KENYA'S TOP EXAMINERS' 2020

MOCK EXAMS SERIES 2

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Kenya's Top Examiners' 2020 Mock Exams SERIES 2

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

SUBJECTES TESTED: Eng, Kisw, Maths, Chem, Bio, Phy, Geog, Hist, CRE, Agric, Bussiness Studies, Computer & Home Science.

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Name... Index No...

School.. Candidates Signature……….…..…

Date: …………………………….

443 / 1
AGRICULTURE
Paper 1
July / August 2020
Time: 2 Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

AGRICULTURE

Paper 1

July / August 2020

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES.

- Write your name & Index Number in the spaces provided.
- Sign and write the date of Examination in the spaces provided above.
- This paper consists of three sections **A,B** and **C**
- Answer **ALL** the questions I Section **A** and **B**
- Answer two question from Section **C.**

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 – 17	30	
B	18 – 21	20	
C		20	
		20	
		TOTAL SCORE	

This paper consists of 9 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

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SECTION A (30 MARKS)
Answer all questions in this section in the spaces provided

1. Give **three** ways in which nitrogen is removed from the atmosphere.   (1½Marks)

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2. Give **three** conditions that necessitate clearing of land.   (1½Marks)

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3. State **two** ways in which agriculture contribute to industrial development in a country.   (1

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4. State **four** factors considered when choosing seed rate.   (2 Marks)

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5. Define the term land reform.   (1 Mark)

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6. State **four** factors that affect the selectivity and effectiveness of herbicides. (2 Marks)

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7. How can a farmer reduce losses in stored grain? State **four** ways.   (2 Marks)

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8. Outline the procedure followed when sampling soil.   (2 Marks)

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9. Give **four** dangers of having a hand-pan layer within a soil profile.   (2 Marks)

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....Give **four**

advantages of staking tomatoes.   (2 Marks)

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10. a) Name **four** diseases caused to man by drinking untreated water. (2 Marks)

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b) State the functions of the following chemicals used in water treatment.

   i) Chlorine (2 Marks)

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   ii) Aluminium Sulphate (Allum) (1 Mark)

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11. Give **four** reasons for keeping health records. (2 Marks)

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12. State **three** qualities of a good silage. (1½Marks)

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13. Name the chemicals used in control of the following crop pests. (1½Marks)

   i.   Insects

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ii.   Nematodes

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iii.   Mites

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14. State **four** factors that influence mass wasting.   (2 Marks)

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15. Differentiate between gross domestic product (GDP) and gross national product (GNP).   (2

Marks)

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16. State **two** varieties of bulbed onion.   (1 Marks)

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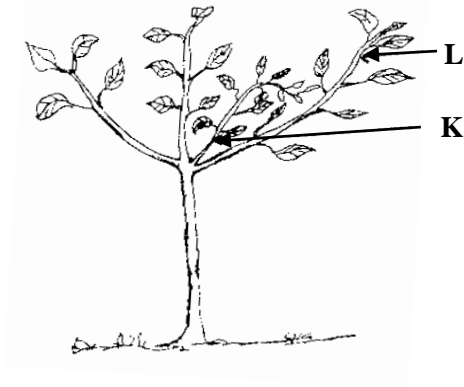## SECTION B (20 Marks)

Answer all questions in this section in the spaces provided.

17.   a) Below is a diagram of a young orange tree.

   i)   Which **one** of the branches labeled K and L should be pruned? (½ Mark)

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   ii) Give **three** reasons for your answer in (a) (i) above.   (3 Marks)

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   iii) Name the correct tool for pruning the branch.   (½ Marks)

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b) Name any **two** crops propagated through suckers.   (1 Mark)

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18. The diagram below shows a method of soil and water conservation method. Study it and answer the questions that follow.
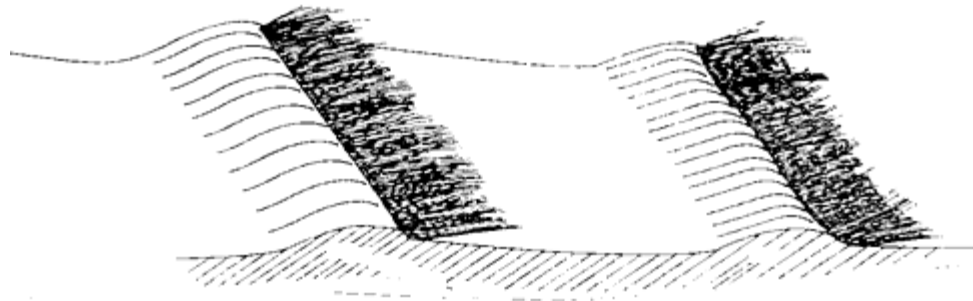
a) Identify the method. (½ Marks)

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b) List **two** methods of establishing the structure. (2 Marks)

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c) Give **two** factors that necessitate the construction of the structure. (2 Marks)

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d) Give **four** other physical structures that can be used for the same purpose as the structure. (2 Marks)

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19. The illustration below are crop weeds labeled L and M. Study it an answer the questions that follow.
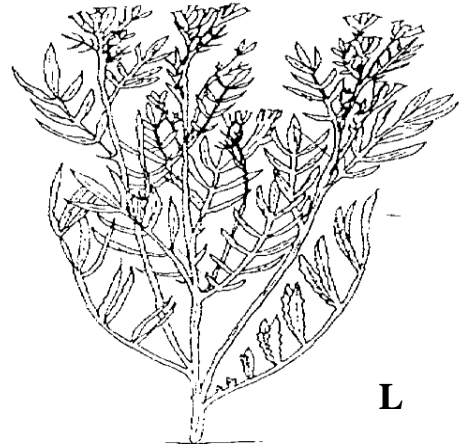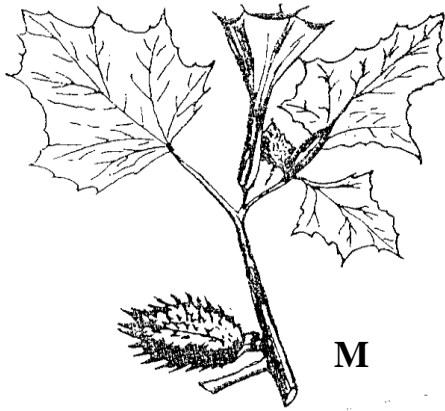
a) Identify the weeds labeled L and M. (1 Mark)

L. ……………………………………………………

M ……………………………………………………

b) Give **one** economic importance of the weed labelled L. (1 Mark)

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c) Classify the weed labeled L according to its life span. (½ Mark)

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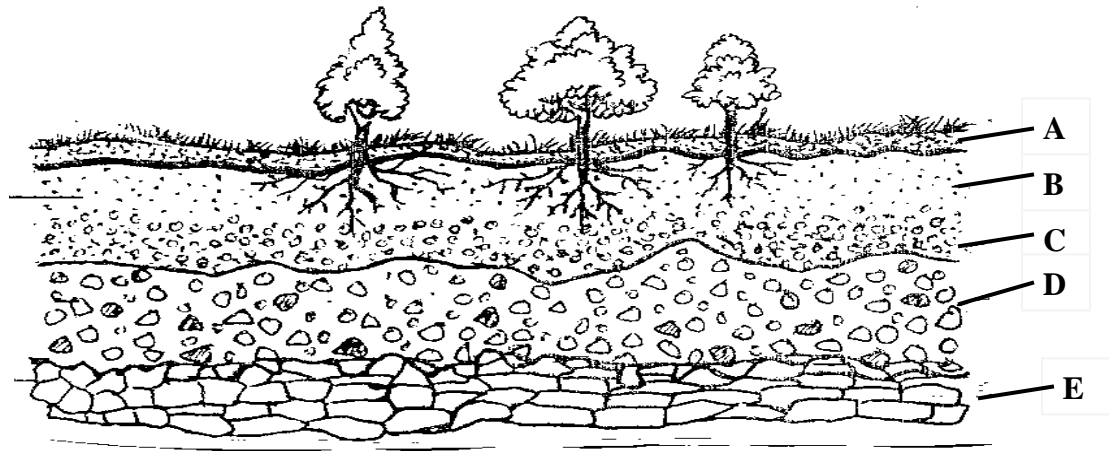
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d) Apart from competing for moisture, nutrient and light what other reason is it necessary to control the weed labelled M in a field of pastures. (1 Marks)

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20. The diagram below illustrates the earth's surface downward. Study it and answer the questions that follow.

a) Identify the structure illustrated. (½ Mark)

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b) Name the parts labelled A – E. (2½Marks)

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B ....

