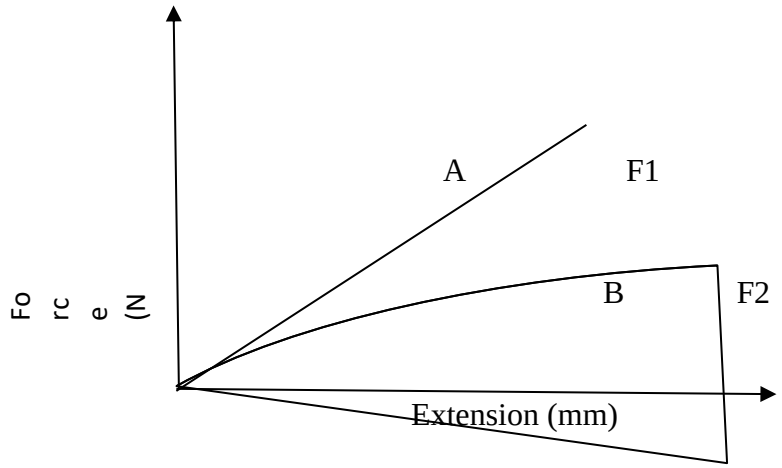
12.(a) Figure 10 below shows two graphs for two different springs A and B



F_1 and F_2 are points at which the springs break determine and explain which of the two springs

(i) Obeys Hooke's law (1 mark)

……

(ii) Is stronger (1 mark)

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13. When a drop of olive oil of known volume is dropped on the surface of water in a large trough it spread out to form a large circular patch. State one assumption made when the size of the molecule of olive oil is estimated .
(1mark)

SECTION B (55 MARKS)

Answer all questions in the spaces provided.

14 (a) Define the term velocity ratio as used in machines
(1mark)

(b) Figure 6 shows a block and tackle pulley system lifting a load of 500N

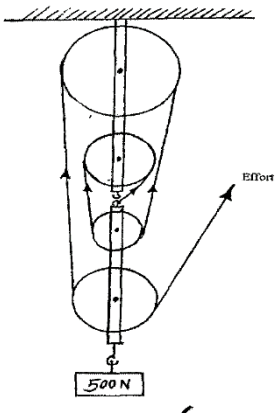

Fig 6

(i) Determine the velocity ratio of the machine
(1mark)

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(ii) If an effort of 120N is required to lift the load using the machines determine the efficiency of the pulley system
(3marks)

(iii) In the space provided below, sketch a graph of efficiency against load for the system.
(2marks)

15.(a) State the law of flotation. (1 mark)

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(b) A body weighs 40N in air, 30N in water and 35N when in liquid X. Find the relative density of liquid X. (3 marks)

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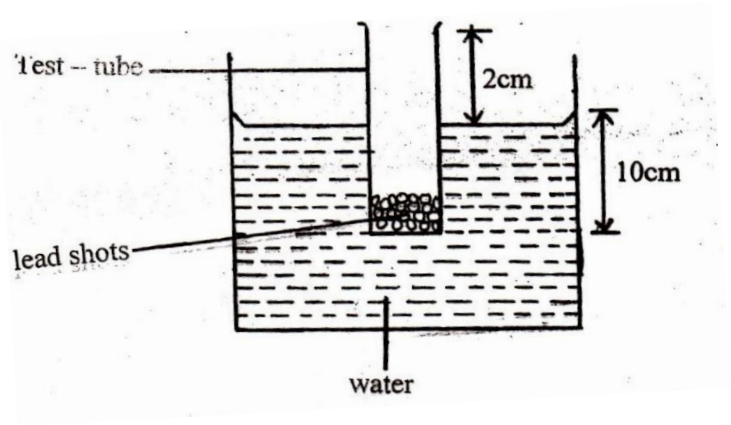
(c) A simple hydrometer is set up with a test –tube of mass 10g and length 12cm with a flat base and partially filled with lead shots. The test – tube has a uniform cross – sectional area of 2.0cm^2 and 10cm of its length is under water as shown in the figure below.



(i) Determine the mass of lead shots in the test – tube (Take density of water = 1000kgm^{-3}) (3 marks)

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(ii) Calculate the mass of the lead shots to be added if the test – tube has to displace an equal volume of a liquid of density 1.25gcm^{-3}. (3 marks)

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(d) What is the function of the lead shots? (1 mark)

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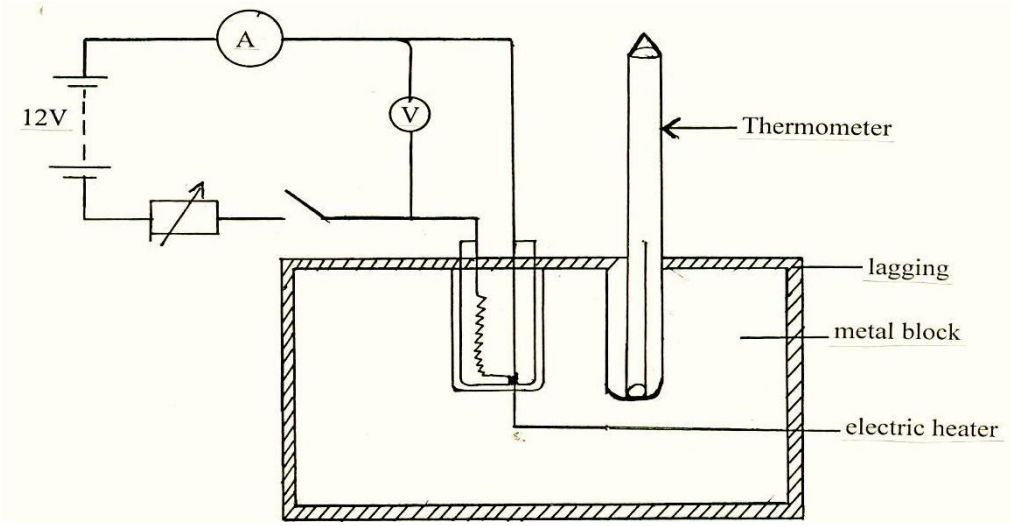
16. The figure below shows a set up that can be used to determine the specific heat capacity of a metal block.



(i) State the measurement that should be taken in the experiment to determine specific heat capacity of the metal block.
(3marks)

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(ii) Show how the measurement above can be used to determine the specific heat capacity of the metal block.
(2marks)

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(iii) State the function of the following in the set up
(I) Lagging
(1mark)
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(II) Drops of oil in the holes containing thermometer and the electric heater (1mark)

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(b) A copper can together with stirrer of total heat capacity 600J/K contains 200g of water at 15^0C. Dry steam at 100^0C is passed through the water while stirring until it reaches a final temperature of 55^0C. Calculate the mass of the steam condensed. Take specific heat of capacity of water as 4200J/Kg/k and specific latent heat of steam as 2,260,000J/kg

(5marks)

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17.(a) A car is negotiating unbanked circular track. What provides the centripetal force of the car.
(2marks)
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(b) Given that the car above has a mass of 1000kg and the circular path has a radius of 25m. Determine the maximum speed with which the motorist can travel so as not to skid if the frictional force between the tyres and the road is 6500N.
(3marks)

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(c) A 200g mass tied to a string is being whirled in a vertical circle of radius 32cm with uniform speed,
At the lowest position the tension in the string is 10.5N.: Determine -
(i) The speed of the mass (3marks)

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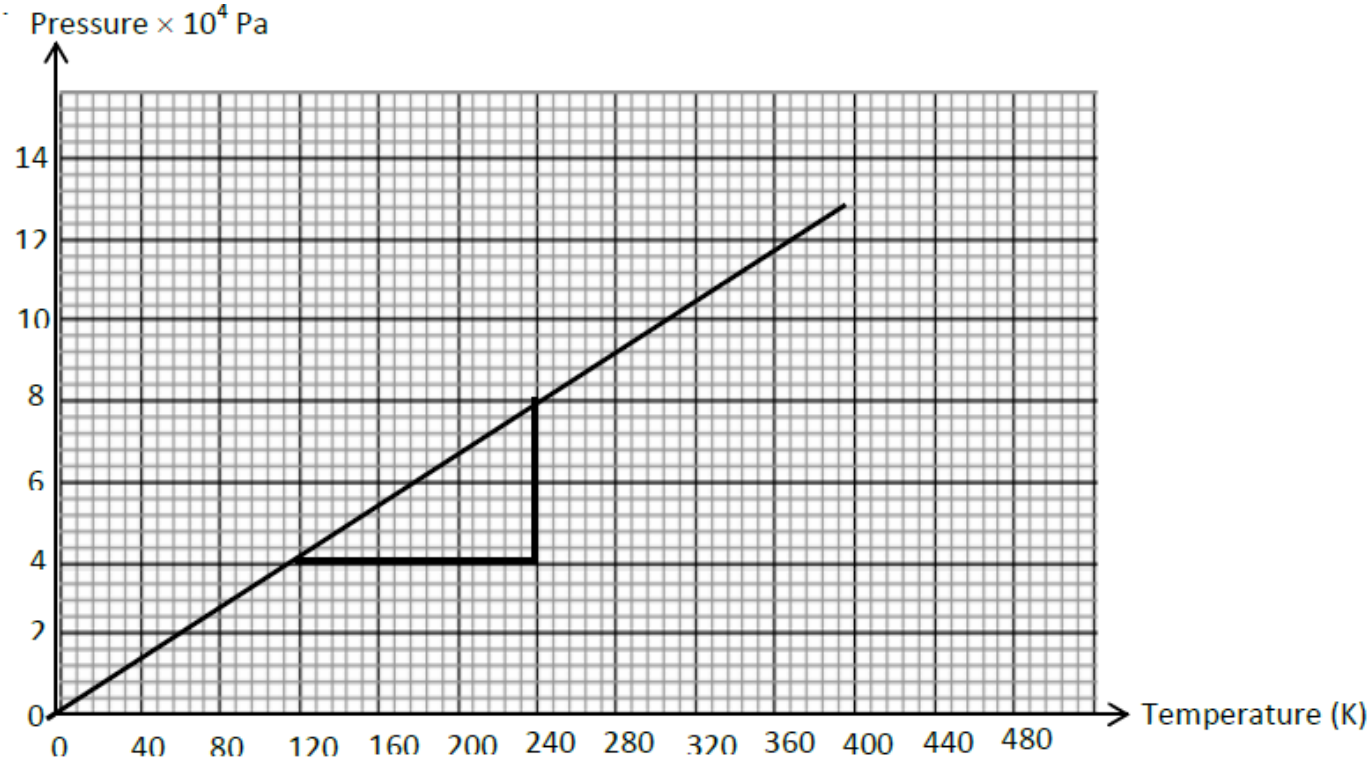
18. The graph below shows the relationship between the pressure and temperature for a fixed mass of an ideal gas at constant
Volume



Given that the relationship between the pressure P and temperature T in Kelvin is in the form P = kT + C where k and C are constants.

(i) Determine from the graph the values of k and C. (2marks)

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(ii) Why would it be impossible for the pressure of the gas to be reduced to zero in practice? (1mark)

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(iii) A gas is put into a container of fixed volume at a pressure of 2.1×10^5Pa and temperature of 50°C. The glass is then heated to a temperature of 400°C. Determine the new value of pressure. (3marks)

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PREDICTION 1

232/2
PHYSICS
FORM 4 2021
PAPER 2
2 HOURS

INSTRUCTIONS TO CANDIDATES

- *Write your name and index number in the spaces provided above*
- *Sign and write the date of the examination in the spaces provided*
- *Mathematical tables and electronic calculators may be used.*

For Examiner's Use Only

Section	Question	Maximum Score	Candidates' Score
A	Q1 – Q12	25	
B	Q13 Q14 Q15 Q16 Q17	11 12 11 10 11	
		80	

This paper consists of 14 printed pages.

Candidates should check the question paper to ensure that all the

Pages are printed as indicated and no questions are missing.

SECTION A (25 MARKS)

1. a) A plane mirror suspended on a vertical wall makes an angle of 60^0 with the wall. Determine the angle of reflection for a ray incident on the mirror and parallel to the horizontal.

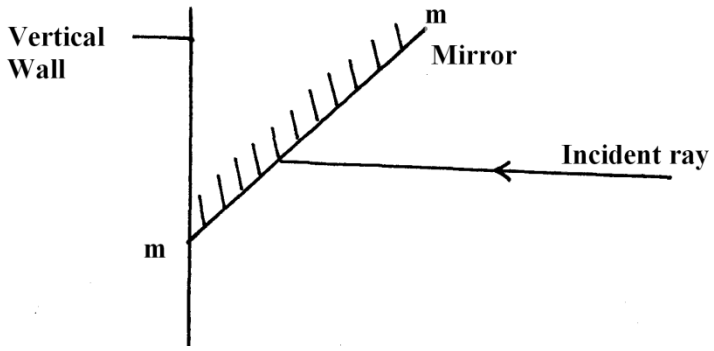

Fig. 1

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b) During total eclipse of the sun, both light and heat are observed to disappear simultaneously. Explain (1 mark)

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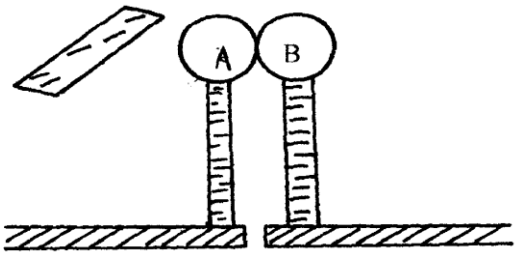
2. Two identical sphere A and B each standing on an insulated base are in contact .A negatively charged rod is brought near sphere A as shown below.



In what way will **A** differ from **B** if separated while the rod is held close to A ? (2mks)

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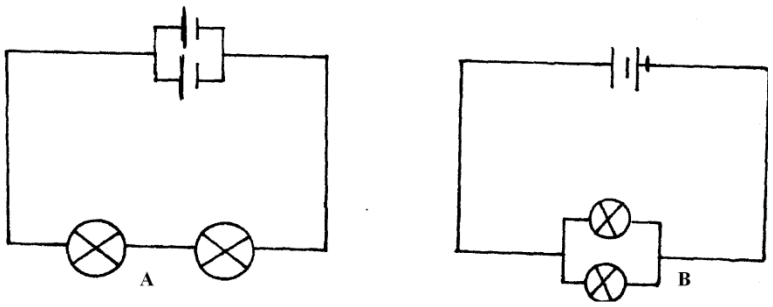
3. A student was investigating the brightness of bulbs when set up in circuits. He used identical bulbs and cells. He set up circuit A and B consisting of two bulbs and two cells as shown below.



State and explain which set – up had the bulbs brighter (2mks)

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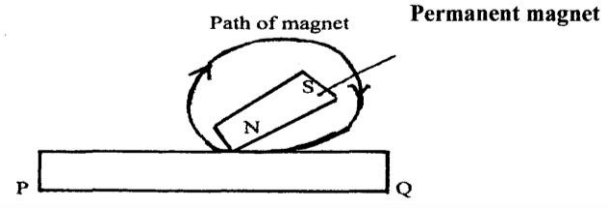
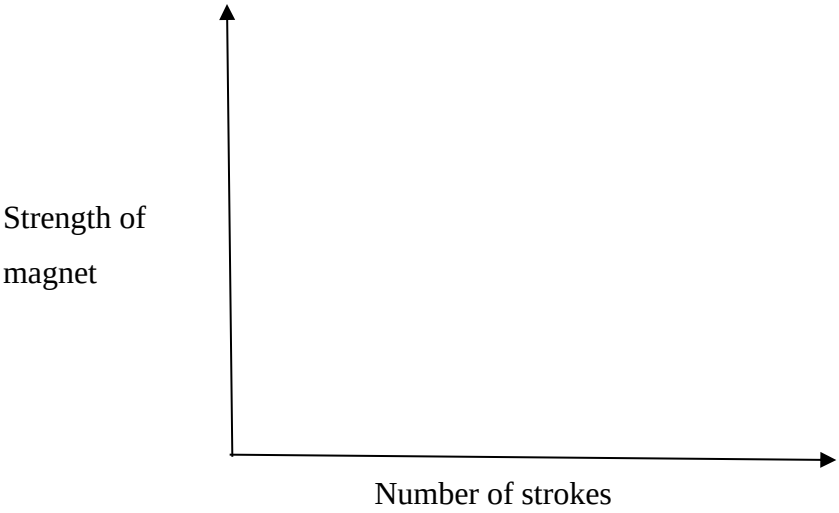
4. (i) The diagram below show a ferromagnetic material being magnetized by the method shown.