C ....

D ....

E ....

c) Outline **four** ways through which the above illustration influence crop production.

(2 Marks)

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SECTION C (40 MARKS)

Answer any __two__ questions in this section.

21. Describe the production of tomatoes under the following sub headings.
    i.   Ecological requirements.   (3 Marks)

    ii. Nursery establishment and management   (10 Marks)

    iii. Field establishment   (7 Marks)

22. Describe the methods of disease control in crops under the following headings.
    i.   Cultural methods   (14 Marks)

    ii. Chemical methods   (6 Marks)

23. a) Outline **ten** uses of farm records.   (10 Marks)

    b) Explain **four** ways of improving labour productivity in a farming organization.   (4 Marks)

    c) Explain **six** advantages of land consolidation.   (6 Marks)

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Name..

Index No... School..

Candidates Signature…………………… Date: ………………………………….

443 / 2

AGRICULTURE

Paper 2

July / August 2020

Time: 2Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES.

- Write your name & Index Number in the spaces provided.
- Sign and write the date of Examination in the spaces provided above
- This paper consists of three sections **A,B** and **C**
- Answer **ALL** the questions I Section **A** and **B**
- Answer **two** questions from Section **C.**

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 – 17	30	
B	18 – 21	20	
C		20	
		20	
TOTAL SCORE		90	

This paper consists of 8 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

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SECTION A
Answer all questions in this section in the spaces provided.

1. Give **four** cultural uses of livestock. (2Marks)

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2. State **four** advantages of zero grazing. (2 Marks)

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3. Outline **six** importance's of fences in a farm. (3 Marks)

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4. State **four** functions of lubrication system in a tractor. (2 Marks)

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5. Name **two** categories of additives in livestock nutrition. (1 Mark)

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6. Give **four** methods of stocking a beehive. (2 Marks)

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7. Give **four** reasons for maintenance of farm tools and equipment. (2 Marks)

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8. Give **four** reasons for treating timber. (2 Marks)

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9. Give **four** advantages of four-stroke cycle engine over two-stroke cycle engine.

(2 Marks)

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me the intermediate host for liverfluke. (1 Mark)

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10. Name **two** categories of parasites in livestock. (1 Mark)

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11. State **two** methods of lambing in sheep management. (1 Mark)

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12. State **four** features of clean milk production. (2 Marks)

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13. What is caponisation? (1 Mark)

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14. Give **four** factors considered when selecting eggs for marketing. (2 Marks)

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15. Outline **four** predisposing factors to diseases. (2 Marks)

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16. Give **four** effects of parasites on their hosts. (2 Marks)

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SECTION B.

Answer all questions in this section in the spaces provided

17. a) Define the term digestibility. (1 Mark)

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b) Using the pearson's square method compute a 1000kg ration with 20% DCP from maize containing 10% DCP and cotton seedcake containing 45% DCP. (Show your working). (5 Marks)

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18. Study the illustration below carefully and answer the questions that follow.
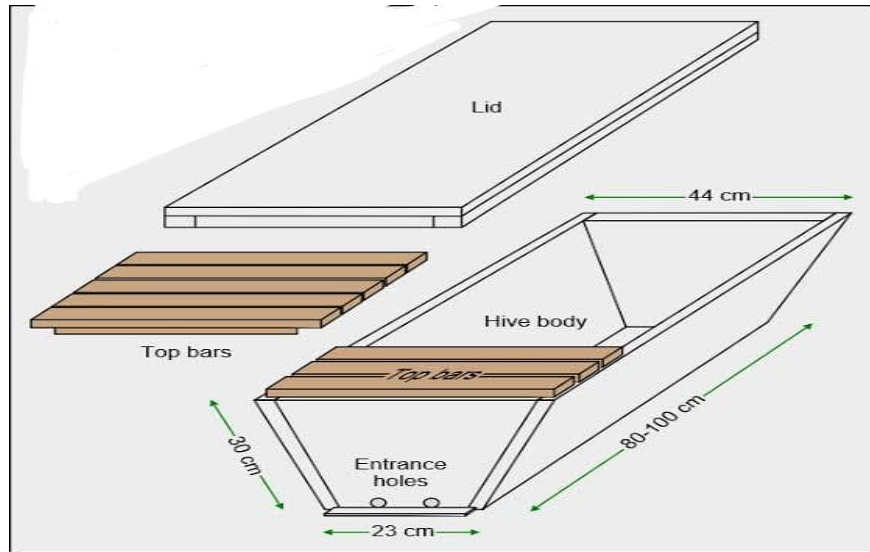
a) Name the type of beehive shown above. (1 Mark)

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b) Give names of other **two** types of beehives. (2 Marks)

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c) Name the parts labeled A, B, C and D. (4 Marks)

A ………………………………………………..

B ………………………………………………..

C ………………………………………………..

D ………………………………………………..

19. Study the diagram of an egg shown and answer the questions that follow.
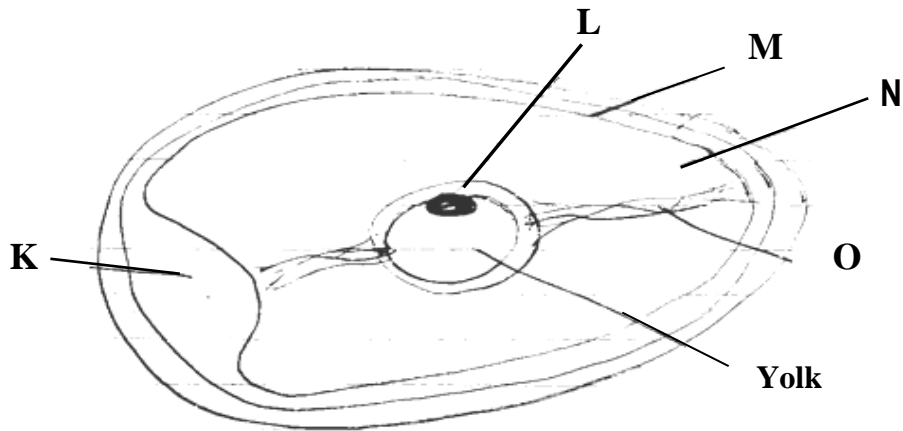
a) Name the parts labelled L, M and N.   (3 Marks)

   L…………………………………………………..

   M…………………………………………………..

   N…………………………………………………..

b) State the function of the parts labelled O and K.   (2 Marks)

   O …………………………………………………..

   K. …………………………………………………..

c) Give **two** reasons for egg candling.   (2 Marks)

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SECTION C

Answer any <u>two</u> questions from this section.