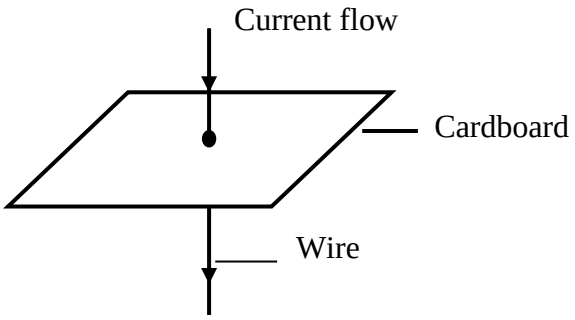


Identify the polarity of P (1mk)

(ii) On the axes given below , sketch a graph to show how the strength of the magnet being created varies with the number of strokes. (1mk)



5. Figure below shows a current carrying vertically right wire at right angle to a cardboard. Iron fillings are sprinkled on the card and card slightly tapped.



Draw and indicate the direction of the magnetic field pattern displayed on the card. (2 mks)

6. When a germanium crystal is doped with arsenic, it becomes an N-type semiconductor. Explain how this change occurs. (2 mks)

(Number of electrons in the outermost shell for germanium = 4, Arsenic = 5)

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7. The following is a part of a radio – active series.

$^{210}_{83}X \xrightarrow{r} {}^{210}_{84}y \xrightarrow{\alpha} {}^{c}_{d}z$

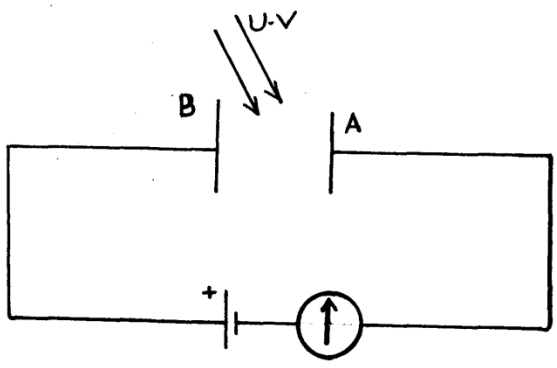
Identify the radiation r , find the values of C and d

r……(1mk)

c……..(1/2mk)

d……..(1/2mk)

8. The figure below shows a set up to demonstrate photoelectric effect. Use it to answer Questions 8(a) and (b).



a) What observation will be made when UV light shines on plate A. Explain.

(2mks)

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b) What is the effect of introducing a barrier between plates A and B. (1mk)

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9. A house has a lighting circuit operated from a **240V** mains supply. Four bulbs rated **40W 240V** and six bulbs rated **100W 240V** are switched on for **5** hours a day. Determine the monthly bill for the consumer given that the cost of electricity is at shs. 5.50 per unit.

(Take 1 month = 30 days and the standing charge is sh. 150) (3 mks)

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10. The chart below shows an arrangement of different parts of the electromagnetic spectrum.

P	Q	R	Ultra violet	S	Gamma rays

Name the radiation represented by letter Q and state one use of the radiation. (2 mks)

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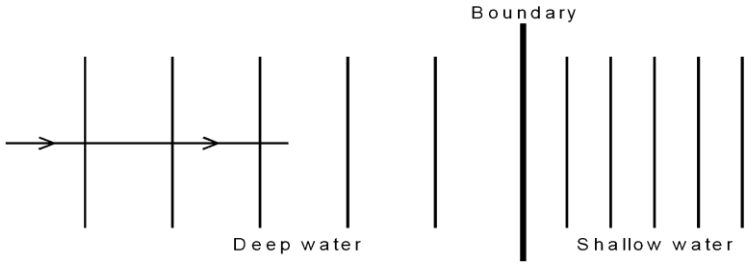
11. Plane water waves produced in a ripple tank are passed from a region of deep water into a region of shallow water. The figure below shows the top view of the tank.



a) State what happens at the boundary to the frequency of the waves. (1 mk)

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b) The waves have a speed of 24cm/s in the deep water. Consecutive waves crests are 0.08m apart in the deep water. Calculate the frequency of the source producing the wave. (2 mks)

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12. State one advantage and one disadvantage of a convex mirror when used as a driving mirror (1mk)

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SECTION B (55 MARKS)

13. The image formed by a convex lens is erect. On Figure 10 below, draw the object and using ray diagram, locate and draw the erect image. (3mks)

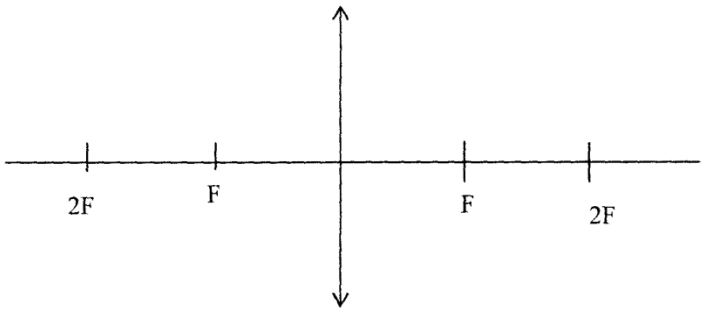

Figure 10

(a) Apart from being erect, state two other characteristics of the image. (2mks)

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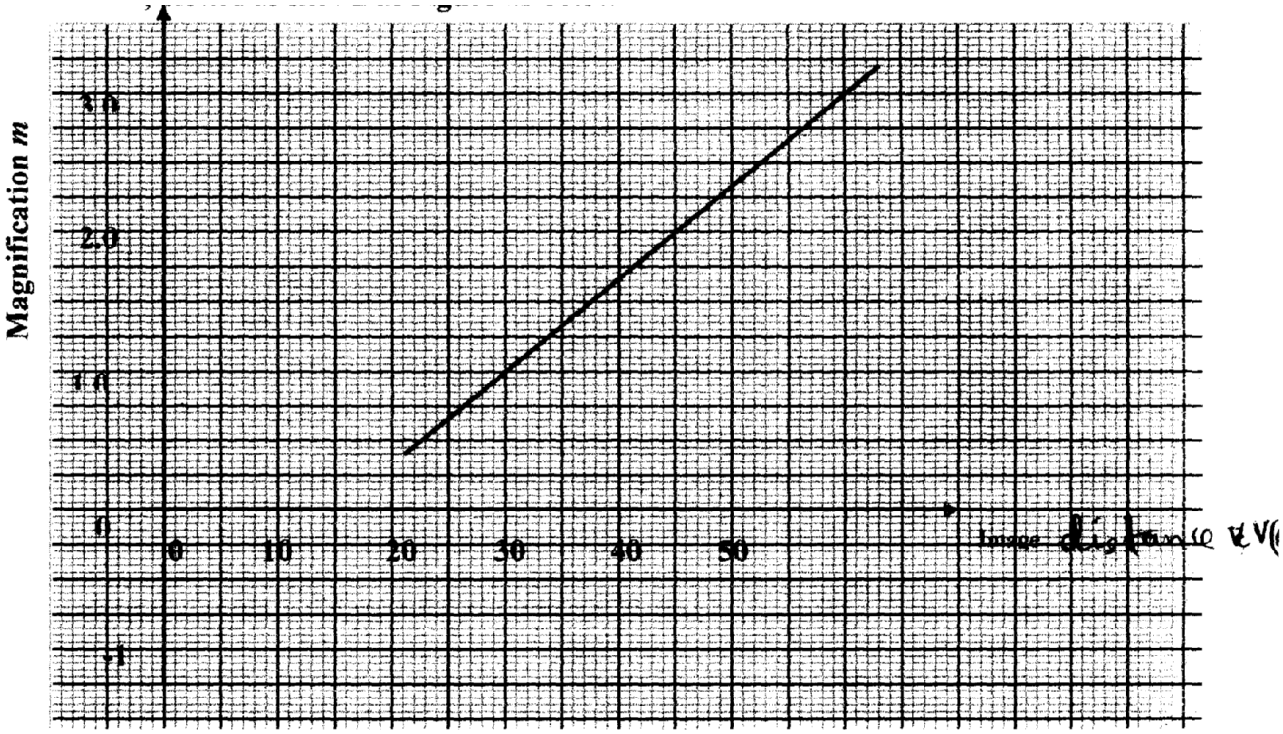
(b) In an experiment to determine the focal length of a converging lens using the lens formula, several values of image distance corresponding to value of object distance U were determined and a graph of magnification m against image distance v,plotted as shown in **Figure 11** below



The equation of the graph can be represented by the equation

$$m = \frac{V}{f} - 1$$

(i) What does the gradient of the graph represent? (1mk)

……

(ii) Determine the focal length of the lens. (2mks)

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(iii) Find the value of object distance for which the image is not magnified. (1mk)

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c) An object of height 10.5cm stands before a diverging lens of focal length 20cm and a distance of 10cm from the lens. Determine the image distance. (2 mks)

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14. (a) The refractive index of glass is $^{3}/_{2}$ and that of water is $^{4}/_{3}$. Calculate the refractive index of glass with respect to water. (2 mks)

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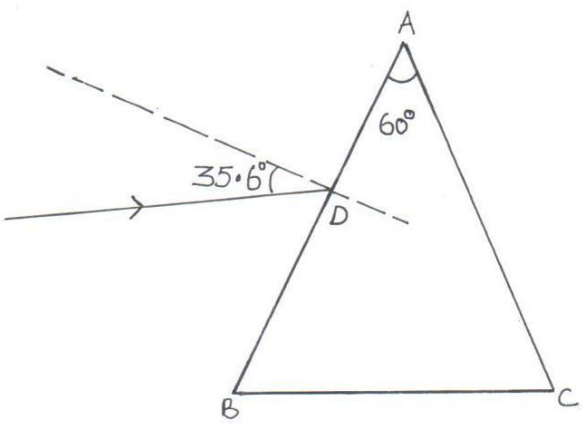
(b) The figure below shows a ray of light incident at an angle of 35.6° at point D on the first face of a glass prism ABC. The refractive index of the prism

is 1.6.



(i) Determine the angle of refraction at point D. (2 mks)

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(ii) Find the angle of incidence of the refracted ray on the face AC to 1 decimal point. (2 mks)

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(iii) Complete the ray diagram to show the emergent ray from the face AC. (2 mks)

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(iv) State **two** conditions necessary for total internal reflection to occur. (2 mks)

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(c) A girl standing at a distance claps her hands and hears an echo from a tall building 2 seconds later. If the speed of sound in air is 340m/s, determine how far the building is. (2 mks)

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15. a) State one application of a capacitor. (1 mk)

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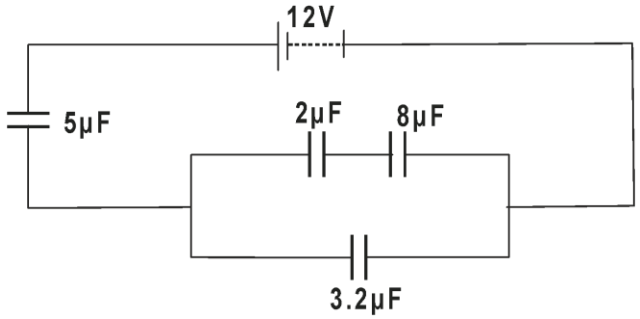
b) Figure 7 shows four capacitors connected to a battery of 12 volts.



Calculate:

i) Effective capacitance. (2 mks)

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ii) Charge on 3.2 μF (2 mks)

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iii) Potential Difference across 5 μF (2 mks)

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iv) The energy stored by 2 μF (2 mks)

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(c) What are effects on capacitance of a parallel plate capacitor when :

(i) Increasing the area overlap of the plates ? (1mk)

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(ii) Increasing the distance of separation between plates ? (1mk)

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16. a) State Lenz's law of electromagnetic induction. (1mk)

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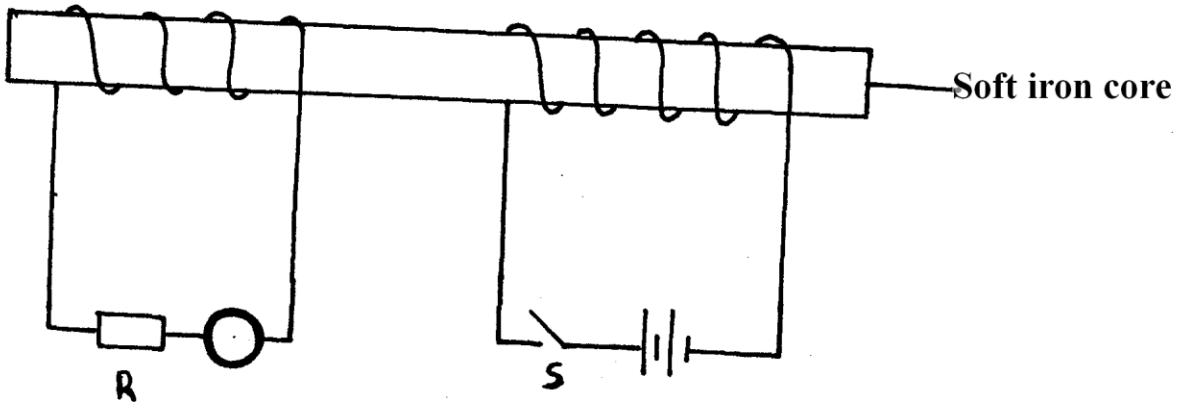
b) The figure shows two coils of insulated copper wires wound on a single soft iron core. One coil is connected to a battery through a switch and the other is connected to a resister through a galvanometer.



It is observed that as the switch is closed, the pointer of the galvanometer deflects momentarily. The same as when the switch is opened.

i) Explain why the pointer deflects momentarily. (2mks)

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ii) State one way in which the current through R can be increased. (1mk)

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c) i) State one way in which power is lost in a transformer. (1mk)

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ii) A transformer uses 240V ac supply to deliver 9A at 80V to a heating coil.
If 10% of the energy taken from the supply is lost in the transformer itself,
What is the current in the primary winding? (2mks)

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d) **Figure 8** , shows the voltage – current relating for a certain battery used in the electrical circuit in a above

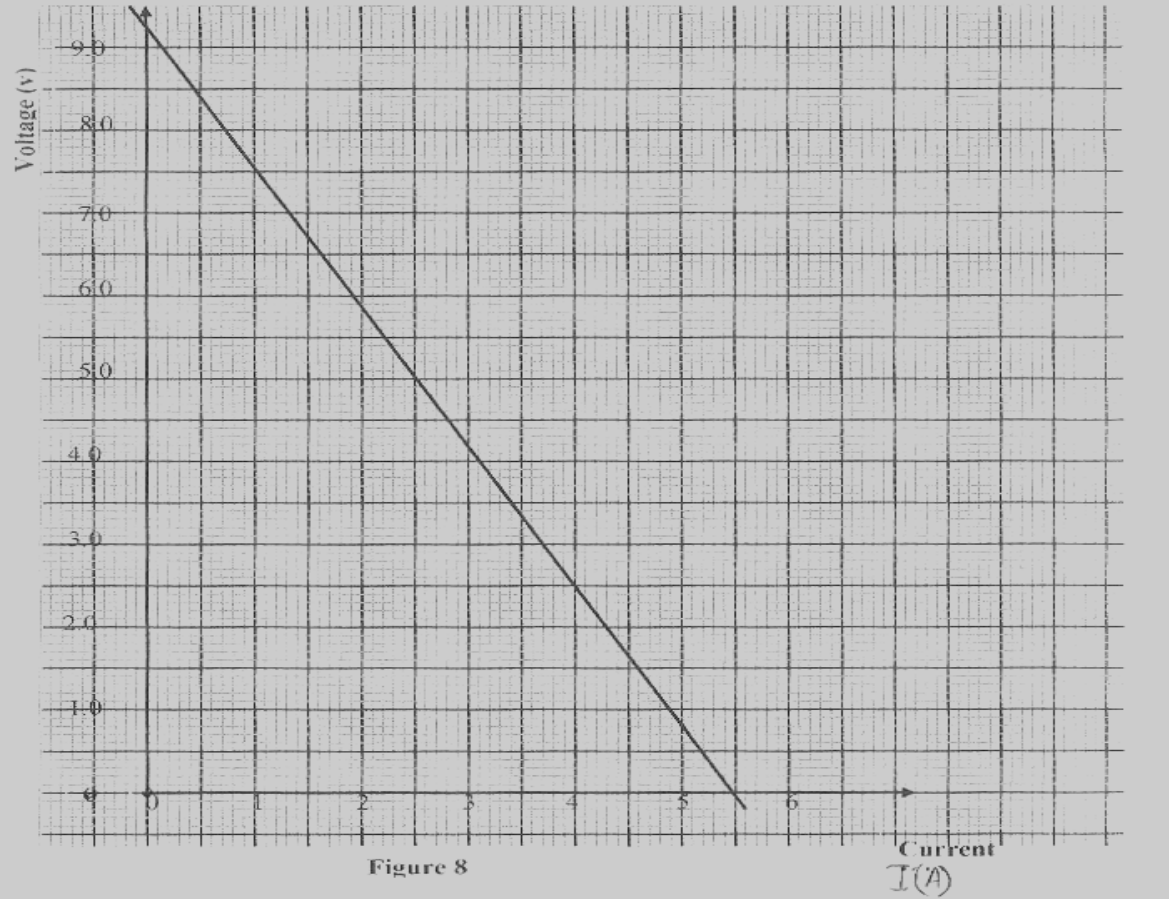


Figure 8

Given that the equation of the graph is V = E – Ir , from the graph , determine

(i) The e.m. fof the battery. (1mk)

……..

……..

……..

(ii) The internal resistance of the battery used. (2mks)

……..

……..

……..

……..

……..

17. a) During the operation of an X-Ray tube, the target becomes very hot. Explain how this heat is caused. (1 mk)

……

……

……

…….

(b) What property of lead makes it suitable for use as a shielding material in an X-Ray tube? (1 mk)

……

……

c) In a certain X- ray tube electrons are accelerated by p.d of 12 kV. Assuming all energy goes to produce X-rays, determine the frequency of the X-rays produced (Planck's constant $=6.63 \times 10^{-34}$ Js. Charge of an electron$=1.6 \times 10^{-19}$C) (2 mks)

……

……

……

……

……

d) X-Rays are used in detecting cracks inside metal beams. State the type of X-rays used for this purpose and state the reason. \ (2 mks)

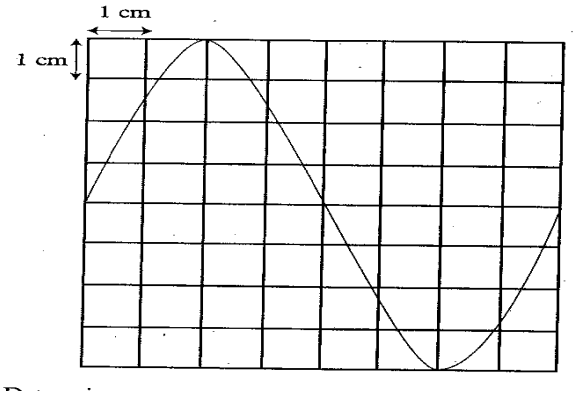
……

……

……

e) The figure below shows the waveform of a voltage displayed on the screen of a C.R.O.

The Y-gain was 5V/cm and time base control was 10ms/cm.



Determine the:

i) Peak to peak voltage of the Y- input (1 mk)

……

……

……

…….

ii) Period of the signal (2 mks)

……

……

……

……

…….

iii) Frequency of the signal. (2mks)

……

……

……

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…….

THIS IS THE LAST PRINTED PAGE

PREDICTION 1

231/3
PHYSICS
PAPER 3
PRACTICALS

CONFIDENTIAL INSTRUCTIONS TO SCHOOLS

The information contained in this paper is to enable the head of school and teacher in charge of physics to make adequate preparations for this year's physics practical examination. NO ONE ELSE should have access to this paper or acquire knowledge of its contents. Great care must be taken to ensure that the information herein does not reach the candidates either directly or indirectly.

-The physics teacher is NOT expected to perform the experiments

- The apparatus required by each candidate for the physics practical examination are set out on the next page. It is expected that the ordinary apparatus of a physics laboratory will be available.

- The physics teacher should note that it is his/her responsibility to ensure that each apparatus acquired, for this examination agrees with specifications below.

Each candidate requires

- A micrometer screw gauge (to be shared)
- Nichrome wire mounted on a mm scale labeled AB
- A voltmeter (0-3v or 0-5v)
- Ammeter (0-1A)
- A switch
- A jockey/long wire with crocodile clip attached
- TWO new dry cells and cell holder
- At least 8 connecting wires with crocodile clips attached to one end
- Two metre rules
- Two stands and two clamps
- Two bosses
- Three pieces of thread 70cm,20 cm and 20cm.
- A helical spring length 4 inches
- One mass of 100g
- A stopwatch

PREDICTION 1

Name:……...……Index No……
Date:…….……
Candidate's Signature:…….……
PHYSICS PRACTICAL
PAPER 232/3
TIME:2 ½ HOURS

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

INSTRUCTIONS TO CANDIDATES

(a) Write your name and index number in the spaces provided above.
(b) Sign and write the date of examination in the spaces provided above.
(c) Answer ALL the questions in the spaces provided in the question paper.
(d) You are supposed to spend the first 15 minutes of the 2½ hours allowed for this paper reading the whole paper carefully before commencing your work.
(e) Marks are given for a clear record of the observations actually made, their suitability, accuracy and the use made of them.
(f) Candidates are advised to record their observations as soon as they are made.
(g) Non-programmable silent electronic calculators may be used.
(h) This paper consists of 8 printed pages.
(i) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
(j) Candidates should answer the questions in English.

For Examiner's Use Only

Question 1

	b	c	d(i)	d(ii)	e	f	g	h	TOTAL
Maximum Score	1	1	5	5	1	2	2	3	20
Candidate's Score									

Question 2

	v	vii i	Ix	x	xi	TOTAL
Maximum Score	1	8	5	3	3	20
Candidate's Score						

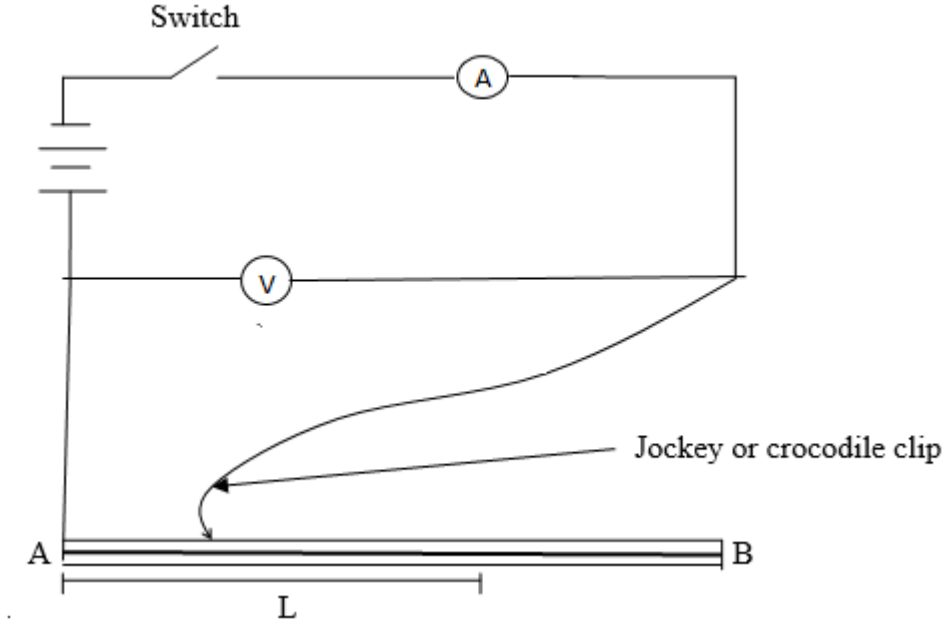
QUESTION 1 PART A

1. You are provided with the following

- A micrometer screw gauge (to be shared)
- Nichrome wire mounted on a mm scale labeled AB
- A voltmeter (0-3v or 0-5v)
- Ammeter (0-1A)
- A switch
- A jockey/long wire with crocodile clip attached
- TWO new dry cells and cell holder
- 8 connecting wires with crocodile clips attached to one end

Proceed as follows

a) Set up the circuit as shown below ensure that when the switch is open, both meters read zero, keep the switch open when readings are not being taken.



b) Measure and record the diameter d of the nichrome wire AB using the micrometer screw gauge.

$d =$ _____m (1mk)

c) Disconnect the jockey from wire AB and close the switch. Record the value E of the voltmeter reading.

$E =$ _____v (1mk)

d) Now, connect the jockey on AB at a distance L=10cm. Close the switch and record the voltmeter and ammeter readings, V and I respectively in table 1 below.

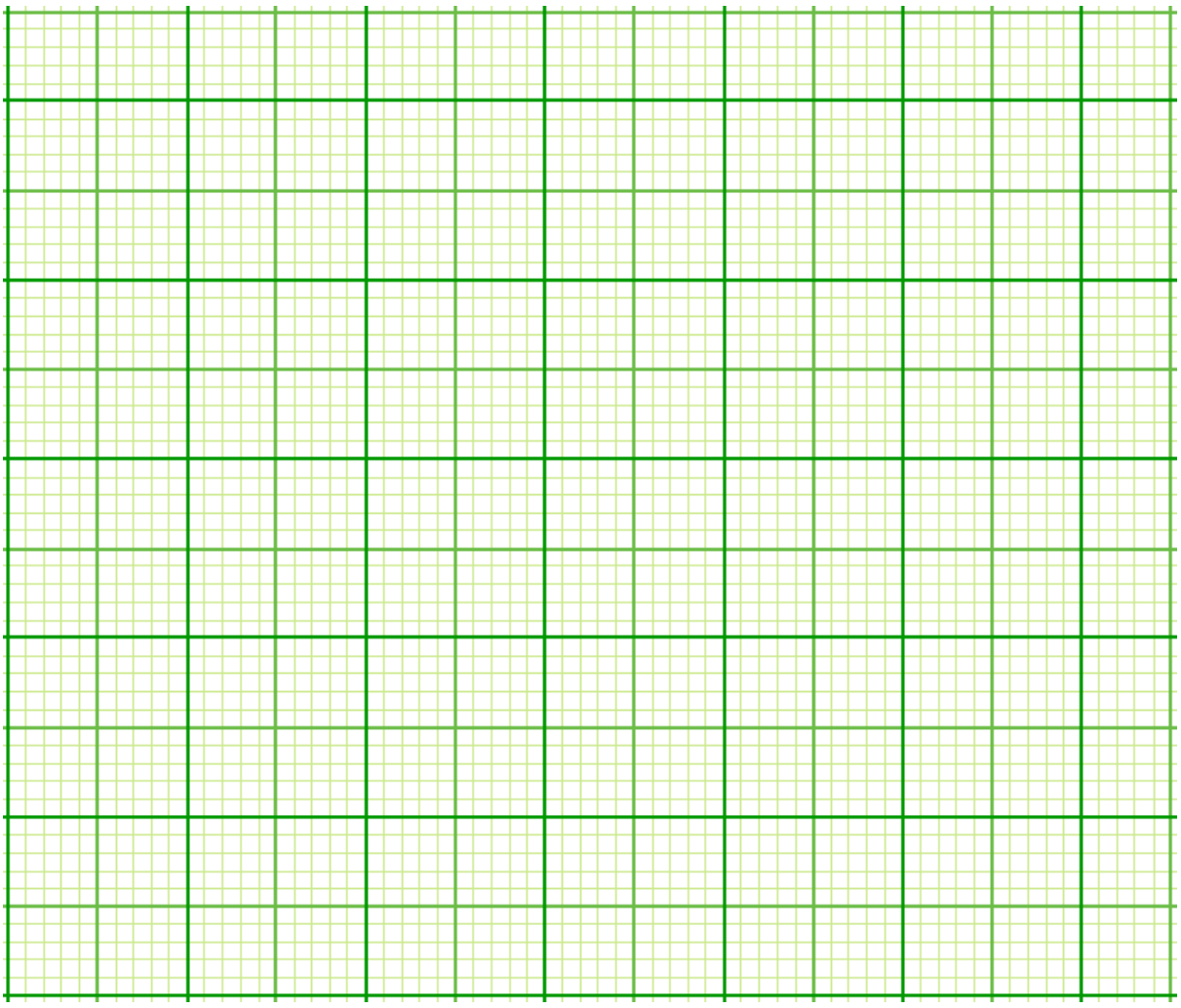
e) Table 1

L(cm)	10	20	30	40	50	90

V(v)						
I(A)						
IV(watts)						

i. Complete the table (5mks)

ii. Plot a graph of IV (y axis) against L (5mks)



f) Using your graph, find the value L_o from your graph (the horizontal axis)

$L_0 =$ _____cm (1mk)

g) Now, place the jockey on AB such that the length L is equal to the value of L= 63cm. close the switch and record both the voltmeter reading, V and the ammeter reading, I

$V =$ _____ (1mk)

$I =$ _____ (1mk)

g) Work out the values r where $r = \frac{E-V}{I}$ (2mk)

h) Work out the value of e where $e = \frac{\pi r d^2}{2.52}$ (3mk)

Question 2

You are provided with the following apparatus

- two metre rules
- two stands and two clamps
- two bosses
- three pieces of thread
- a spring
- one mass of 100g
- a stopwatch

i) Set the apparatus as shown in figure1 below.

ii) Suspend one end of the metre rule with a thread at 5cm mark from the end.

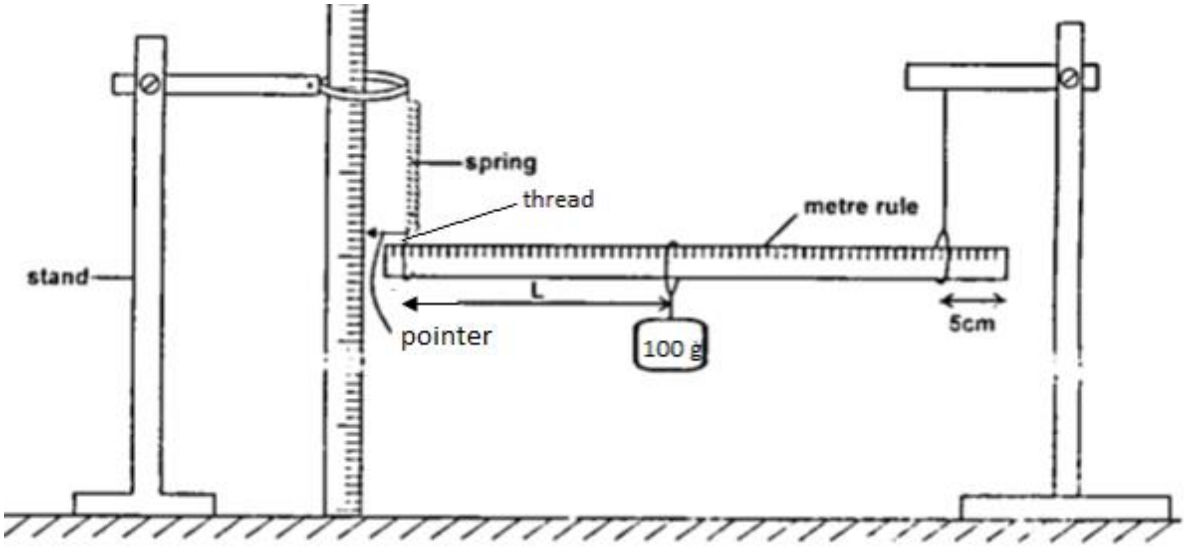


Figure 1

iii) Suspend the other end with a spring also 5cm from the end so that the metre rule is horizontal.

iv) Hold the other rule vertically on the bench so that it is near the end with a pointer as shown in the diagram above.

v) Read the pointer position, Lo ..... cm (1 mk)

vi) Hang on the horizontal metre rule, the 100g mass at a length, L = l0cm from the spring. Record the pointer position X, in the table below.