20. a) Discuss the disease trypanosomiasis under the following sub titles.

   i.   Causal organism.   (1 Mark)

   ii.   Animal attacked.   (1 Mark)

   iii.   Mode of transmission   (1 Mark)

   iv.   Symptoms   (10 Marks)

   v.   Control.   (3 Marks)

   b) Give **four** general management practices for control of parasites and diseases in livestock production.   (4 Marks)

21. a) Discuss **ten** operational differences between a disk and mould board plough.   (10 Marks)

   b) Give **ten** functional and structural differences between petrol and diesel engine.   (10 Marks)

22. a) Explain **eight** factors considered when siting a farm structure on a farm.(10 Marks)

   b) Outline **six** desirable features of a good grain store.   (6 Marks)

   c) Outline **six** maintenance practices carried out on saws.   (6 Marks)

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NAME: …………………………………………………………….. INDEX NO: …………………………….

SCHOOL: …………………………………………………. Candidate's signature: …………………………………………

Date: ………………………………………….

565/1

Business Studies

Paper 1

July / August 2020

Time: 2 Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS OF CANDIDATES

  a) Write your name and index number in the spaces provided above.
  b) Write the date of examination in the spaces provided above.
  c) Answer **ALL** the questions.
  d) **ALL** answers must be written in the spaces provided in this booklet
  e) Do not remove any pages from this booklet.
  f) 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.

Questions	1	2	3	4	5	6	7	8	9	10	11	12	13
Marks													

Questions	14	15	16	17	18	19	20	21	22	23	24	25
Marks												

TOTAL MARKS

This paper consists of 8 printed pages
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

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1. Highlight **four** ways in which the society benefits from indirect production. (4 Marks)

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2. Highlight **four** reasons why M-pesa is becoming a popular means of payment. (4 Marks)

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3. State **four** circumstances under which a business firm may use photocopying as a means of reproducing documents. (4 Marks)

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4. Otieno who is an employee with the Ministry of Health has decided to join Afya Sacco. Highlight **four** benefits he is likely to enjoy from this move. (4 Marks)

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5. The following information relates to Mbeti Way Inn.

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Sales	300,000
Sales returns	3000
Purchases returns	2000
Stock (1st October 2007)	30,000
Purchases	180,000
Stock (30th September 2008)	40,000

Calculate:

a) Net sales   (1 Mark)

b) Cost of goods sold   (2 Marks)

c) Gross profit   (1 Mark)

6. Juma a retailer had a capital balance of ksh.160,000 as at June 30th 2009. During the year ended June 30th 2010, the business made a net profit of sh. 140,000. Juma the proprietor made drawings of Sh 2000 each month for his personal use. Compute the business capital as at June 30th 2010.

(3 Marks)

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7. State the book of original entry into which the following transaction would be entered.

(4 Marks)

Transaction	Book of original entry
a) selling goods on credit	
b) purchasing goods on credit	
c) returning goods previous sold on credit	
d) receiving cash for goods sold	

Enumerate **four** ways in which the central bank may encourage borrowing in order to boost investments.

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8. The following transaction relate to the business of Mambo as at 28th February 2011.

   i)   February 1: balance brought forward: cash in hand ksh.4000.

   ii) February 2: bought tools worth sh.3000 in cash.

   iii) February 26: took a cooperative loan of sh.10,000 in cash.

   iv) February 28: opened a bank account for the business with sh.8000 from the cash box.

(4 Marks)

Required:

Enter the above transaction in the ledger accounts provided below and balance the accounts.

Cash a/c

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Machinery a/c

Loan a/c

Bank a/c

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9. State **four** benefits that are derived from the use of warehousing services for business organisations within East Africa. (4 Marks)

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10. Highlight **four** factors that determine the level of national income of a country. (4 Marks)

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11. Highlight **four** disadvantages of a long chain of distribution of goods to a buyer.   (4 Marks)

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12. Each of the following factors will lead to a shift in or movement along the demand curve. Indicate the correct effect by writing either 'shift' or 'movement' in the spaces   provided. (4Marks)

Factor	Effect
a) Change in real income	
b) Change in price of a product	
c) Increase in sales tax of the product	
d) Increase in population	

13. Highlight **four** circumstances under which one may use signs in communication. (4Marks)

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14. An entrepreneur may spot a gap in the market which may be converted into a business idea. Name **four** such gaps.   (4 Marks)

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15. The following transaction took place in the business of Excel Traders Ltd in the first week of January 2010.

- Jan 1: balances – cash sh.48000
  - Bank sh.70000 credit
- Jan 2: received a cheque resulting from sales of goods worth sh.90,000.
- Jan 3: sold old machine receiving cash sh.16000.
- Jan 4: took sh. 3000 cash for personal use.
- Jan 5: purchased stationery worth sh. 30,000, paying in cash sh. 12000 and remaining balance by cheque.
- Jan 5: transferred all cash from the office to the bank leaving a balance of sh. 1000

Required:

Record the above transactions in a two column cash book and balance it off as at 5th January 2010.

(5 Marks)

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16. Outline **four** circumstances under which high population growth rate may be desirable.   (4Mrks)

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17. State the type of utility created in the following activities.   (4 Marks)

Activity	Utility
a) Salonist making customer's hair	
b) A carpenter making coffee table from wood	
c) Storing maize harvest for future use	
d) Transporting rice to the IDPs	

18. Outline **four** benefits of 'pooling of risks' to insurance company.   (4 Marks)

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19. Identify **four** benefits of international trade to a country.   (4 Marks)

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20. Outline **four** characteristics of a firm enjoying economies of scale.   (4 Marks)

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21. State **four** difficulties faced by people during satisfaction of human wants.   (4 Marks)

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22. State **four** ways in which HIV/AIDS prevalence has negatively affected business activities.(4 Marks)

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23. Show the effect of the following transaction on capital by indicating "Increase" "Decrease" or "No effect". (4 Marks)

Transaction	Effect of capital
a) Withdraw business cash for personal use	
b) Profits earned by the business	
c) Bought goods on credit	
d) Converted personal vehicle into business property	

24. Underdeveloped economies usually end up in a vicious circle of poverty. Outline **four** features of less developed countries like Kenya.   (4 Marks)

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NAME: ………………………………………………………………………. INDEX NO: .……………………………..

SCHOOL: …………………………………………………. Candidate's signature: ………………………………………….

Date: ……………………………………………

565/2

Business Studies

Paper 2

July / August 2020

Time: 2 ½ Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS OF CANDIDATES

(a) This paper consists of 6 questions.

(b) Answer **ANY FIVE** questions.

(c) Write your answers in the answer booklet provided.

(d) All questions carry equal marks.

This paper consists of 3 printed pages
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

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1. a) Explain **five** reasons that may make an insurance company refuse to compensate the insured in the event that a risk occurs. (10Marks)

   b) The following information was obtained from the books of Muthaura.
   Sales   sh. 270,000
   Margin   40%
   Turn over   6 times
   Expenses   40,000

   From the above information calculate;
   i)   Gross profit   (3 Marks)

   ii) Cost of goods sold   (2 Marks)

   iii) Average stock   (3 Marks)

   iv) Net profit   (2 Marks)

2. a) Give **five** problems associated with the output approach in computation of national income.
   (10 Marks)

   b) Outline **five** measures that the Kenya government may take to reduce unemployment.
   (10 Marks)

3. a) Explain **five** importance of filing documents in an organization.   (10 Marks)

   b) A manufacturing company operates on an imprest of sh.10000. On 1/6/06 the petty cashier had a balance of sh.4000. She received a reimbursement to restore it on 5/6/06.
   The following transactions took place during the month:
   June 8: paid Amos a small scale creditor sh.500
   June 9: paid postage sh.300
   June 10: paid for cleaning sh480
   June 11: Bought stamps for sh180
   June 12: paid for cleaning sh750
   June 13: paid for travelling sh400
   June 14: paid for tea leaves sh450
   June 15 paid for stationery sh450

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Required:

The petty cash book for the manufacturing firm for the month of June, 2006 with the following analysis columns duly balanced.

   i)   Travelling
   ii)   Cleaning
   iii) Stationery
   iv)   Tea
   v)   Postage
   vi)   Ledger A/c   (10 Marks)

4. a) Explain **five** ways in which an efficient road transport system may promote trade in a country.
                                                                          (10 Marks)

    b) Discuss **five** problems caused by inflation in an economy.   (10 Marks)

5. a) Muema is planning to construct a warehouse for renting. Explain **five** measures that he may take
       to ensure its smooth operation.   (10 Marks)

    b) The following information relates to Tamu Traders as at 31st December 2009.