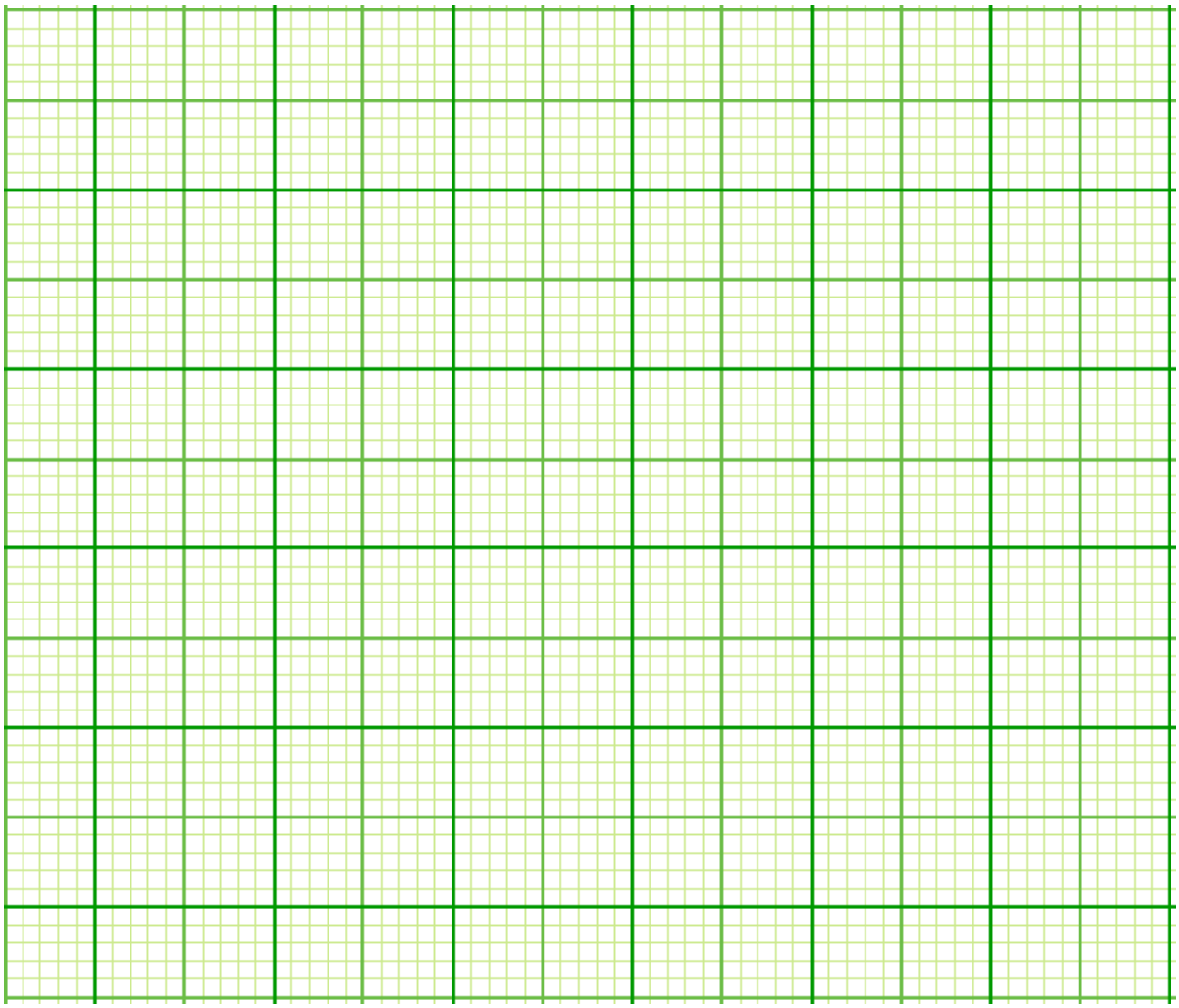
vii) Displace the mass slightly downwards and release it to oscillate vertically. Take time for 20 oscillations and record in the table below,

viii) Repeat the procedures above for other positions of L, and record the values in the table below

Length L (cm)	10	20	30	40	50
Pointer position X					
Extension (m)					
Time of 20 oscill,t (s)					
Periodic time,T (s)					
T^2 (s^2)					

(8mks)

ix) Plot a graph of extension, e (y – axis) against T^2 (5 mks)



x) Calculate the gradient of the graph. (3 marks)

ix) Given that $e = \frac{RT^2}{4\pi^2}$ determine the value of R (3 marks)

PREDICTION 1

Name: _____Index No: _____

School:_____ Candidate's Sign_____

Adm.No_____ Date: _____

312/1
GEOGRAPHY
Paper 1
FORM 4 2021
Time: 2 ¾ Hours

Instructions to Candidates:

a) This paper has two sections: **A** and **B**.
b) Answer **all** questions in section **A**
c) Answer **question 6** and any **two other** questions from section **B**.
d) This paper consist of **4** printed pages
e) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing**
f) **Candidates should answer the questions in English.**

FOR EXAMINERS USE ONLY

SECTION A

Question number	1	2	3	4	5	Sub Total
Marks						

Grand total

SECTION B

Question number	6	7	8	9	10	Sub Total
Marks						

SECTION A

Answer All Questions in This Section

1. (a) What is a Stevenson screen? (2 marks)
   (b) Name **two** forms of precipitation that commonly occur in Kenya (2 marks)

2. (a) State **three** characteristics of the crust (3 marks)
   (b) Give **three** reasons why the intensity of insolation is higher at equator than at Polar Regions. (3 marks)

3. (a) Identify **two** theories used to describe the origin of Fold Mountains. (2 marks)
   (b) Give **three** effects of Fold Mountains on climate. (3 marks)

4. (a) Name **two** types of earth movements that occur within the earth's crust. (2 marks)
   (b) Name **three** tectonic plates (3 marks)

5. (a) Define faulting (2 marks)
   (b) State **three** effects of faulting on human environment (3 marks)

SECTION B

Answer Question 6 and Any Other Two Questions in This Section

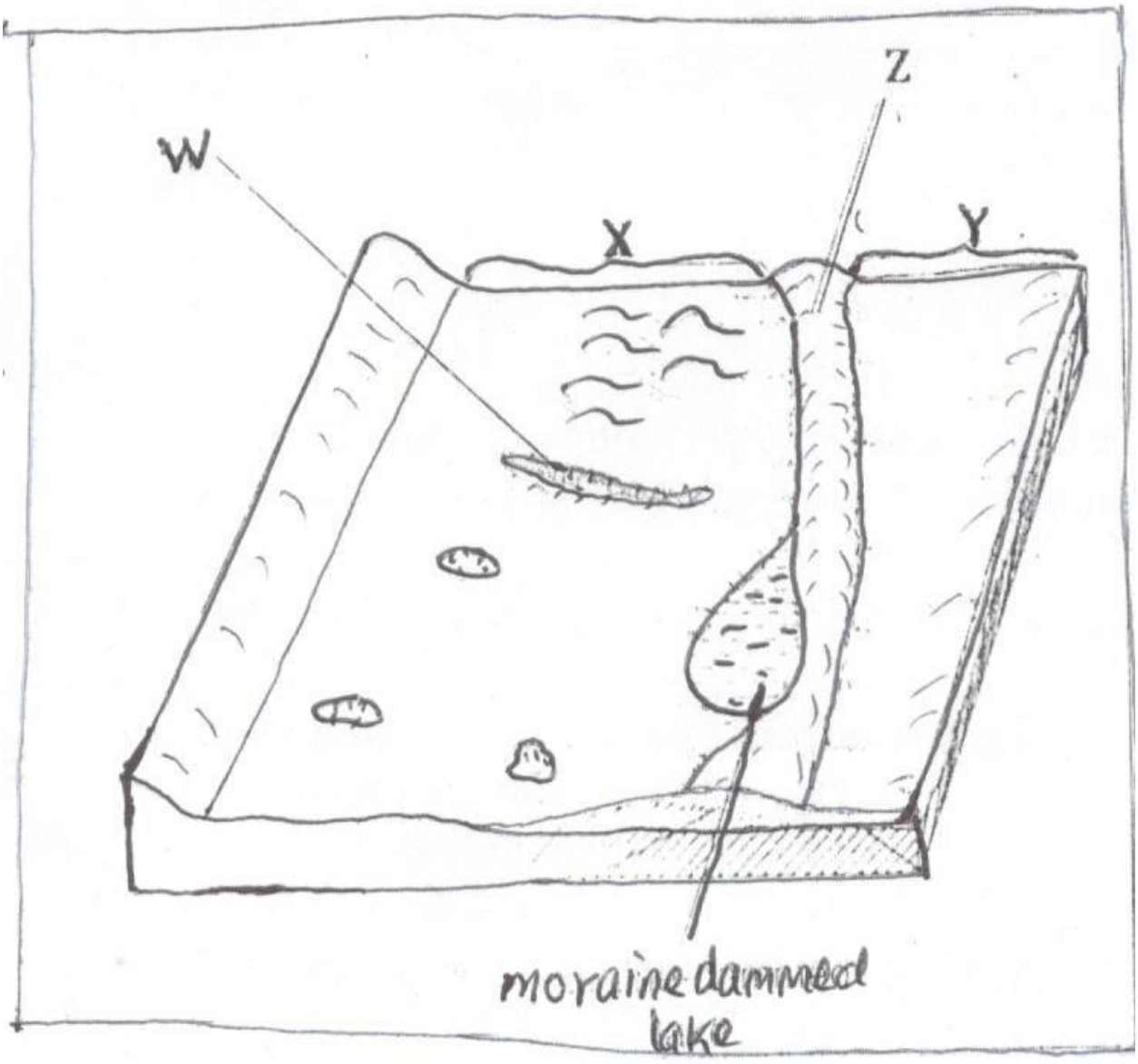
6. Study the map of Yimbo 1:50,000 (sheet 115/1) provided and answer the following questions
   a) What is the map name of the extract given? (1 mark)
   b) Name the type of boundaries in the map extract. (2 marks)
   c) Calculate the area of Mageta island (2 marks)
   d) (i) Using a scale of 1cm represent 20M, draw a cross-section from grid reference 270850 to 330850. (4 marks)
      On it, mark and name the following features:
      - Forest
      - Hill
      - River
      - Swamp

      (ii) Calculate the vertical exaggeration of the map. (2 marks)
   e) Describe the long profile of River Yala. (5 marks)
   f) Citing evidence from the map, explain the factors that influence trade in the area covered by the map. (6 marks)
7. (a) Define the following
      (i) Aridity (2 marks)
      (ii) Wind (2 marks)
   (b) (i) Explain **three** ways in which wind erodes weathered materials in arid areas. (6 marks)
      (ii) Name **three** features which develop under arid conditions as a result of wind erosion. (3 marks)
   (c) State **four** factors which influence wind transportation in desert. (4 marks)
   (d) (i) Apart from Wadis, name any **three** resultant features of water action in arid areas. (3 marks)
      (ii) Describe the formation of a Wadi. (5 marks)

8. (a) What is a glacier? (2 marks)
   (b) Describe how the following glacial erosional processes occur.

(i) Plucking (3 marks)
(ii) Abrasion (3 marks)

(c) The diagram below shows features on a glaciated lowland.



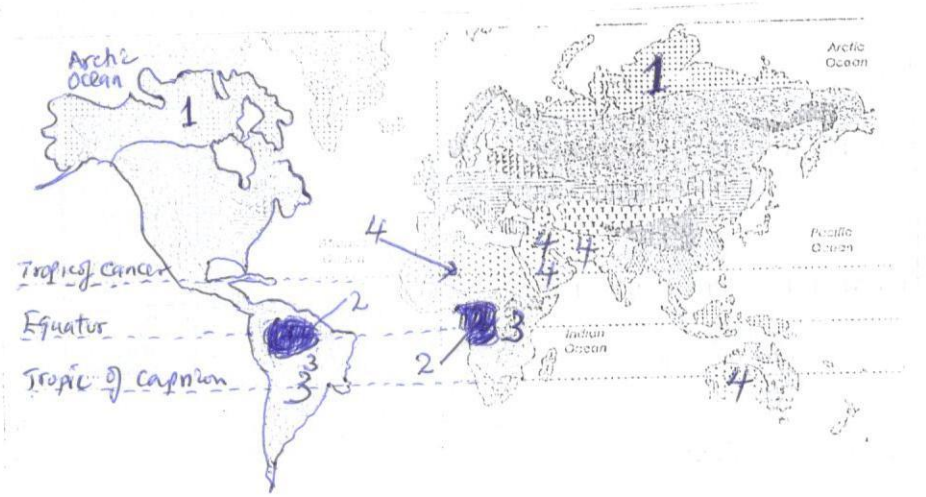
(i) Name the features marked **W**, **X**, **Y** and **Z**. (4 marks)
(ii) Describe how a drumlin is formed. (5 marks)

(d) Explain **four** negative effects of glaciations in low-land areas. (8 marks)

9. (a) (i) Define weathering (2 marks)
(ii) Explain the following processes of weathering
a. Hydration (2 marks)
b. Oxidation (2 marks)
c. Frost action (3 marks)

(b) State **three** conditions that influence the process of Solifluction. (3 marks)
(c) Describe how an exfoliation dome is formed. (5 marks)
(d) Explain **four** physical factors that enhance movement of material along the slope due to gravity. (8 marks)

10. (a) Define the term vegetation. (1 mark)
(b) Explain how the following factors influence the distribution of vegetation.
(i) Aspect (2 marks)
(ii) Relief (4 marks)
(c) The map below shows world vegetation zone



(i) Name vegetation type marked 1, 2, 3 and 4. (4 marks)
(d) Explain **four** ways in which trees in coniferous forests are adopted to the climatic conditions. (8 marks)
(e) A form four Geography class is planning to carry out a field study in Kakamega forest.
(i) State how they would use the following tools during the study.
a. A tape recorder (1 mark)
b. A sketch map (1 mark)
c. A camera (1 mark)
(ii) Give **three** methods they would use to collect the data during the study. (3 marks)

Name: _____Adm. No_____

Index No: _____ School:_____

Candidate's Sign_____ Date: _____

312/2

GEOGRAPHY
Paper 2
FORM 4 2021
Time: 2 ¾ HourS

Instructions to Candidates:

(a) This paper consists of two sections: **A** and **B**.
(b) Answer **ALL** questions in section **A**. In **section B** answer question **6** and any other **TWO** questions.
(c) All answers to be written on the answer booklet provided.
(d) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

FOR EXAMINERS USE ONLY

1	2	3	4	5	Total

6	7	8	9	10	Total

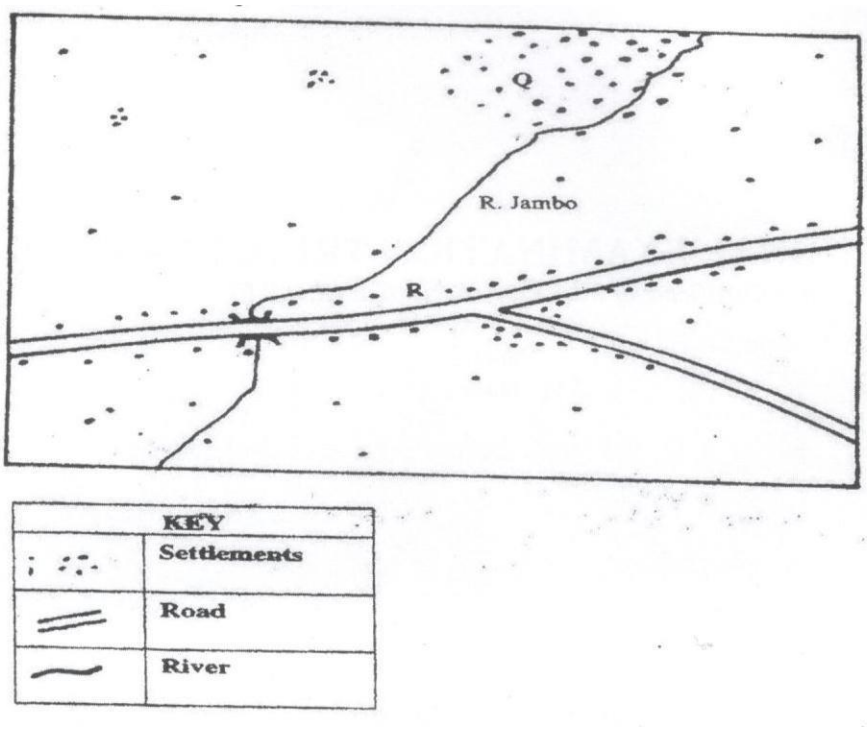
GRAND TOTAL

SECTION A

Answer All Questions In This Section (25 Marks)

1. (a) Name the two types of human settlements (2 marks)

Use sketch map below to answer question (b)



(b) Identify the settlement pattern marked Q and R. (2 marks)

2. (a) State three characteristics of Jua Kali Industries in Kenya. (3 marks)
   (b) Give three problems facing the Jua Kali Industries in Kenya. (3 marks)

3. The table below represents information on population change in Kenya by province between years 2000 and 2005.

Province	Population in Millions	
	Years	
	2000	2005
Nairobi	2.229	2.751
Central	3.882	4.038
Coast	2.662	2.927
Eastern	4.840	5.120
North-Eastern	1.054	1.438
Nyanza	4.598	4.916
Rift Valley	7.386	8.366
Western	5.532	3.885
Total	**30.183**	**33.441**

(a) Which province had the highest change in population between 2000 and 2005? (3 marks)

(b) Calculate the percentage increase in population in Kenya between 2000 and 2005. (2 marks)

4. (a) State three problems that are associated with low tourist season in Kenya. (3 marks)
   (b) Name two main inland tourist attractions found in Kenya. (2 marks)

5. (a) Distinguish between land reclamation and land rehabilitation. (2 marks)
   (b) State three significances of irrigation farming in Kenya (3 marks)

SECTION B

Answer Question 6 and Any Other Two Questions in This Section.