Opening stock	60,000
Purchases	161,000
Sales	208,000
Carriage inwards	1,000
Closing stock	72,000
Returns outwards	25,000
Returns inwards	27,000
Carriage outwards	10,000
Salaries	22,000
Telephone charges	5,000
Water bills	2,100
Electricity charges	2,000
Insurance	1,000
Discount received	7,500

Additional information
   Telephone charges prepaid: 1,100
   Water bills outstanding 1,300
Required: Prepare trading, profit and loss a/c for the period ended 31st December 2009.

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(10 Marks)

6. a) Explain **five** factors which have frustrated economic development in less developed countries.
(10 Marks)

   b) Explain **five** differences between shares and debentures. (10 Marks)

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Name... Index No...

School... Candidates Signature………………

Date: ………………………………….

231/1

BIOLOGY

(THEORY)

Paper 1

July / August 2020

Time: 2 Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES.

- ✓ Answer **all** the questions in the space provided.
- ✓ Additional pages **MUST** not be inserted.
- ✓ Candidates may be penalized for false information and even wrong technical terms.

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
1 - 29	80	

This paper consists of 8 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

1. Why are Lysosomes many in phagocytic cells?   (2 Marks)

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   ....

2. Explain how sunken stomata help to reduce rate of transpiration.   (2 Marks)

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3. Name **two** products of anaerobic respiration in animals.   (2 Marks)

   ....

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4. The structures below represents specialised cells in man
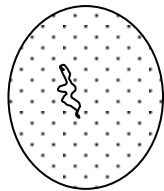
           X   **Y**

   a) Identify the structure x and y

      X ………………………………………………………………………………………….(1 Mark)

      Y ………………………………………………………………………………………….(1 Mark)

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

   ....

   ....

5.   Below is a neuro-junction
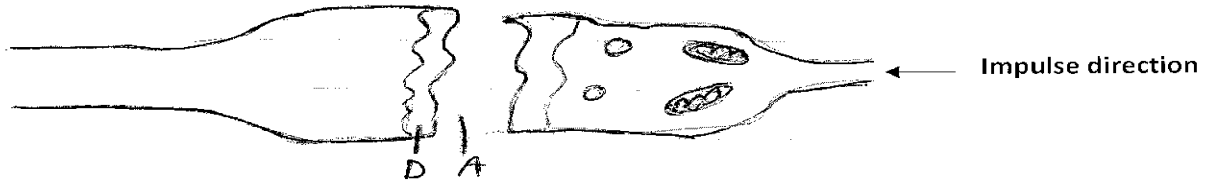
a) State **one** function of a neuro-junction.   (1 Mark)

....

....

b) Name the part labeled D.   (1 Mark)

....

....

c) State the adaptation of a Neuro-Junction   (1 Mark)

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6.   A DNA strand was found to have the base sequence shown below.

      A – T – T – C – G - A

a)   What was the base sequence on the complementary strand?   (1 Mark)

....

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b) What was the base sequence of MRNA formed in the strand?   (1 Mark)

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c) State **two** differences between DNA and an RNA.   (2 Marks)

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7.   Identify **three** structural adaptations of xerophytes to their habitat.   (3 Marks)

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8.   a)   Distinguish between meiosis and mitosis.   (2 Marks)

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        b)   State **one** significance of meiosis in organisms.   (1 Mark)

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9.   The diagram below shows a structure for gaseous exchange in class pisces.
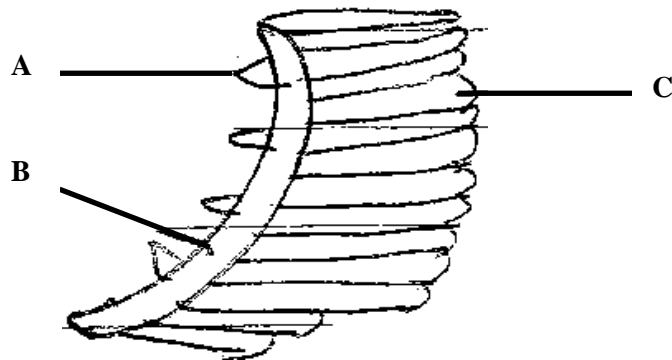
        a) Identify the structure   (1 Mark)

....

....

        b) State the function of the part labelled C   (1 Mark)

....

....

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c) How is the structure labelled B adapted for its function? (1 Mark)

....

....

....

10. Below is a simple food chain in a grass land ecosystem

Grass ⟶ Grasshopper ⟶ Blackbird

State the short term effects of reducing grasshopper. (2 Marks)

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11. State **two** functions of smooth muscle along the alimentary canal in mammals. (2 Marks)

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12. a) A student used a microscope with x40 objective lens and x5 eye piece lens. He observed 5
Cells in the field of view which had 2mm radius. Calculate the area of field of view in
micrometers.

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b) What is the average size of the cell in micrometers? (2 Marks)

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13. State **three** ways by which plasmodium species is adapted to its way of life. (3 Marks)

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14. a) State **two** advantages of internal fertilization. (2 Marks)

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   b) Give reasons why a woman excretes less urea when she becomes pregnant. (2 Marks)

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15. A transfusion of Rh +ve blood was given to patient with a Rh-ve blood. After one week a similar transfusion was given to the same patient. What was likely to be the effect of the second transfusion? (3 Marks)

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16. How does evaporation of water from animal bodies cause a cooling effect? (2 Marks)

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17. Name the process by which translocation occurs in plants. (2 Marks)

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18. a) State the role of enzymes catalase in living cells. (2 Marks)

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b) Name **two** factors that denature enzymes. (2 Marks)

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19. State **two** distinguishing characteristics of division Bryophyta. (2 Marks)

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20. The structure below shows joints of the fore limbs.
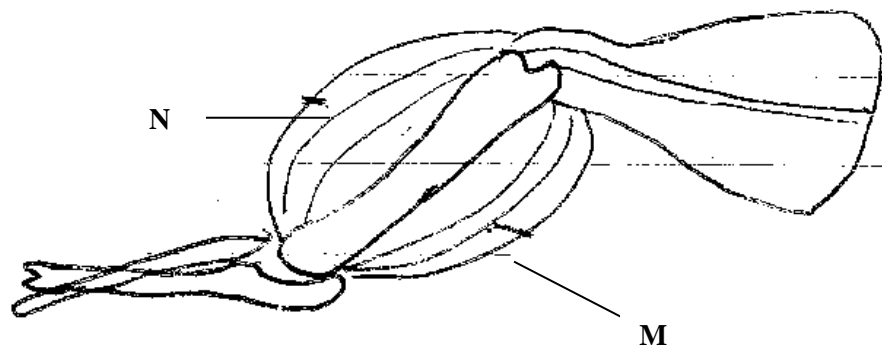
a) Name the structures labelled M and N.

M ……………………………………… (1 Mark)

N ……………………………………. (1 Mark)

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

b) What happens to structure M and N when the arm is straightened at the elbow joint? (2 Marks)

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21.   The diagram below shows part of transverse section of the spinal cord of a mammal.
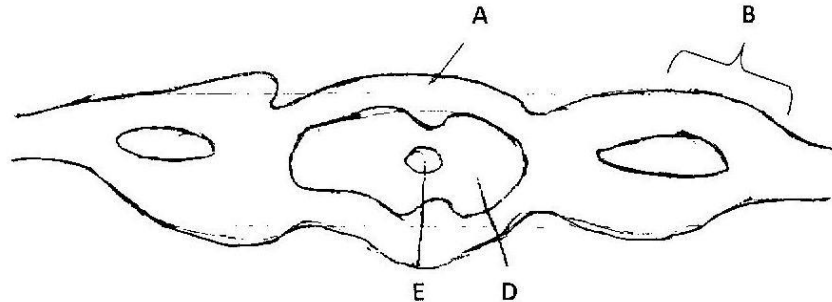
a) Name the part labelled A and D.

A……………………………… (1 Mark)

D …………………………….. (1 Mark)

b) Identify the fluid contained in part E. (1 Mark)

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c) State **one** function of the fluid you have named in (b) above. (1 Mark)

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22. a) What are vestigial structures? (1 Mark)

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b) Give **two** examples of the structures above in man.   (2 Marks)

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23.   Explain why it is advisable to cut thin sections of a specimen using a sharp razor blade before

placing them on a microscope slide.   (2 Marks)

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24.   Name **two** mineral elements necessary for chlorophyll formation.   (2 Marks)

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25.   Distinguish between diabetes mellitus and diabetes insipidus.   (2 Marks)

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26.   Distinguish between the following terms.

a) Autotrophs and heterotrophs   (1 Mark)

....

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b) Test cross and back cross. (1 Mark)

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27. a) What is eye accommodation? (1 Mark)

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b) Explain how the iris muscle controls the size of pupil when exposed to bright light.   (3
Marks)

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28. What is the effect of eating a meal with too much salt to urine production in man? (2 Marks)

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29. State **one** function of the following hormones.

a) Juvenile hormone (1 Mark)

....

....

b) Abscisic acid (1 Mark)

....

....

Name..   IndexNo ....

School...   Candidates Signature……..………

Date: …………………………….

231/2 BIOLOGY

Paper 2 (Theory)

July / August 2020

Time: 2 Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

Instructions to candidates

- Answer **all** questions in section A by filling in the spaces provided.

- In Section B, Answer Question 6 (Compulsory Question) and any other One Question from the remaining two Questions. (i.e. 7 or 8)

FOR EXAMINER'S USE ONLY

Section	Question	Maximum score	Candidates score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	Total Score	80	

This paper consists of 10 printed pages.

Candidates should check to ensure that all pages are printed as indicated and no questions are missing

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

1.   The diagram below is a longitudinal section of an organ in mammals
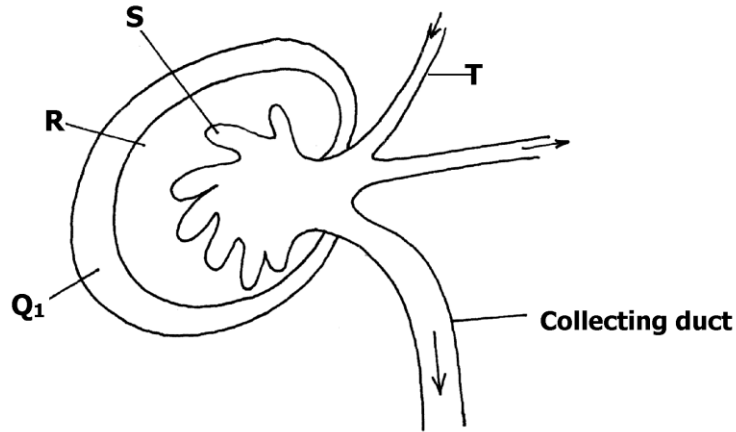
a)   Name the organ   (1mk)

    ....

    ....

b)   Identify the parts R and S   (2mks)

    ....

    ....

    ....

c)   i)   State two differences in the structure above found in the deserted- rat and fish

                                                                                                                                        (3mks)

    ....

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ii)   Account for the difference stated above.   (2mks)

....

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d)   Name the gland associated with the secretion of aldorsterone hormone.   (1mk)

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2.   a)   What is the economic importance of anaerobic respiration in industry.   (3mks)

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b)   Explain what happens in the two phases of aerobic respiration.   (5mks)

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3.   The diagram below shows three different types of neurons along a reflex arc.
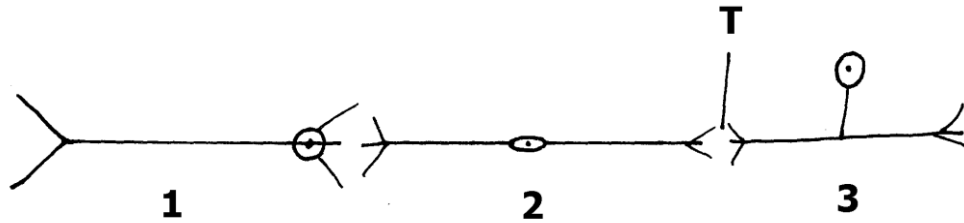
a)   Identify the Neuron labeled 1,2 and 3.   (3mks)

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....

b)   Using arrows show the direction of impulse transmission on the diagram.   (1mk)

c)   Name the part where the cell body of neurons 1 and 2 are located.   (2mks)

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d)   Describe the transmission of impulses across the part labeled T.

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4.   In an experiment, a variety of garden peas have a smooth seed coat was crossed with a variety with a wrinkled seed coat. All the seeds obtained in the F_1, had a smooth seed coat

The F_1 generation was selfed. The total number of F_2 generation was 7324.

a)   Using appropriate letter symbols in a punnet square, work out the genotypes of the F1 generation.   (4mks)

b)   From the information above, work out the following for the F_2 generation

(i)   Genotypic ratio   (2mks)

....

....

....

....

(ii)   Phenotypic ratio   (1mk)

....

....

....

(iii)   Wrinkled number   (1mk)

....

....

5.   The diagram below illustrate the first stage in the energy flow in the ecosystem
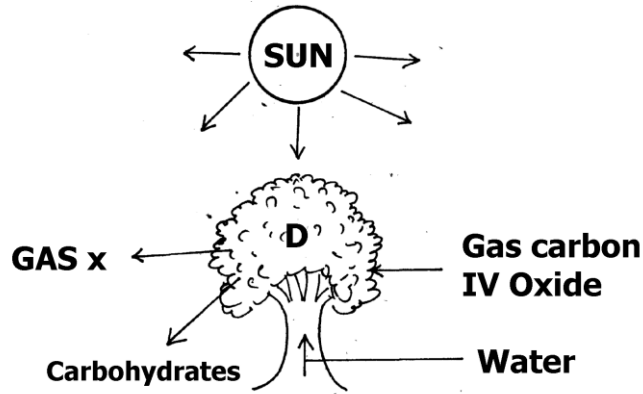
a)   Identify (i) organelles responsible for activity in D.

(i)   in D   (1mk)

....

....

(ii)   Gas X   (1mk)

....

....

b)   Suggest the roles played by each of the following in the process illustrated above.

i)   Light energy   (1mk)

....

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ii)   Water   (1mk)

....

....

iii)   Carbon (II) oxide   (1mk)

....