6. Study the photograph below and use it to answer the questions that follow:

   (a) (i) Identify the type of photograph shown. (1 mark)
   (ii) Name the type of livestock farming practice represented by the photograph. (1 mark)
   (iii) Draw a rectangle measuring 16cm by 9cm to represent the area of the photograph. On it, sketch and label the main features shown on the photograph. (5 marks)

   (b) (i) State four reasons why zero grazing is more popular among the dairy farmers in the Kenya highlands. (4 marks)
   (ii) State similarities between dairy farming in Kenya and Denmark. (3 marks)
   (iii) Explain four challenges faced by dairy farmers in Kenya. (8 marks)

   (c) State three steps being undertaken by the government to improve dairy farming in Kenya. (3 marks)

7. (a) (i) Name three types of minerals. (3 marks)
   (ii) Briefly explain any three factors influencing the occurrence of minerals. (6 marks)

(b) (i) Describe the stages involved in the processing of gold. (5 marks)
(ii) State any five contributions of soda ash to the economy of Kenya. (5 marks)

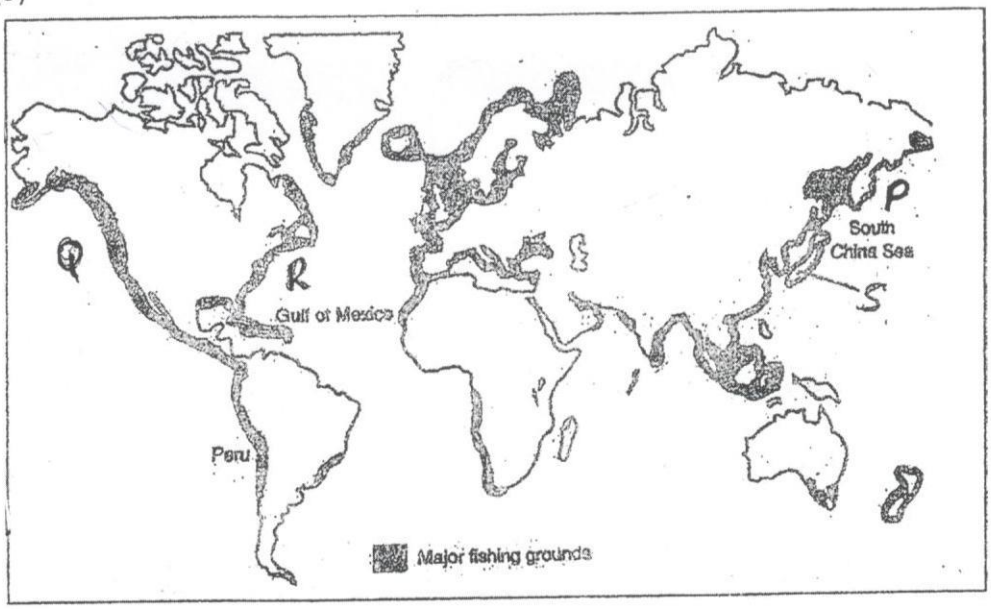
(c) Students from Kembu Day School carried a field study on mining of soda ash on Lake Magadi.
(i) State any two hypotheses for their study. (2 marks)
(ii) State four problems they probably faced. (4 marks)

8. (a) (i) Define energy. (2 marks)
(ii) List three renewable sources of energy. (3 marks)

(b) (i) State two advantages of solar energy. (2 marks)
(ii) Give four reasons why there has been a decline in the use of a coal as a source of energy. (4 marks)

(c) Explain four ways in which Kenya has benefited from development of the seven forks hydroelectric power projects. (8 marks)
(d) (i) Define energy crisis. (2 marks)
(ii) State four effects of the energy crisis in the world (4 marks)

9. The map below shows the major fishing grounds in the world. Use it to answer the question.



(a) (i) Name the fishing grounds marked **P, Q** and **R** (3 marks)
(ii) Explain four conditions that favour fishing in country marked **S** (8 marks)
(b) (i) Differentiate the term Pelagic and Dermarsal fish (2 marks)
(ii) Explain how ocean currents favour fishing in the shaded areas (4 marks)

(c) (i) State two methods used to preserve fish in Kenya. (2 marks)

(ii) Explain three human problems facing Marine fishing in East Africa. (6 marks)

10. (a) (i) Define re-afforestation (2 marks)

(ii) State four reasons why afforestation should be encouraged in Kenya (4 marks)

(iii) Name three provinces in Canada where forestry in practiced on large scale. (3 marks)

(b) Explain three problems which hinder the Kenya government efforts to manage and conserve forest. (6 marks)

(c) Explain three factors that favour the growth of natural forest on the slopes of Mount Kenya (6 marks)

(d) Identify four factors that favour exploitation of forest in Canada. (4 marks)

PREDICTION 1

Name: _____Adm. No_____

Index No: _____ School: _____

Candidate's Sign_____ Date: _____

311/1
HISTORY AND GOVERNMENT
Paper 1
FORM 4 2021
Time: 2 ½ hours

Instructions to candidates:

a) This paper consists of THREE sections A, B and C.
b) Answer **ALL** questions in section A, **three** in section B and **two** questions in section C.
c) Answers to all questions to be given in the answer sheets provided.

For Examiner's Use Only

Section A	Section B				Section C			Total
1 - 17	18	19	20	21	22	23	24	

SECTION A [25 marks]

Answer All the Questions in This Section

1. Give **two** ways in which archeologists identify a pre-historic site. (2 marks)

   _____

   _____

2. Identify **one** natural factor that caused the Abagusii to migrate from Mt.Elgon to their present homeland. (1 mark)

   _____

3. State the **main** factor that contributed to the growth of city states along the Kenyan coast before 1500AD. (1 mark)

_____

4. Name the winds that aided the early visitors to come to Kenya coast upto 1500AD. (1 mark)

_____

5. Give **two** peaceful methods of resolving conflicts in Kenya. (2 marks)

_____

_____

6. State **two** ways in which direct democracy is exercised in Kenya. (2 marks)

_____

_____

7. Identify **two** education commissions established in Kenya before independence. (2 marks)

_____

_____

8. Name the body that made laws of Kenya during the colonial period. (1 mark)

_____

9. Outline **two** problems experienced by political associations in Kenya upto 1939. (2 marks)

_____

_____

10. Define promulgation. (1 mark)

_____

_____

11. Give **two** methods used by the British to administer the Kenya colony between 1920 -1963. (2 marks)

_____

_____

12. Give **two** ways in which colonial land policy undermined African farming. (2 marks)

_____

_____

13. Who formed the Kenya People's Union (KPU) in 1960? (1 mark)

_____

14. What was the **main** contribution of Prof. Wangari Maathai to development of Kenya? (1 mark)

_____

15. Give **two** qualifications that a person must fulfill in order to be allowed to register as a voter in Kenya. (2 marks)

_____

_____

16. Identify **one** house of the Kenya parliament. (1 mark)

17. Name **one** branch of the national police service in Kenya. (1 mark)

_____

SECTION B: 45 MARKS

Answer Any Three Questions.

18. (a) State **five** economic activities of the Agikuyu during pre-colonial period. (5 marks)
    (b) Describe the political organization of the Maasai during the pre-colonial period (10 marks)

19. (a) State **five** reasons for the coming of the Portuguese to Kenyan coast in the 15th Century. (5 marks)
    (b) Explain **five** effects of the Portuguese rule on East African Coast. (10 marks)

20. (a) State **five** political developments between 1945 and 1963 which hastened the attainment of independence in Kenya. (5 marks)
    (b) Explain the roles played by the Kenya Federation of Labour during the colonial period. (10 marks)

21. (a) Identify **three** pillars of Nyayoism. (3 marks)
    (b) Explain **six** ways in which Harambee has promoted education in Kenya. (12 marks)

SECTION C: 30 MARKS

Answer Any Two Questions in this Section.

22. (a) Give **three** circumstances in which one's right to life may be taken away. (3 marks)
    (b) Explain **six** reasons why it is important to respect human rights. (12 marks)

23. (a) Name **five** functions of the Independent Electoral and Boundaries Commission of Kenya. (5 marks)
    (b) Explain how judicial independence is promoted in Kenya. (10 marks)

24. (a) Identify **five** stages in preparation of the National Budget in Kenya. (5 marks)
    (b) Explain why it is important for the government of Kenya to prepare the National Budget annually. (10 marks)

PREDICTION 1

Name: _____Adm. No_____

Index No: _____ **School:_____**

Candidate's Sign_____ **Date: _____**

311/2
HISTORY AND GOVERNMENT
Paper 2
FORM 4 2021
Time: 2 ½ Hours

Instructions to Candidates:

a) This paper consists of THREE sections A, B and C.
b) Answer **ALL** questions in section A, **THREE** in section B and **TWO** in section C
c) Answers to ALL questions to be given in the answer sheets provided.

For Examiner's Use Only

Section A	Section B				Section C			Total
1 - 17	18	19	20	21	22	23	24	

SECTION A [25 marks]
Answer All the Questions in This Section

1. Name **one** source of information on the creation theory of man. (1 mark)
_____
2. Identify two artifact that can be found in archeological site (2 marks)
_____
_____
3. State two ways in which agriculture spread in Africa. (2 marks)
_____
_____

4. Give the main form of transport used during the Trans-Saharan trade. (1 mark)

_____

5. Identify one way in which HIV/AIDS affects industrialization. (1 mark)

_____

6. Outline two social functions of the ancient city of Athens in Greece (2 marks)

_____

_____

7. State two economic activities of Shona during the pre-colonial period. (2 marks)

_____

_____

8. Give two social reasons which made the European countries to scramble for colonies in Africa. (2 marks)

_____

_____

9. State one way in which Ndebele benefited after British Ndebele war (1893-1896) (1 mark)

_____

10. Identify one political reform introduced by President Fredrik De Klerk that led to the achievement of black majority rule in South Africa. (1 mark)

_____

11. Name the system of administration introduced by the French after the assimilation policy. (1 mark)

_____

12. Identify the main reason why many nations of the world turn against Germany during the First World War. (1 mark)

_____

13. Highlight two social effects of the First World War. (2 marks)

_____

_____

14. Name two nations which were placed under the League of Nations after the end of World War. (2 marks)

_____

15. Outline two duties of the United Nations Secretariat. (2 marks)

_____

_____

16. Name one superpower nation that was involved in cold war. (1 mark)

_____

17. Give the main reason for the formation of non-aligned movement. (1 mark)

_____

_____

SECTION B: 45 MARKS

Answer Any Three Questions in This Section

18. (a) Highlight **five** changes which marked the Agrarian Revolution in Britain. (5 marks)

(b) Discuss **five** effects of the Agrarian Revolution in the United States of America. (10 marks)

19. (a) Outline **five** methods which were used by the Europeans to acquire colonies in Africa. (5 marks)
(b) Explain **five** reasons why Africans were defeated during the Maji Maji rebellion. (10 marks)

20. (a) Outline **three** reasons why the policy of assimilation was easily applied in the four communes of Senegal. (3 marks)
(b) Explain **six** effects of the British direct rule in Zimbabwe. (12 marks)

21. (a) Outline **five** characteristics of the commonwealth nations. (5 marks)
(b) Discuss **five** reasons why PAN-AFRICAN movement had not established itself in Africa well before 1945. (10 marks)

SECTION C: 30 MARKS

Answer Any Two Questions from This Section

22. (a) Give **three** functions of the Kabaka of Buganda Kingdom during the pre-colonial period. (3 marks)
(b) Describe the political organization of the Shona during the pre-colonial period. (12 marks)

23. (a) Identify **five** weapons used during the cold war. (5 marks)
(b) Explain **five** causes of the cold war. (10 marks)

24. (a) State **three** ways in which one can qualify as a member of the House of Lords in Britain. (3 marks)
(b) Describe **six** duties of the Prime Minister of Britain. (12 marks)

PREDICTION 1

Name: _____Index No: _____

School: _____ Candidate's Sign_____

ADM No: _____ Date: _____

313/1
CHRISTIAN RELIGIOUS EDUCATION
Paper 1
FORM 4 2021
Time: 2 ½ Hours

Instructions to Candidates:

1. The question paper has **six** questions.
2. The candidate should answer any five questions.
3. All the answers should be written in the answer booklet provided.

FOR EXAMINERS USE ONLY

QUESTION	MARKS
Q1	
Q2	
Q3	
Q4	
Q5	
Q6	
GRAND TOTAL	

Questions

1. (a) From the genesis stories of creation, outline **seven** teachings about human beings. (7 marks)
   (b) With reference to the story of the fall of human beings in Genesis 3, state **four** effects of sin on Adam and Eve. (8 marks)
   (c) How does the church help to bring back members who have fallen from the faith? (5marks)

2. (a) Describe the covenant ceremony between God and Abraham. (Genesis 15:1-9) (8 marks)
   (b) State the characteristics of the covenant between God and Abraham. (7 marks)
   (c) Identify five lessons that Christians learn about God from the call of Abraham. (5 marks)

3. (a) State **seven** functions of the temple in the Jewish community (7 marks)
   (b) Identify **six** ways which show that king Solomon turned away from the covenant way of life. (6 marks)
   (c) Give **seven** factors that led to the increase of Christian denominations in Kenya today. (7 marks)

4. (a) Give **four** similarities between prophets in the Old Testament and traditional African communities. (8 marks)
   (b) Outline **five** teachings of prophet Amos on the remnant and restoration of the Israelites (Amos 9:8-15) (5 marks)
   (c) State the relevance of prophet Amos teaching on election of Israel to Christians in Kenya today. (7 marks)

5. (a) Outline **six** response that Jeremiah made to God during his call (Jer 1:4-19) (6 marks)
   (b) Show how the letter Jeremiah wrote to the exiles gave them hope for restoration. (Jer 29:4-15) (7 marks)
   (c) Suggest **seven** reasons why Christians should accept pain and suffering in their daily lives. (7 marks)

6. (a) Name the specialists in Traditional African Communities (5 marks)
   (b) Explain reasons why cleansing rituals were performed in Traditional African Communities. (8 marks)
   (c) Suggest **seven** reasons why the church is opposed to female genital mutilation (F.G.M.) (7 marks)

PREDICTION 1

Name: _____Adm. No_____

Index No: _____ School:_____

Candidate's Sign_____ Date: _____

313/2
CHRISTIAN RELIGIOUS EDUCATION
Paper 2
FORM 4 2021
Time: 2 ½ Hours.

Instructions to Candidates:

1. This paper contains six questions. You are required to answer **any five** questions.
2. All answers should be written in the answer booklet provided.
3. All answers must be written in English.

FOR EXAMINERS USE ONLY

1	2	3	4	5	6	GRAND TOTAL

1. (a) Outline **seven** prophecies made by Prophet Jeremiah concerning the Messiah (Jer 23:5-6) (7 marks)
   (b) Describe the birth of John the Baptist (Luke 1:57-79) (8 marks)
   (c) What does the Magnificat reveal about the nature of God? (Luke 1:46-56) (5 marks)

2. (a) Narrate the temptations of Jesus in the wilderness before he began his public ministry (Luke 4:1-13) (8 marks)
   (b) State **seven** lessons that Christians learn from the call of the first disciples. (Luke 5:1-11) (7 marks)
   (c) Outline the teaching of Jesus on the love for enemies from the sermon on the plain (Luke 6:27-36) (5 marks)

3. (a) Give **six** similarities between the Jewish Passover and the Christian Easter. (6 marks)
   (b) In which ways was the trial of Jesus unfair? (6 marks)
   (c) Explain **four** ways in which Christians fight injustices in the society today. (8 marks)

4. (a) State the teachings of Jesus on the role of the Holy Spirit (5 marks)
   (b) How are the gifts of The Holy Spirit manifested in the church today? (8 marks)
   (c) State **seven** factors that threaten unity in the church today. (7 marks)

5. (a) Identify sources of Christian Ethics. (7 marks)
   (b) Identify ways in which the youth in Kenya can lead responsible sexual lives. (7 marks)
   (c) State the importance of children in both Christianity and Traditional African Communities (6 marks)

6. (a) Outline the Christian teaching on family (6 marks)
   (b) State **eight** characteristics that demonstrate responsible parenthood. (8 marks)
   (c) How does the church strengthen family relationship today? (6 marks)

PREDICTION 1

Name: _____ Index No: _____

School: _____ Candidate's Sign_____

Date: _____

565/1

BUSINESS STUDIES
Paper 1

Form 4 2021

Time: 2 Hours

Instructions to Candidates:

(a) Write your name, index number and school in the spaces provided above.
(b) Sign and write the examination date.
(c) Answer all the questions in the spaces provided.
(d) Ensure all the pages are printed.