....

c)   Give three ways in which the carbohydrates produced in the organelles at D is utilized in the

plants.   (3mks)

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SECTION B: 40 MARKS

6.   The following data are results from an observation and measurement of daily growth in an

organism over a period of 24 days of its development

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DAY	WIDTH OF HEAD	LENGHT
	Mm	Femur (mm)
1	3.0	7.0
2	3.5	7.5
3	4.0	8.0
4	4.0	8.0
5	4.0	8.0
6	4.0	9.2
7	4.0	10.5
8	4.0	12.0
9	4.7	12.0
10	5.0	12.0
11	5.0	12.0
12	5.0	12.0
13	5.0	12.0
14	5.0	12.0
15	5.0	13.3
16	5.0	14.8
17	5.7	16.4
18	6.4	18.0
19	7.0	18.0
20	7.6	18.0
21	7.6	18.0
22	7.6	18.0
23	7.6	18.0
24.	7.6	18.0

a)Using a suitable scale draw graphs of width of head and length of femur against time on the same axis.

(8mks)

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b)

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes
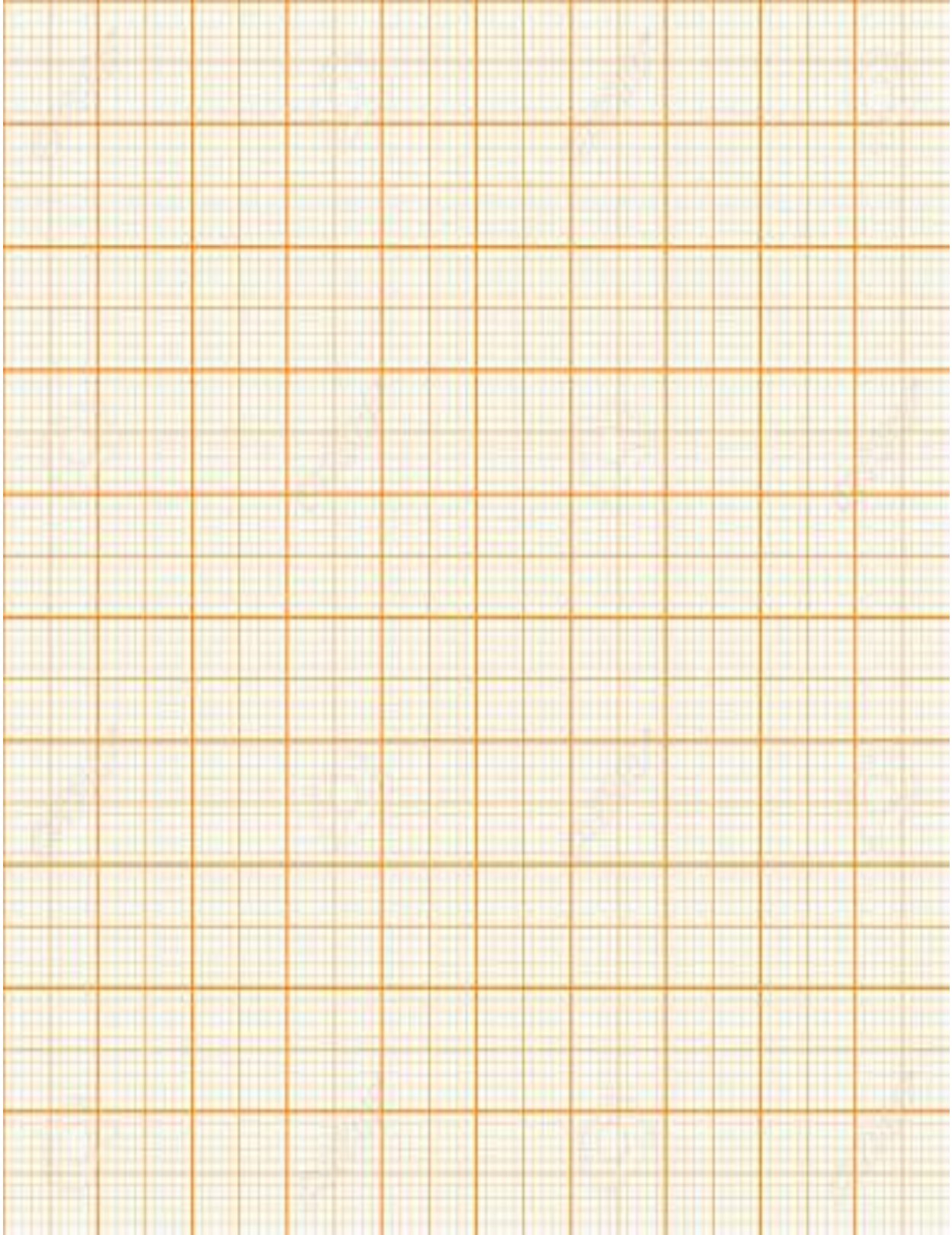
i)   Name the growth pattern represented by the graph.   (1mk)

………

……..

ii)   With reference to your graph, identify the phylum to which the organism belongs.
Give reasons for your answer.   (2mks)

………

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………

c)   Account for the length of hind femur between

(i)   day 3 and day 7   (2mks)

………..

………..

………

(ii)   day 7 and day 10   (2mks)

………

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………

d)   State two hormones involved in the growth pattern represented by the graphs . (2mks)

………

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………

e)   State two advantages of metamorphosis in organisms.   (2mks)

………

………

………

7.   Explain how the various activities of man have caused air pollution.   (20mks)

8.   a)   What are enzymes?   (2mks)

       b)   State the properties of enzymes   (6mks)

       c)   Discuss the factors that affect the rate of enzyme – catalysed reactions   (12mks)

Name ………………………………………………………………..………….

Index No…………………….……………. School …………...……………………...

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

231/3 BIOLOGY

PAPER 3 (PRACTICAL)

JULY / AUGUST 2020

TIME: 1³/₄ HOURS

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 3

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided

2. Answer **ALL** the questions in spaces provided.

3. You are required to spend the first 15 minutes of the 1³/₄ allowed for this paper reading the whole paper carefully before commencing your work.

FOR EXAMINER'S USE ONLY

Question	Max. Score	Candidate's score
1	13	
2	13	
3	14	
TOTAL SCORE	**40**	

This paper consists of 5 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

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1. X_1 and X_2 are diagrams of bones from the mammalian skeleton
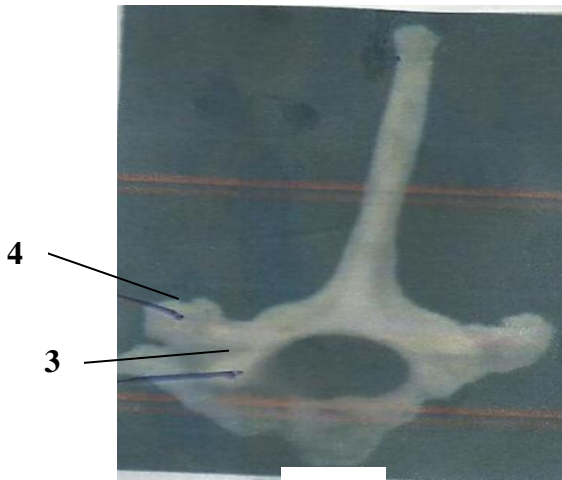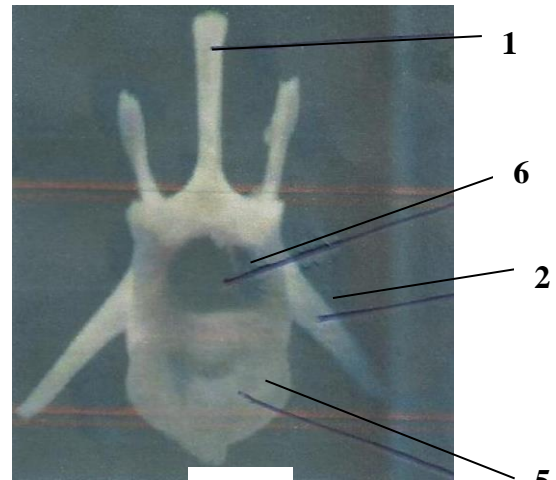
X_1 X_2

a) Identify X_1 and X_2.   (2Marks)

....