QUESTIONS

1. Outline four elements that may compromise the internal environment of a business. (4marks)

_____

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2. List four characteristics of money. (4marks)

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3. Give four assumptions that are associated with perfect competition. (4marks)

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4. State four ways in which a warehouse is of importance to a manufacturer. (4marks)

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5. Outline four factors that an entrepreneur should consider before setting up a manufacturing business. (4marks)

_____

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6. Given the statement in the table below; indicate the type of entry to be made in the relevant ledger accounts. (4marks)

Statement	Types of Entry
i) An increase in revenue	
ii) A decrease in an asset	
iii) An increase in an expense	
iv) A decrease in liability	

7. Below are some entries in the cash book of Romano Traders for the month of July 2010:

Date 2010	Details	Cash(sh)	Bank (sh)		Date	Details	Cash (sh)	Bank (sh)
July 1	Bal b/d	15,000			July 1			10,000
July 6	Cash		20,000		July 6	Bank	20,000	
July 20	Sales		15,000		July 15			
July 28	Debtors	20,000			July 29	Stock		10,000
					July 31	Bal c/d	10,000	

State the meaning of the following entries: - (4marks)

a) July 1, 2010 balance b/d, bank column, sh. 10,000

_____

_____

b) July 6, 2010 cash sh. 20,000 and bank sh. 20,000

_____

_____

c) July 28,2010 debtors sh. 20,000

_____

_____

d) July 31, 2010 balance c/d sh. 10,000

_____

_____

8. State four merits of promoting products through personal selling. (4marks)

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9. The aggressive campaign for citizens to plan their families seems to be causing a decline in the country's population growth. Outline four possible effects on this. (4marks)

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10. State four functions of commercial attaches. (4marks)

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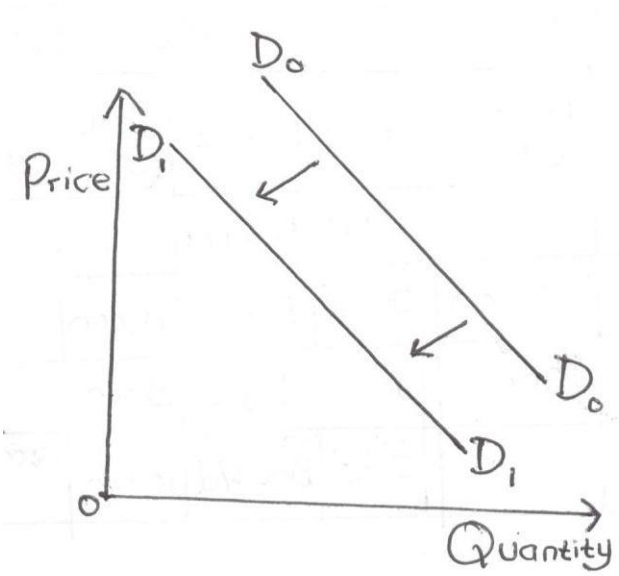
11. Wanjau started a business with sh. 60,000 as at 1st January 2010. During the year profits and additional investments were sh. 50,000 and sh. 60,000 respectively. At the end of the year, Wanjau remembered that she had taken goods for her personal use and that as at 31st December 2010, her capital was sh. 19,500.
Determine the value of goods that Wanjau had taken for her personal use. (4marks)

12. The figure below shows a shift in demand curve from D_OD_O to D_1D_1. State four factors that may have caused the shift. (4marks)



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13. Juma Munyacia sells all his goods at 25% above cost. His books gave the following information as at 31st December 2004.

	Sh
Stock 1st January 2004	98,720
Stock 31st December 2004	126,000
Sales for the year	600,000

Calculate the profit made by Munyacia (4marks)

14. State four types of source documents. (4marks)

_____

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15. Prepare the balance sheet of Baraka traders from the following list of balances extracted from his books as at 31st December 2005. (4marks)

	Sh
Machine	150,000
Motor vehicles	200,000
Stock	40,000
Creditors	25,000
Loan from KCB	100,000
Bank	20,000
Furniture	7,000
Capital	292,000

16. Outline four factors that promote the level of national income in a country. (4marks)

_____

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17. Highlight four adverse effects of production activities on the environment and community health. (4marks)

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18. Mention four circumstances under which an insurance company may re-insure. (4marks)

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19. State four elements of communication process. (4marks)

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20. In the absence of a written partnership agreement, the provision of the partnership Act will apply. State four such provisions. (4marks)

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21. Highlight four features of open-air market trading. (4marks)

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22. State four emotional qualities of an office worker. (4marks)

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23. State four features of indirect production. (4marks)

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24. Outline four factors that may limit the use of containers as a method of transporting goods. (4marks)

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25. Describe four characteristics of services. (4marks)

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PREDICTION 1

Name: _____Adm. No_____

Index No: _____ School:_____

Candidate's Sign_____ Date: _____

565/2
BUSINESS STUDIES
Paper 2
Form 4 2021
Time: 2 ½ Hours

Instructions to candidates:

1. This paper consists of six questions
2. Answer any **five** questions
3. All questions carry equal marks
4. Candidates should check the question paper to ascertain that all the pages are printed and no questions are missing.

Answer Any Five Questions

1. (a) Explain **five** measures which the government can take in order to reduce unemployment. (10 marks)
   (b) Explain **five** features of a good filing system. (10 marks)

2. (a) Explain **five** roles played by the central bank in the economy of our country. (10 marks)
   (b) Discuss **five** circumstances when a business may extend credit to a buyer. (10 marks)

3. (a) Explain **five** ways in which the efficiency of a warehouse may be guaranteed. (10 marks)
   (b) On 1st Jan 2017, Dona Traders had sh.110,000 in hand and sh.50,000(cr) Bank. During the month, the following transactions took place:

Jan 2: Cash sales sh.40,000
Jan 3: Paid postage expenses sh.4,100 in cash
Jan 5: Received the following cheques from debtors after they had deducted a cash discount of 2% in each case. Kamau Ksh.2450, Laban Ksh.9604 and Tugi Ksh.2774.
Jan 9: Paid the following creditors in cash and in each case deducted 2% cash discount, Willy Ksh.2000 andYala Ksh.6000
Jan 13: Cash sales directly banked Ksh.10,000
Jan 16: Took Ksh.11,000 from the office and deposited in the business bank account.
Jan 19: Sold goods worth Ksh.18,000 on Credit to Kiyoma.
Jan 21: Received Ksh.18,000 cash from Oman in settlement of Ksh.20,000.
Jan 26: Banked all cash leaving Ksh.4000 only.

Required: Prepare a duly balanced three column cash book (10 marks)

4. (a) Outline **five** factors that positively influence entrepreneurial practices in Kenya. (10 marks)

(b) The Kenya National Bureau of Statistics releases annual publications of national income statistics. Explain five uses of such statistics. (10 marks)

5. (a) Explain **five** reasons for which traders observe ethical practices in product promotion. (10 marks)

(b) Explain **five** factors that may dictate a certain firm to be located near its raw materials source. (10 marks)

6. (a) Explain **four** reasons why the government may opt to privatize a parastatal. (8 marks)

(b) Keme Enterprise had the following credit sales during the first week of March 2020.

March 1st:	Credit sales to the following debtors: Omwenga Sh4000, Invoice No. 003, Norah Sh.5000 and Wanjohi Sh.3000.
March 2nd:	Credit sales to Omwenga Sh.500
March 3rd:	Credit sales to Susan Sh.2000
March 4th:	Credit sales to Norah Sh.1000 and Wanjohi Sh.3000

Required:
(i) Record the above transactions in the relevant journal (7 marks)
(ii) Post the above transactions in the sales ledger (3 marks)

PREDICTION 1

Name: ..... Index Number ……..……

School: ..... Candidate's Signature ……

Date……

443/1
AGRICULTURE PAPER 1
FORM 4 2021
Time: 2 hours

Instructions to Candidates

- *Write your **name, index number, school** and **admission number** in the spaces provided.*
- *Sign and write the date in the spaces provided above.*
- *Answer **all** the questions ins section **A** and **B***
- *Answer any **two** questions in section **C***
- *Answers should be written in the spaces provided in this booklet.*

For Examiner's Use Only

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 18	30	
B	19-25	20	
C		20	
		20	
	Total Score	**90**	

This paper consists of 13 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (30 MARKS)

Answer all the questions in this section in the spaces provided

1. Give **two** ways that can be used to assess soil fertility (1 mark)

(i) ……

(ii) …….

2. List **four** methods that can be used to reclaim a water-logged land (2 marks)

(i) ……

(ii) …….

(iii) ……

(iv)…….

3. State **four** reasons why subsoiling is important as an operation of land preparation. (2 marks)

(i) ……

(ii) …….

(iii) ……

(iv)…….

4. Give **two** factors that influence the quality of farmyard manure. (1 mark)

(i) ……

(ii) …….

5. State **four** advantages of applying lime as a measure of improving soil condition (2 marks)

(i) ……

(ii) …….

(iii) ……

(iv)…….

6. State **three** functions of Nitrogen in crops. (1 ½ marks)

(i) ……

(ii) ……

(iii) ……

7. Give **four** factors that can increase seed rate in crop production. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

8. State **four** uses of organic mulch in crop production. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

9. List **four** characteristics of crops grown for green manure. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

10. List **four** advantages of timely harvesting of crops. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

11. State **two** advantages of intercropping (1 mark)

(i) ……

(ii) ……

12. State **two** conditions under which the opportunity cost is zero in a farming enterprise. (1 mark)

(i) ……

(ii) ……

(iii) ……

(iv)……

13. Give **four** advantages of sprinkler irrigation. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

14. State **four** disadvantages of weeds in crop production (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

15. Give **three** reasons for the success of settlement schemes in Kenya after independence

(i) ……

(ii) ……

(iii) ……

(1½ marks)

16. State **four** factors affecting the efficiency of pesticides. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

17. State **four** factors that influence solifluction. (2 marks)

(i) ……

(ii) ……

(iii) ……

(iv)……

18. Give a reason for carrying out the following practice

(a). topdressing established crops. (1 mark)

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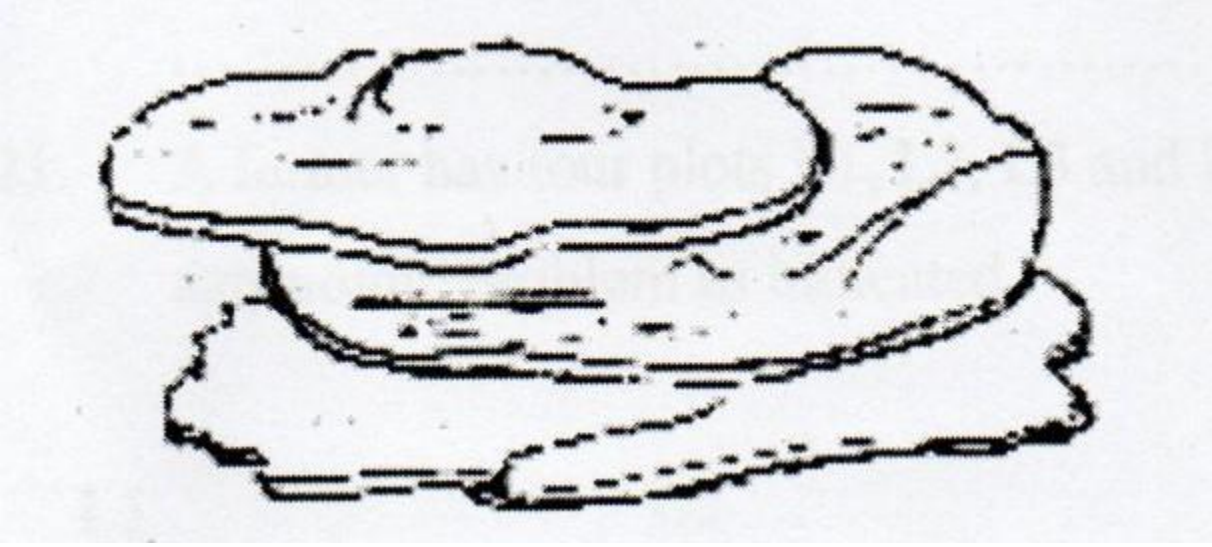
SECTION B (20 MARKS)

Answer all the questions in the spaces provided

19. Below is a diagram of a type of oil structure. Study it and answer the questions that follow.



(a) Identify the soil structure illustrated above. (1 mark)

.....

(b) Give **one** way in which the structure illustrated above limit crop production. (1 mark)

20. Study the illustration given below and use it to answer the questions that follow.

(a) Identify the operation illustrated above. (1 mark)

.....

(b) State **four** reasons for carrying out the operation named in (a) above (2 marks)

(i) ……

(ii) …….

(iii) ……

(iv)…….

21. A farmer has four plots L1, L2, L3 and L4 as shown in the table below. Each plot has an agronomic problem as indicated.

L1	**L2**	**L3**	**L4**
Infected with witch Weed (striga spp)	Infected with bacterial wilt	Deficient in Nitrogen	Prone to soil erosion

Plan a crop rotation programme for the first year in the four plots using the following crops maize, Irish potatoes, Rhodes grass and Beans (2 marks)

L1…….

L2…….

L3……..

L4……..

(b). Give reasons to justify the plan you have made in plots L2, L3 and L4. (3marks)

L2……..……

……

L3……..……

……

L4……

……

22. Mr. Mulamba was advised to apply 150kgCAN/ha, while topdressing his maize crop. CAN contains 21%N. Calculate the amount of nitrogen applied/ha (4 marks)

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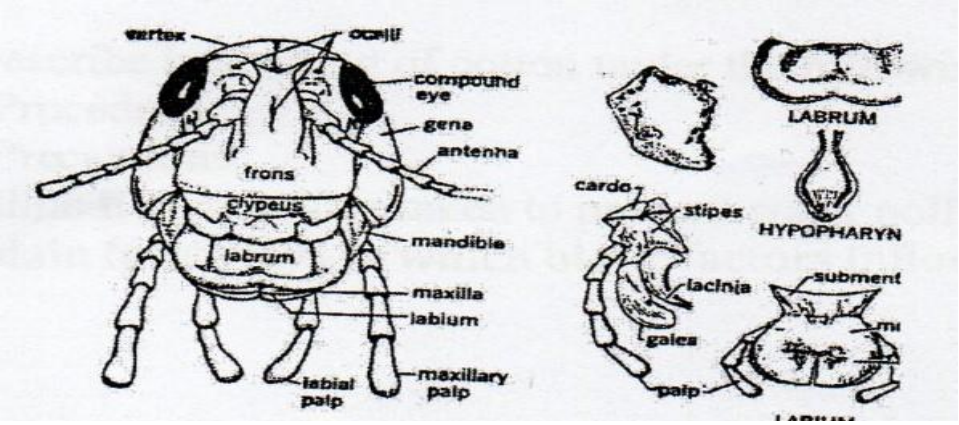
23. Observe the diagram below and answer the questions that follow.



(a). Identify the mode of feeding exhibited by a pest having such features. (1 mark)

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(b). Name any **two** pests with the above feeding habits. (2 marks)

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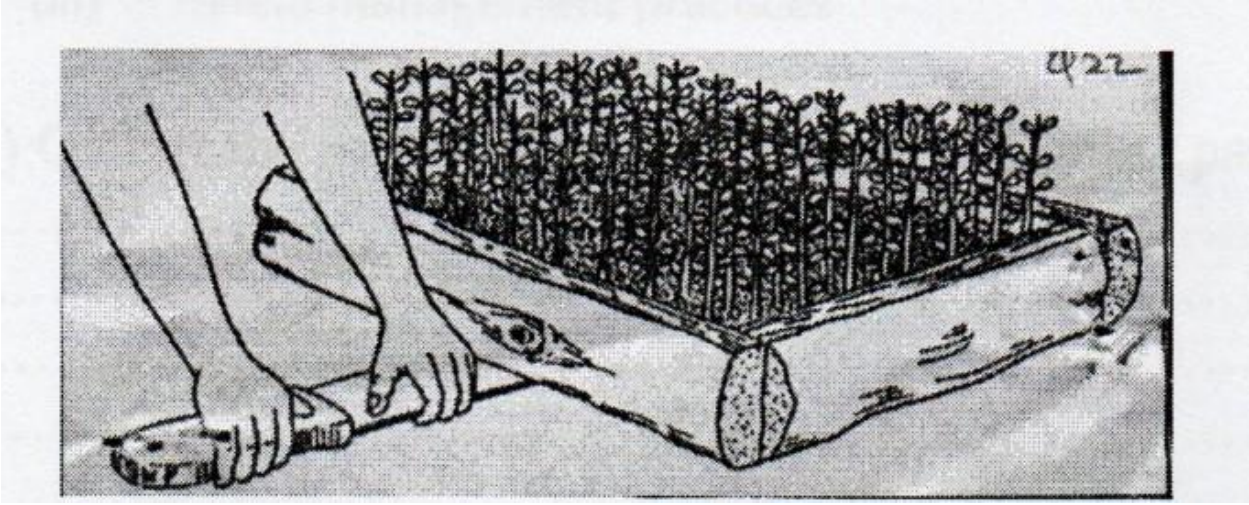
24. (a) The diagram below shows a nursery management practice carried out on a tree seedling. Study it and answer the questions that follow.



(a) Identify the management practice. (1 mark)

.....

(b). Give **two** reasons for carrying out the practice above. (2 marks)

(i)……

(ii). ……..

SECTION C (40 MARKS)

*Answer any **two** questions from this section in the spaces provided after questions.*

25. (a) Describe harvesting of cotton under the following sub-headings

i. Procedure (3 marks)

ii. Precautions (4 marks)

(b). Outline **five** measures taken to prevent water pollution. (5 marks)

(c). Explain **four** ways in which biotic factors influence crop production in Agriculture (8 marks)

26. (a). Explain five farming activities which may encourage soil erosion. (10 marks)
(b). Explain the importance of a nursery in crop propagation. (5 marks)
(c). Give the contributions of settlement schemes to agricultural development. (5 marks)

27. Describe the production of beans under the following subheadings:
(i). Field preparation (4 marks)
(ii). Planting (3 marks)
(iii). Field management practices. (5 marks)

(b). Outline the advantages of a mixed grass legume pasture over pure grass. (8 marks)

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PREDICTION 1

Name: _____Index No: _____

School: _____ Candidate's Sign_____

Date: _____

443/2
AGRICULTURE
Paper 2(Theory)
FORM 4 2021
Time: 2 Hours

Instructions to Candidates:

a) Write your name and index number in spaces provided above
b) This paper consists of **THREE** sections: A, B and C
c) All answers should be written in the spaces provided on this question paper.
d) Candidates should answer the questions in English.