....

....

b) Name the parts labeled 1, 2, 5 and 6.   (4 Marks)

....

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c) State the functions of the parts labeled 1, 5 and 6.   (3 Marks)

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d) Name the type of joints formed at 3 and 5. (2 Marks)

At 3 ....

At 5 ....

e) i) Name the bone that articulates with X1 at 3. (1 Mark)

....

....

ii) Name the structure that articulates with X2 at 5. (1 Mark)

....

....

2. label 4(four) test tubes J, K, L and M. measure 5ml of the hydrogen peroxide provided and place in each test tube. Peel the potato provided and obtain three cubes of about 1cm^3.Grind one of the cubes and add water and boil the mixture for five minutes. Place it in tube J. Grind another cube and place it in tube J. Grind another cube and place it in tube K. Place the remaining cube inside tube L. Cut about 1cm^3 of specimen N. Grind it and place it in tube M.

a) (i) Compare the observations made in tube J and K.

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(ii) Account for your answer in (i) above. (2 Marks)

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b)   (i) Compare the observations made in tube K and tube L.   (2 Marks)

....

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....

(ii) Account for your observations in b(i) above.   (2 Marks)

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c)   (i) Compare the observations made in tube K and tube M.   (2 Marks)

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(ii) Account for your observations made in C (i) above. (2 Marks)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

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d) Write a word equation for the reaction taking place in tube M. (1 Mark)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

………………………………………………………………………………………………

3. Observe specimen Z_1 and Z_2.

a) (i) What type of fruit is Z_1. (1 Mark)

……………………………………………………………………………………………………

………………………………………………………………………………………………

(ii) Give **two** reasons for your answer. (2 Marks)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

………………………………………………………………………………………………

b) (i)Make a transverse section of Z_1. (6 Marks)

Draw and label.

(ii) Name the type of placentation in Z_1. (1 Mark)

....

....

c) Obtain the juice from Z_1 by grinding the fleshy part. Add 5ml of distilled water. Using the reagents provided test for various food substances. Complete the table below. (4 Marks)

FOOD	PROCEDURE	OBSERVATION	DEDUCTION

d) Observe specimen Z_2.

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i)   State the mode of dispersal of Z_2.   (1 Mark)

……………………………………………………………………………………

………………………………………………………………………………

ii)   Give **two** adaptations of Z_2 to its mode of dispersal.   (2 Marks)

……………………………………………………………………………………

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Name …………………………………………………………..……………………………………….

Index No……………….……………….   **School** …………………………………...

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

233/1

CHEMISTRY PAPER 1

JULY / AUGUST 2020

(THEORY)

TIME: 2 HOURS

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

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

INSTRUCTIONS

1. Write your name and index no. in the spaces provided above.
2. Answer **ALL** the questions in the spaces provided
3. Mathematical tables and Electronic calculators may be used.
4. All working **MUST** be clearly shown where necessary.

FOR EXAMINERS USE ONLY

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1 - 31	80 Marks	

This paper consists of 9 printed pages. Candidates should check to ensure that all pages are

printed as indicated and no questions are missing.

1. The atomic number of sulphur is 16. Write the electron arrangement of sulphur in the following: (2 Marks)

   (a) H_2S;

   ....

   ....

   (b) SO_3^{2-};

   ....

   ....

2. State **one** use of sodium hydrogen carbonate. (1 Mark)

   ....

   ....

3. Calcium oxide can be used to dry ammonia gas.

   (a) Explain why calcium oxide is not used to dry hydrogen chloride gas. (2 Marks)

   ....

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   ....

   (b) Name **one** drying agent for hydrogen chloride gas. (1 Mark)

   ....

   ....

4. Using dots (•) and crosses (x) to represent electrons, show bonding in the compounds formed when the following elements react: (Si=14, Na=11, Cl=17).

   (a) Sodium and chlorine.   (1 Mark)

   ....

   ....

   (b) Silicon and chlorine.   (1 Mark)

   ....

   ....

5. Zinc oxide reacts with acids and alkalis.

   (a) Write the equation for the reaction between zinc oxide and:

   (i)   Dilute sulphuric acid.   (1 Mark)

   ....

   ....

   (ii)   Sodium hydroxide solution.   (1 Mark)

   ....

   ....

   (b) What property of zinc is shown by the reactions in (a) above? (1 Mark)

   ....

   ....

6. Determine the oxidation state of sulphur in the following compounds.   (2 Marks)

   (a) H_2S

   ....

   ....

   ....

(b) $Na_2S_2O_3$

....

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....

7. A certain carbonate XCO_3, reacts with dilute hydrochloric acid according to the equation given below:

$$XCO_{3(s)} + 2HCl_{(aq)} \longrightarrow XCl_{2(aq)} + CO_{2(g)} + H_2O_{(l)}$$
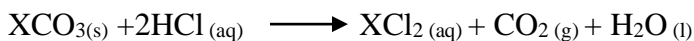
If 4g of the carbonate reacts completely with $40cm^3$ of 2M hydrochloric acid, calculate the relative atomic mass of X. (C=12.0 ,O=16.0, Cl=35.5).   (3 Marks)

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8. (a) Distinguish between a deliquescent and a inflorescent substance.   (2 Marks)

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(b) Give **one** use of hygroscopic substances in the laboratory.   (1 Mark)

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....

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9. (a) What is meant by the terms: (2 Marks)

   (i)   Isotopes

   ....

   ....

   ....

   (ii) Mass number

   ....

   ....

   ....

   (b) The formulae for a chloride of phosphorus is PCl_3. What is the formula of its sulphide?

   .   (1 Mark)

   ....

   ....

10. What is the name given to each of the following:

   (a) Ability of a metal to be made into a sheet;   (1 Mark)

   ....

   ....

   (b) Minimum energy required for a chemical reaction to start;   (1 Mark)

   ....

   ....

   (c) Type of force that holds molecules of argon together?   (1 Mark)

   ....

   ....

11. Draw the structures and give the names of three alkanes having molecular formula of C_6H_{12}.

(3 Marks)

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12. A beaker contained $95.0cm^3$ of aqueous copper (ii) sulphate at 43.7^0C. When a scrap iron metal was added to the solution, the temperature rose to 49.6^0C.

(a) Write an ionic equation for the reaction that took place. (1 Mark)

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(b) Given that the mass of copper deposited was 5.83g, calculate the molar enthalpy change in $KJmole^{-1}$. (Specific heat capacity of solution $= 4.2Jg^{-1}k^{-1}$, density of solution $= 1.0gcm^{-3}$, Cu=63.5). (2 Marks)

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13.

$$nH - \overset{\overset{\textstyle H}{|}}{N} - (CH_2)_6 - \overset{\overset{\textstyle H}{|}}{N} - H + nHO - \overset{\overset{\textstyle O}{||}}{C} - (CH_2)_4 - \overset{\overset{\textstyle O}{||}}{C} - OH \xrightarrow{Marking} Compound\ K + 2nH_2O$$
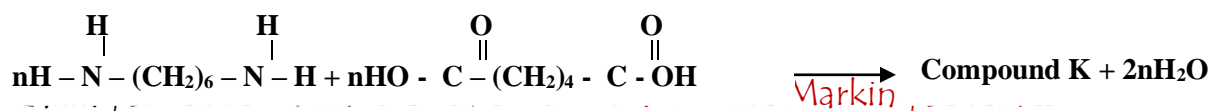
14.

a) Draw the structure of compound K formed in the following reaction.   (1 Mark)

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b) Give **one** use of compound K.   (1 Mark)

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15. a) What is meant by allotropy?   (1 Mark)

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b) The diagram below shows the structure of one allotropes of carbon.
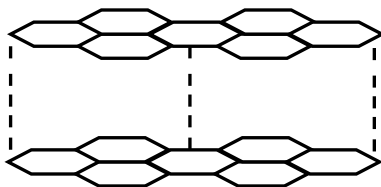
(i) Identify the allotrope   (½ Mark)

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(ii) State **one** property of the above allotrope and explain how it is related to its structure.