For Examiner's use only

Section	Questions	Maximum Score	Candidate's Score
A	1 – 18	30	
B	19 - 23	20	
C	24	20	
	25	20	
	26	20	
	TOTAL SCORE	90	

SECTION A [30 MARKS]

Answer All The Questions in The Spaces Provided.

1. Name **four** exotic beef cattle breeds most reared in Kenya. [2 marks]
   (i) ……

(ii) ……

(iii) ……..

(iv). …….

2. If a sow was successfully served on 27th September 2019, state the date she is likely to have furrowed. [1mark]

(i) …….

(ii) ……

3. Give **two** importance of docking in rams. [1 mark]

(i) …….

(ii) ……

4. Mention **four** causes of stress in a flock of Birds (2 marks)

(i) ……

(ii) ……

(iii) ……..

(iv). …….

5. Name **two** nutritional disease of cattle. [1 marks]

(i) …….

(ii) ……

6. State **four** methods of preserving fish. [2 marks]

(i) …….

(ii) ……

(iii) ……..

(iv). …….

7. State **four** disadvantages of free range system of poultry rearing. (2 marks)

(i) …….

(ii) ……

(iii) ……..

(iv). …….

8. State **four** advantages of a Kenya top bar hive. [2 marks]

(i) …….

(ii) ……

(iii) ……..

(iv). ……

9. Name **two** diseases that affect female animals only. [1 mark]

(i) ……

(ii) ……

10. Name **four** tick borne diseases [2 marks]

(i) ……

(ii) ……

(iii) ……..

(iv). ……

11. State **four** ways of vaccinating livestock. [2 marks]

(i) ……

(ii) ……

(iii) ……..

(iv). ……

12. Name **three** notifiable livestock diseases in Kenya. [1 ½ marks]

(i) ……

(ii) ……

(iii) ……..

13. State **four** ways of identifying livestock. [2 marks]

(i) ……

(ii) ……

(iii) ……..

(iv). ……

14. List **four** safety precautions taken into consideration when using with farm tools.[2 marks]

(i) ……

(ii) ……

(iii) ……..

(iv). ……

15. State **three** causes of piglet mortality. [1 ½ mark]

(i) ……

(ii) ……

(iii) ……..

16. Give **four** characteristics of roughages feeds. (2 marks)

(i) …….

(ii) ……

(iii) ……..

(iv). …….

17. Give **four** reasons why camels are suited to living in arid areas. (2 marks)

(i) …….

(ii) ……

(iii) ……..

(iv). …….

18. Name the parental breeds of the dorper. (1 mark)

(i) …….

SECTION B [20 MARKS]

Answer all questions in this section in the spaces provided.

19. A poultry farmer has maize containing 8% DCP and Soya beans containing 43% DCP. If the farmer wants to make 100kg of a feed, using the person's method calculate the proportions in which the two ingredients would have to be mixed to make a feedstuff containing 15% DCP. (Show your working). (5 marks)

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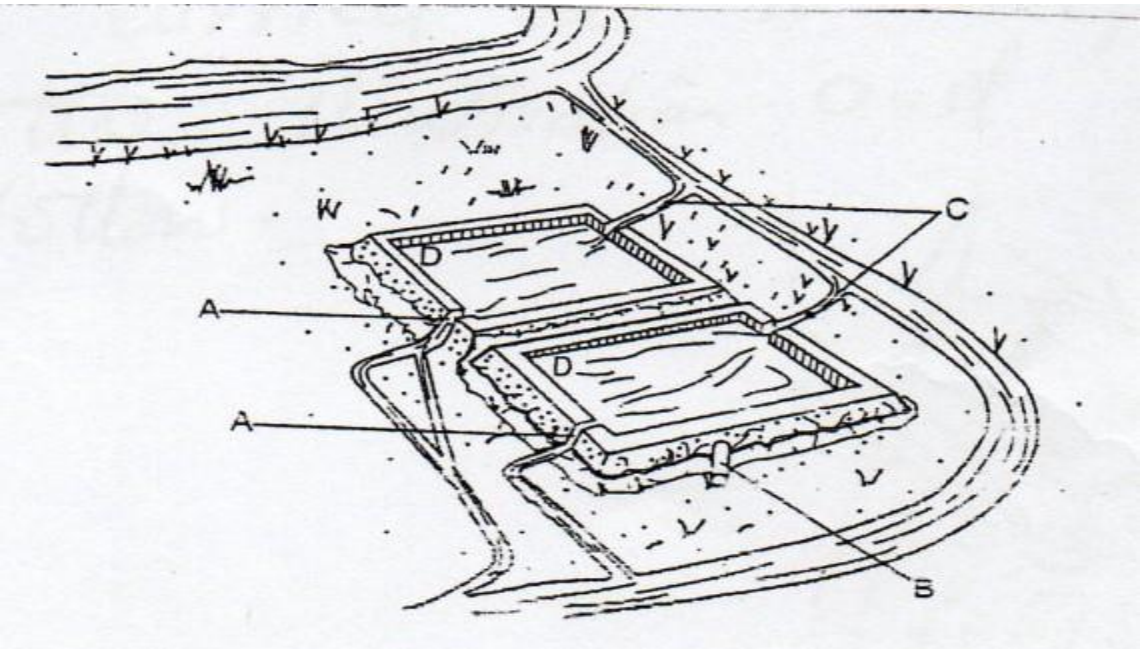
20. Below is an illustration of a fish pond. Study it carefully and then answer the following questions.



21. a). Give the reason why part D is usually deeper than the rest of the pond. (1 mark)

_____

_____

_____

(b). Name the part labelled A, B and C. (1 ½ mark)

A

B

C

(c). State **three** maintenance practices that should be carried out on the fish pond. (1 ½ mark)

(i) ……

(ii) ……

(iii) ……..

(d). Give **two** reason why a fence should be constructed around the fish pond. (1 marks)

(i) ……

(ii) ……

22. The following illustration represent a certain practice carried out in sheep management. Study the illustration and answer the questions that follow.

(a). Identify the practice. (1 mark)

_____

_____

(b). Name the tool being used in carrying out the practice. (1 mark)

_____

(c). State two precautions that should be take when carrying out this practice. (2 marks)

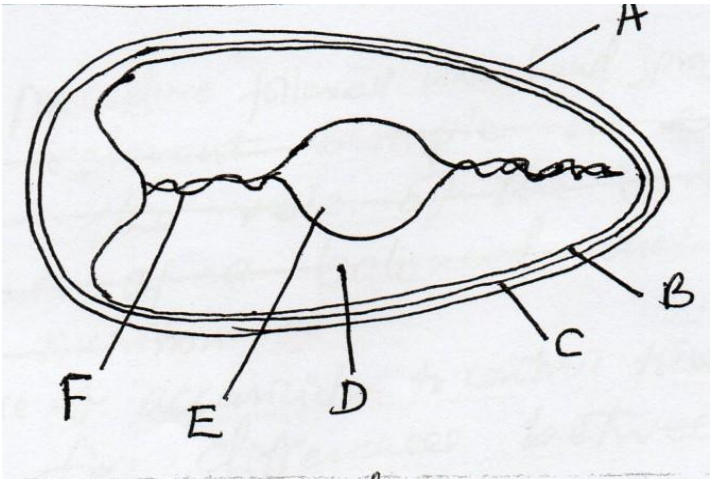
(i) ……

(ii) ……

(d). Name a breed of sheep reared for wool production. (1 mark)

(i) ……

22. The following is diagram of an egg. Study it carefully and answer the questions that follow.



(a). Name the part labelled B,C,D and F. (2 marks)

B

C

D

F

(b). State **two** qualities of the part labelled A that should be considered when selecting egg for incubation. (2 marks)

(i) ……

(ii) ……

(c). What is the function of the part labelled E in a fertilized egg? (1 mark)

_____

_____

SECTION C. (40 MARKS)

Answer any two questions in this section in space provided at the back..

24. (a). Describe the feeding of bees under bee keeping. (5 marks)

(b). Describe the management practices that a farmer should carry out to improve milk production in a low yielding herd of dairy cattle. (15 marks)

25. (a). Outline the procedure followed when hand spraying cattle to ensure effective use of accaricide to control ticks. (10 marks)

(b). Outline five differences between exotic cattle breeds and indigenous cattle breed. (5 marks)

(c). Outline five qualities of a good grain store. (5 mark)

26. (a). Describe the role of the various components of a balanced diet in livestock nutrition. (10 marks)

(b). Give five reasons of keeping livestock healthy. (5 marks)

_____

_____

_____

_____

(c). Outline five predisposing factors of mastitis in lactating cows. (5 marks)

PREDICTION 1

Name: _____Index No: _____

School:_____ Candidate's Sign_____

Date: _____

441/1

HOMESCIENCE
Paper 1
Theory
Time: 2 ½ HourS

Instructions to candidates:

- Write your name, Index No in the spaces provided above.
- This paper consists of sections A, B and C.
- Answer all question in section **A and B**and **any two** questions from **section C.**
- Answers to **ALL** questions **MUST** be written in this booklet

Examiner's use only

Section	Question	Maximum score	Candidate's score
A	1-21	40	
B	22	20	
C		20	
		20	
TOTAL SCORE		**100**	

SECTION A

Answer all the questions in this section in the spaces provided- [40 marks]

1. State two ways of meeting the physical need of a patient recuperating at home.[2 marks]

_____

_____

2. **What** does daily cleaning involve? [1 mark]

3. **Give two** reasons why it is important to repair clothes. [2 marks]

4. **Mention two** disadvantages of Braising as a cooking method. [2 marks]

5. **Give two** demerits of using hard water when washing clothes. (2 marks)

6. **State two** causes of premature birth. [2 marks]

7. **Define** the term interfacing [1 mark]

8. **List down two** factors to consider when setting the table [2 marks]

9. **State two** ways through which safe parenthood is achieved. [1 marks]

10. **Give two** advantages of using solar as a source of fuel. [2 marks]

_____

_____

_____

11. **List down the three** main methods of attaching collars to neck line. [3 marks]

_____

_____

_____

12. **Give two** factors to consider when planning for the lighting of various rooms in the home. [2 marks]

_____

_____

13. **Mention two** dangers of poor ventilation in a room. [2 marks]

_____

_____

14. **State two** disadvantages of advertisements. [2 marks]

_____

_____

15. **Mention three** minerals found in milk [3 marks]

_____

_____

16. **Give two** functions of a clothes horse. [2 marks]

_____

_____

17. **Give two** undesirable properties of silk that make it unsuitable for underwear. [2 marks]

_____

_____

18. The diet of elderly persons is affected by the physiological changes which occur in the body at this stage. **State two** of these changes. [2 marks]

_____

_____

19. **Mention two** points on the precautions to take when a child has diarrhea. (2 marks)

_____

_____

20. **Define** the term weaning (2 marks)

_____

_____

21. **Give two** causes of puckering of the material during stitching. (2 marks)

_____

_____

SECTION B – [20 marks]

COMPULSORY QUESTION

Answer this question in the spaces provided at the end of section C

22. You are planning to host small children who will attend your younger brother's birthday Party.

(a). Giving reasons outline the procedure you will use to thoroughly clean a plastic table to be used by the children. (6 marks)

(b). **Outline** the steps to follow when laundering your brother's acrylic socks. (9 marks)

(c). Outline the procedure to follow when cleaning a plain wooden chopping board that you will use. (5 marks)

SECTION C [40 marks]

Answer any TWO questions from this section in the spaces provided at the end of this section.

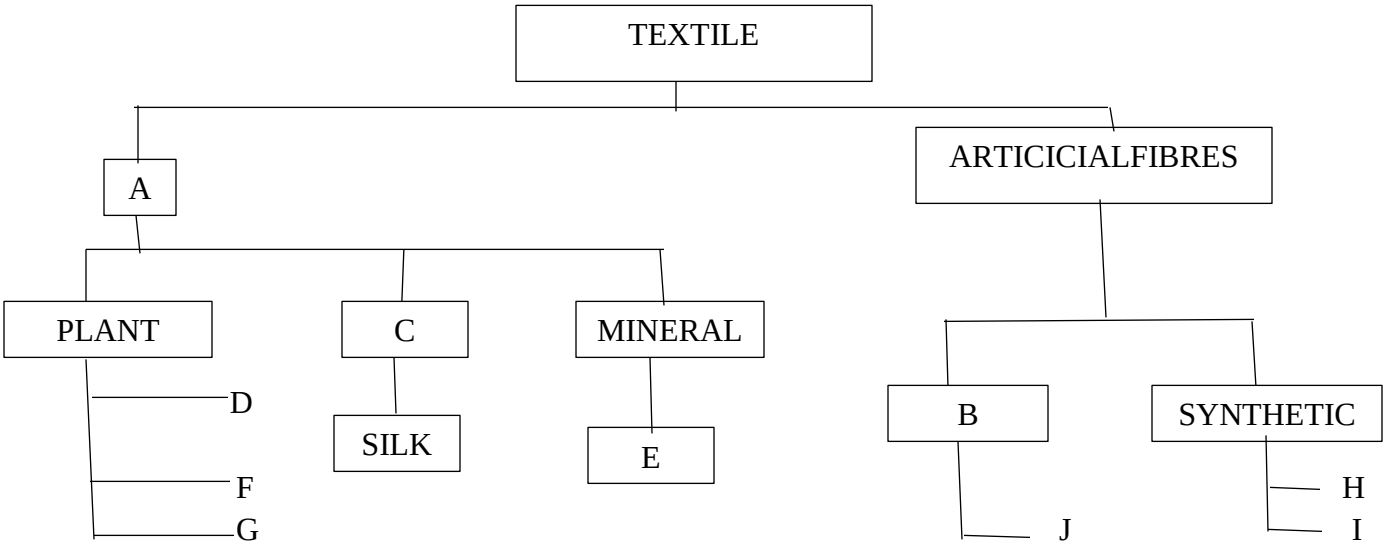
23. [a]. Explain three factors that determine the choice of a seam (6 marks)

[b]. Mention four qualities of a well-made seam (4 marks)

(c). Briefly explain the procedure of making an open seam. (6 marks)

(d). Give four methods of finishing a hem. (4 marks)

24. (a). Fill in the missing information. [10 marks]



(b). (ii). Discuss typhoid under the following stub-headings

(a). Cause (1 mark)

(b). Signs and symptoms of typhoid (3 marks)

(c). Prevention and control. (6 marks)

25. (a). **Give four** reasons why food should be stored properly (4 marks)

(b). **Explain four** traditional methods of preserving foods (8 marks)

(c). **Mention five** symptoms of food poisoning. (5 marks)

(d). **Mention three** desirable qualities of a container for storing drinking water. (3 marks)

PREDICTION 1

HOMESCIENCE 441/2

CLOTHING CONSTRUCTION

PAPER 2

CONFIDENTIAL

INSTRUCTIONS TO TEACHERS

The following materials will be provided by the school:

(a). Plain light weight cotton fabric 45cm long by 90cm wide

(b). Sewing cotton thread to match the fabric

(c). Elastic band **12cm** long and **1 cm** wide

(d). Safety pins

(e). One large envelope

PREDICTION 1

Name: _____Index No: _____

School: _____ Candidate's Sign_____

Date: _____

441/2
HOMESCIENCE
Paper 2
Practical
Time: 2 ½ Hours
441/2

HOMESCIENCE [CLOTHING CONSTRUCTION]

INSTRUCTIONS

A pattern of a child's dress is provided. You are advised to study the sketches, the question paper and the layout before you begin the test.

MATERIALS PROVIDED

1. Pattern pieces.
   A - Blouse front
   B - Blouse back
   C - Pocket Front shirt facing
   D - Collar
   E - Sleeve

   NB. Interfacing for the collar should be cut from same fabric using the collar pattern.
2. Light weight plain cotton fabric **45cm** long by **90cm** wide.
3. Sewing thread to match the fabric.
4. elastic **12cm** long and **1cm** wide.
5. One large envelop and bodkin needle/safety pins.

THE TEST

Using the materials provided, cut out and make up the left half of the blouse/bodiece to show the following;

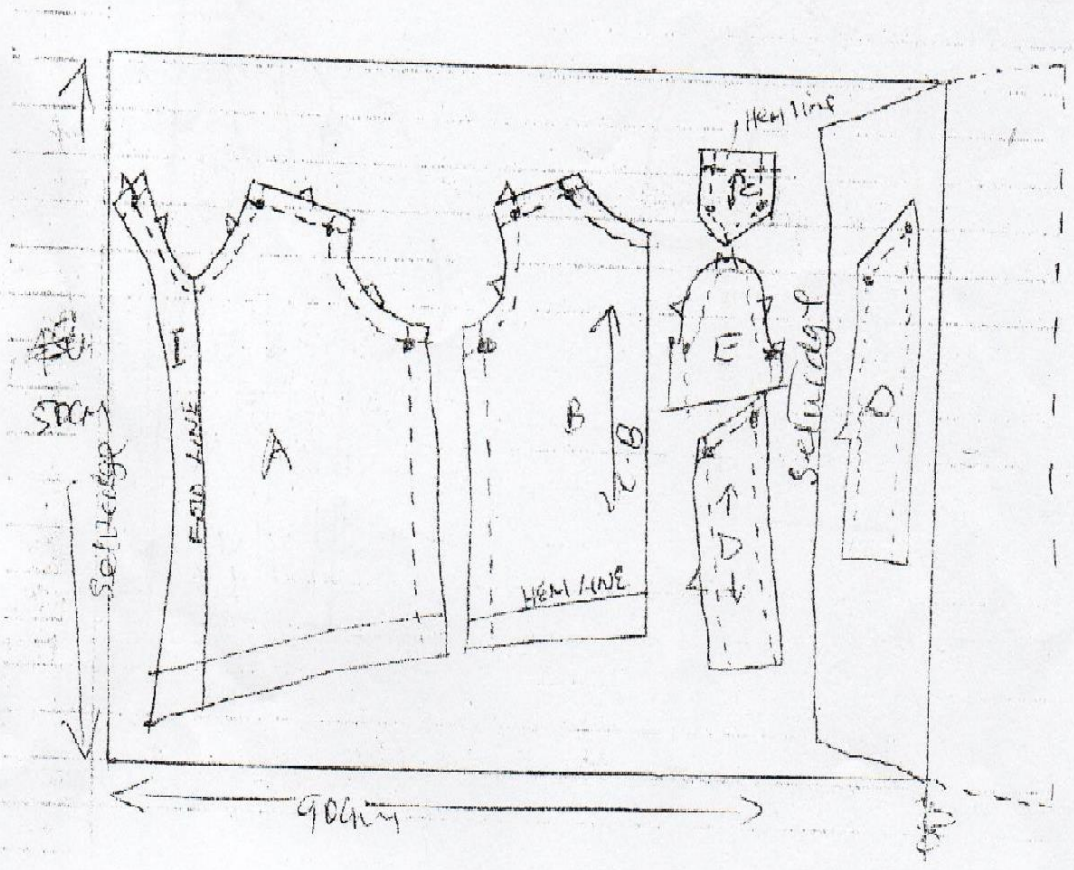
a) Making of a double stitched seam at the shoulder, on the RS
b) Making of the side seam using an open seam.

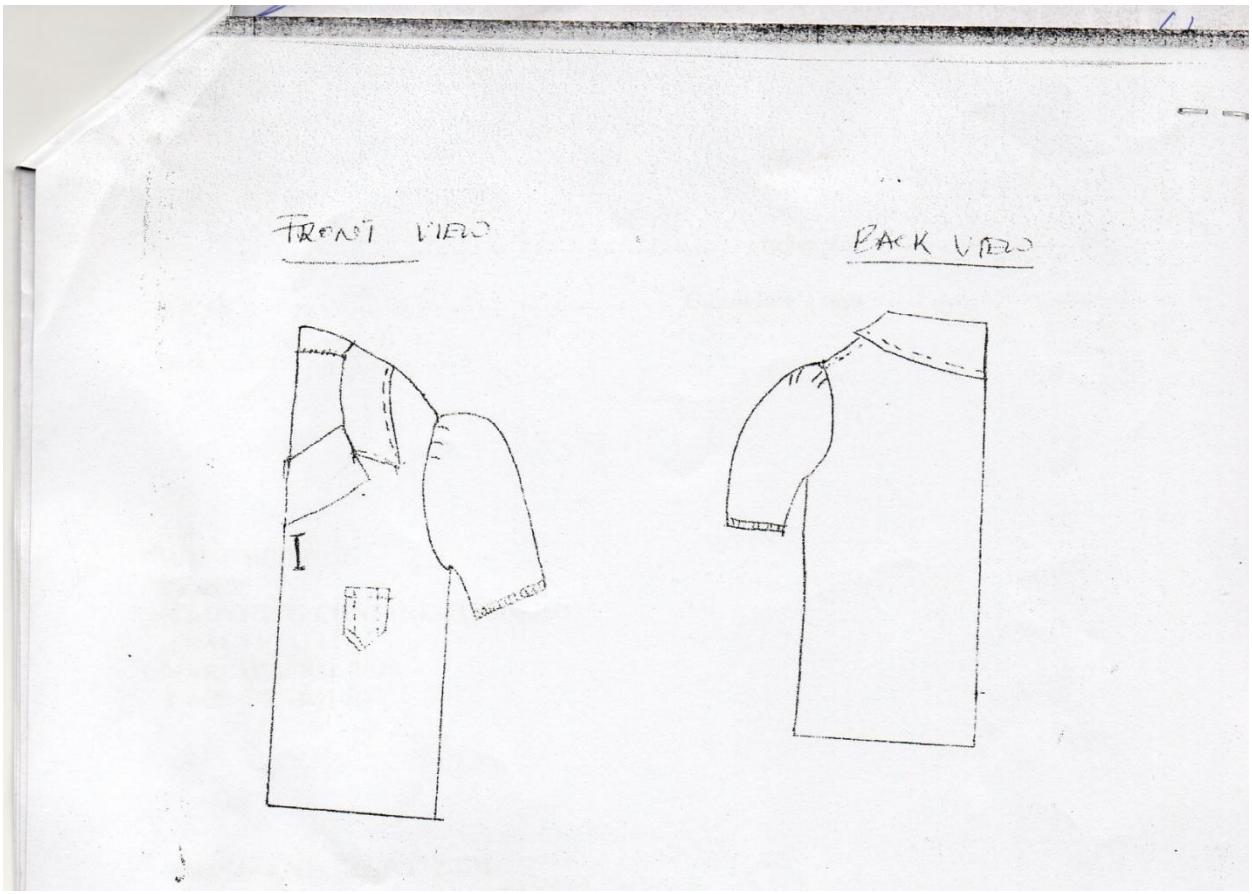
c). Neatening of the facing.
d). Preparation of an interfaced collar.
e). Preparation and attachment of the collar by sandwiching it between the facings.
f). Preparation and attachment of the patch pocket.
g). Management of the hem using slip hemming stiches (**blouse front only)**
h). Making of a button hole by hand.
i). Making a casing at the hem of the sleeve leaving an insertion gap of 1.5cm a centimeter away from the sleeve seam.
j). The working of gathers at the crown of the sleeve.
k). The attaching of the sleeve.
l). The insertion of elastic without closing the insertion gap.
m). Cutting of a straight tear and repairing using fishbone stitch.

NOTE:

- At the end of the examination, firmly sew on your work a single fabric, a label bearing your name and index number.
- Remove the needles and pins from your work then fold your work neatly and place it in the envelop provided
- Do not put scraps of fabric with your work.

THE LAYOUT [Not drawn to scale]




FRONT VIEW
BACK VIEW

PREDICTION 1

Name: _____Adm. No_____

Index No: _____ School:_____

Candidate's Sign_____ Date: _____

451/1

Computer Studies
Paper 1 [Theory]
FORM 4 2021
Time: 2 ½ Hours

Instructions to candidates:

[a]. Write your name and index number in the spaces provided at the top of this page.
[b]. Sign and write the date of examination in the spaces provided above
[c]. This paper consists of **TWO** sections**; A and B**
[d]. Answer question **16** and **any other THREE** questions from section **B**.
[e]. All answers should be written in the space provided on the question paper
[f]. This paper consists of 8 printed pages
[g].Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

For Examiner's Use only

Section	Question	Maximum Score	Candidate's Score
A	1-15		
B	16		
	17		
	18		
	19		
	20		
Total score	**100**		

SECTION A [40 MARKS]

*Answer **all** questions in this section*

1. Outline **three** distinctions between a super computer and microcomputer. [3 marks]

2. State four features of fifth generation computers. [4 marks]

3.(a). Explain **two** uses of forms in database design. [2 mark]

(b). i). Define the term control as used in report and form design. (1 mark)

(ii). Explain briefly the difference between bound and unbound controls. (2marks)

4. State any **two** differences between function keys and special keys of a keyboard. [2 marks]

5. In system development, testing is one of the critical stages. Give **three** reasons why the testing phase is critical to the systems developer. [3 marks]

6. Write the following abbreviations in full. [3 marks]
i). BCD

ii). ASCII

iii). EBCDIC

7. State **two** properties that an operating system display about a file. [1 mark]

_____

_____

8. Differentiate between Computer Aided Design CAD and Computer Aided Manufacture (CAM). [4 marks]

_____

_____

_____

_____

9. (a). Distinguish between a primary key and index key as used in databases. [2 marks]

_____

_____

_____

(b). Explain the relevance of foreign key in a database entity. (1 mark)

_____

_____

10. List **three** differences between laser printer and a dot matrix printer. [3 marks]

_____

_____

_____

11. Name an input or output device used in the following tasks. (2 mark)

a). Capturing still images

_____

(b). Printing detailed architectural designs

_____

(c). Playing flight and driving games

_____

(d). Capture data at ATM

_____

12. What is the use of the search and replace feature in a word-processor. (1 mark)

_____

_____

13. State two ways in which a computer may be used in efficient running of a hospital. (2 marks)

_____

_____

14. The formula = $A4*C$3 was entered in cell D4. What will be the formula if it is copied to cell F10. [1 marks]

_____

_____

_____

15. Name any three methods that can be used to test a program of errors. (3 marks)

_____

_____

_____

SECTION B]60 MARKS

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

16.[a]. Design a flowchart for a simple program that can be used to categorize people according to age. If the person is above or equal 18 years, output "Adult" otherwise output "Young". (8 marks)

(b).What is the difference between looping and selection? (2 marks)

[c]. Name the stage of program development cycle when: [2 marks]
(i). A user guide would be written

(ii). A programmer dry-turn the code

(iii). System charts would be drawn

(iv). Staff training is done

(d). State the three translators used in programming. (3 marks)

17.(a). Define the term data communication. (1 mark)

(b). Explain the following terms as used in data communication. (2 marks)
(i). Bandwidth

(ii). Attenuation

(c). Explain the following three types of computer networks. (3 marks)

i). LAN

ii). MAN

iii). WAN

(d).i). What are robots? (1 marks)

(ii). Outline any four advantages of using robots in industries over human beings. (2 marks)

(e). Describe the following communication modes giving an example in each case. (6 marks)
(i). Simplex

(ii). Half duplex

(iii). Full duplex

18. [a].List two characteristics of good information. [2 marks]

(b(i). What is a database management system? [1 mark]

(ii). State and explain three database models. (3 marks)

c). Describe the following types of files.
(i). Master file (2 marks)

(ii). Backup file (2 marks)

(iii). Transaction file (2 marks)

d). Explain the file organization methods given below.
(i). Serial (1 mark)

(ii). Indexed sequential (1 mark)

(iii). Random (1 mark)

19. (a). A shopkeeper of a small shop at Longisa has bought desktop computer to assist him in performing his business activities. He has been advised that before he can use it to work he has to install it with an operating system. State any six factors to consider when choosing the operating system. [6 marks]

b). With reference to disk management explain what is meant by the terms below.

i). Formatting (1 mark)

ii). Defragmentation (1 mark)

iii). Disk partitioning (1 mark)

c). Give any two reasons that may make the shopkeeper to partition the computer disk. [2 marks]

(d). The shopkeeper one day switched on the computer and experienced a number of problems with windows operating system that he had installed. The problems included failure to load the operating system during the booting. After several trials of switching on the computer, it hangs so often alongside abnormal restarting. State any four possible causes for the computer's behaviour. (4 marks)

20. (a) Describe the octal number system. (2 marks)

_____

_____

(b). Convert each of the following to the number system indicated:

i). 111.101_2 to decimal; (3 marks)

_____

_____

_____

(ii). 14.6875_{10} to binary [4 marks]

_____

_____

_____

(c). Convert the number -17_{10} into 8-bit:

(i). signed magnitude representation; (2 marks)

_____

_____

(ii). two's complement (2 marks)

_____

_____

(d). Perform the arithmetic operation. (2 marks)

$110.11_2 + 11.011_2$

PREDICTION 1

Name..... Index No.....

Candidates Signature .....

Date.....

451/2
COMPUTER STUDIES
PAPER 2
(PRACTICAL)
FORM 4 2021
TIME: 2 ½ HOURS

Instructions to candidates

- Type your name and Index No at the top right hand corner of each printout.
- **Write your name and Index No on the CD-R /CD-RW**
- Write the name and version of the software used for each question attempted in the answer sheet.
- Passwords **should not** be used while saving in the CD.
- Answer **all** questions
- All questions carry equal marks
- All answers must be saved in your CD.
- Make printouts of the answers on the answer sheets provided
- Hand in all the **printout** and the **CD**
- Candidates may be penalized for not following instruction given in this paper
- Arrange your printout and staple them together.

Candidates should check the question paper to ascertain that all pages are printed and no questions are missing

1.

(a). Type the following letter as it appears in a word processor. Use the mail merge feature to produce copies of the same letter to the persons whose details are given below. (12 marks)

MWANGAZA HIGH SCHOOL

P.O. BOX 4800

KERICHO

8TH FEBRUARY 2020

<NAME>,<ADMNO>,

<ADDRESS>

<TOWN>

Dear <NAME>

REF: 2019 KCSE RESULTS.

I am happy to inform you that the NOV-DEC Examinations are out. Kindly arrange to visit our school on <Date to visit> at 9.00 a.m in order to know the details. Remember to carry your original KCPE certificate and examination registration card bearing the index number.

Yours's truly,

Head teacher

Data source (List of Candidates)

Name	Adm.No	Address	Town	Date to visit
Mark Otieno	8074	P.O. BOX 24	Sondu	02/03/2020
Kevin Kirui	8189	P.O. BOX 172	Kericho	08/03/2020
Bernard Soi	8065	P.O. BOX 84	Bomet	24/03/2020

Required:

i) **Save** Main document as Main Doc (1 mark)

ii) **Save** Data source as Data source (1 mark)

iii) **Change** the addresses and reference font size to 14pts (1 ½ marks)

2. Perfect Pizza Factory manufactures pasta for distribution to restaurants in Nairobi. Assuming that you are now working for the factory and have been given the following sales data:

	A	B	C	D	E	F	G	H	I
1	Restaurants	July	August	September	October	November	December	Total product sales	Average
2		34567	45671	89650	67222	56113	96282		
3	Nankos	100000	97600	82199	105999	140664	190654		
4	Burgees	96543	97600	82199	105999	140663	190654		
5	Kenge	65000	97600	82199	105669	140663	190654		
6	Tika	103456	97645	82297	105669	140220	175000		
7	Appetos	76899	85400	96709	101324	140882	181230		
8	Marries	98000	97600	82199	105999	140663	190654		
9	Generals	25000	19654	15222	8000	5602	200		
10	My Café	86777	75432	84366	105999	55678	201345		
11	Shooters								
12									
13									
14	Total Monthly sales								

(iv). **Underline** the reference ($^1/_2$ mark)

(v). **Merge** the letter onto main document so as to produce copies for all the three candidates and save it as 'Results 2019'. (6 marks)

(vi). **Print** the letters (3 marks)

(b). **Type** the following text in a word processing software. (22 marks)

INTRODUCTION TO COMPUTERS & OPERATING SYSTEMS

A computer is a machine or an electronic device that can solve problems by accepting data, performing certain operations on that data (processing) and presenting the results of those operations (Information) Basic characteristics that distinguish a computer from other information processing devices:-

(i) A computer is electronic- That is, all it processing operations are carried out with electrical signals

(ii) A computer can store information for future reference. This is done on temporary basis with memory circuits and permanently with storage devices such as magnetic disks and tape.

(iii) A computer is programmable – unlike other devices built to perform a single function, a computer can be instructed or programmed to perform a variety of tasks.

HOW A COMPUTER OPERATES

Converting the data (raw facts) into information (Organized, usable form) is called data processing.

Data get into the system by means of an input device.e.g keyboard then the computer performs the necessary calculations or manipulations on the data and finally the organized information is displayed by an output device e.g. a monitor.

FUNCTIONS PERFORMED BY A COMPUTER

Although computers have many applications, they can perform only three basic tasks.

(i). Arithmetic functions on numeric data (adding, subtracting, multiplying and dividing)

(ii). Test relationships between data items (by comparing values)

(iii). Store and retrieve data

These skills are really no more than people can do, but the computer can accomplish the task more;

- Faster
- Accurately
- Reliably

Required:

(a). **Align** the title to the centre and underline it. (1 marks)

(b). **Add** border to the title (2 marks)

(c). **Replace** all the Roman numbers with bullets. (2 marks)

(d).

(i) Insert the footer “End of Term One Examination 2020”. (2 marks)

(ii) Insert the header “Your name and index No” (2 marks)