(1½Mark)

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16. Pentane and ethanol are miscible. Describe how water can be used to separate a mixture of pentane and ethanol. (3 Marks)

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17. In the redox reaction below:

$2H^+_{(aq)} + Cr_2O_7^{2-}_{(aq)} + 3SO_{2(g)} \longrightarrow Cr^{3+}_{(aq)} + 3SO_4^{2-}_{(aq)} + H_2O_{(aq)}$
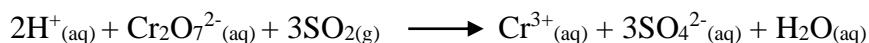
Identify the reducing agent, explain your answer. (2 Marks)

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18. $60cm^3$ of oxygen gas diffused through a porous hole in 50seconds. How long will it take $80cm^3$ of sulphur(iv)oxide to diffuse through the same hole under the same conditions (S=32.0 , O=16). (3 Marks)

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19. Calculate the heat of formation of propane from the following data.   (2 Marks)

$C_{(s)} + O_{2(g)} \longrightarrow CO_{2(g)}$, $\Delta H = -406 KJmol^{-1}$

$H_{2(g)} + \frac{1}{2} O_{2(g)} \longrightarrow H_2O_{(l)}$, $\Delta H = -286 KJmol^{-1}$

$C_3H_{8(g)} + 5O_{2(g)} \longrightarrow 3CO_{2(g)} + 4H_2O_{(l)}$, $\Delta H = -2209 KJmol^{-1}$

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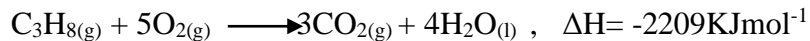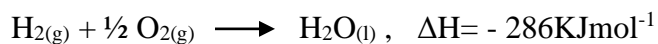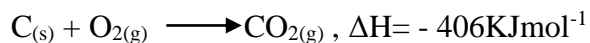
20. a) Find the value of A and B in the following equation.   (1 Mark)

$$^{234}_{90}X \longrightarrow ^{A}_{B}Y + -1e^{-}$$

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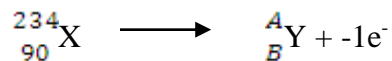
b) A certain radioactive element has a half-life of 6000 years. How long did it take to decay until only 25% of the original amount remained?   (2 Marks)

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21. a) Differentiate between thermosoftening and thermosetting plastics.   (1 Mark)

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b) In the test for the chloride was in solution, a littler nitric acid is added followed by silver nitrate solution. Why is nitric acid added?   (1 Mark)

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22. The structure of ethanoic acid is:
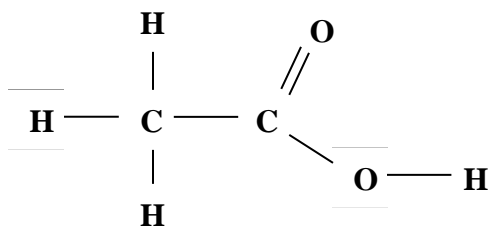
What is the total number of electrons used for bonding in a molecule of ethanoic acid? Give reasons.   (2 Marks)

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23. When a few drops of aqueous ammonia were added to copper(ii) nitrate solution, a light blue precipitate was formed. On addition of more aqueous ammonia, a deep blue solution was formed.

Identify the substance responsible for the:

(a) Light blue precipitate (1 Mark)

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(b) Deep blue solution (1 Mark)

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24. When a current of 0.82A was passed for 5 hours through an aqueous solution of metal Z, 2.65g of the metal was deposited. Determine the charge on the ions of metal Z. (1 faraday=96500coulombs; relative atomic mass of Z=52). (3 Marks)

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25. The standard reduction potentials of two half cells are:

$Ag^+_{(aq)} + e^- \longrightarrow Ag_{(s)}$; $E^i = 0.86V$

$2H_2O_{(l)} + 2e^- \longrightarrow H_{2(g)} + 2OH^-_{(aq)}$; $E^i = 0.89V$.
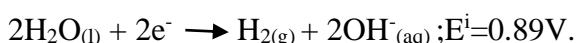
(i)   Calculate the e.m.f of the cell formed by the above two half-cells (1 Mark)

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(ii)   Draw a labelled diagram of an electrochemical cell that can be constructed using the two half-cells.   (3 Marks)

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26. The ionisation energies for three elements X, Y, and Z are shown in the table below:

Element	X	Y	Z
Ionisation energy (KJ/mole)	419	318	394

(a) What is meant by ionisation energy?   (1 Mark)

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(b) Which element is the strongest reducing agent? Give a reason.   (2 Marks)

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27. a) What condition is necessary for an equilibrium to be established? (1 Mark)

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b) When calcium carbonate is heated, the equilibrium shown below is established

$CaCO_{3(s)} \rightleftharpoons CaO_{(s)} + CO_{2(g)}$
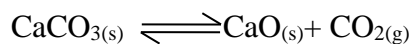
How would the position of the equilibrium be affected if a small amount of dilute potassium hydroxide is added to the equilibrium mixture? Explain. (2 Marks)

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28. Some animal and vegetable oils are used to make margarine and soap. Give reagents and conditions necessary for converting oils into:

(a) Margarine (2 Marks)

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(b) Soap (1 Mark)

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29. Classify the following processes as either chemical or physical.   (3 Marks)

Process	Type of change
(a) Souring of milk	
(b) Obtaining butane from crude oil	
(c) Heating copper(ii)sulphate crystals	

30. A sample of fertiliser is suspected to be calcium ammonium nitrate. Describe chemical tests for each of the following ions in the sample.

(a) Calcium ions   (2 Marks)

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(b) Ammonium ions   (1 Mark)

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31. State the **two** ions that cause hardness in water.   (1 Mark)

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32. The diagram below represents an incomplete paper chromatogram of pure dyes X, Y, Z and mixture W.
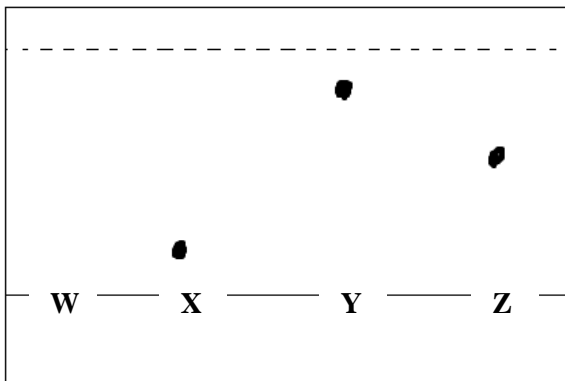
Mixture W contains dyes Y and Z only. Complete the chromatogram to show how mixture W separates. (2 Marks)

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Name ……………………………………………………..………………………………….

Index No………………….……… School ……………………………………...

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

233/2 CHEMISTRY

PAPER 2 (THEORY)

JULY / AUGUST 2020

TIME: 2 HOURS

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS:
- Write your name and index number in spaces provided above
- Answer **ALL** the questions in the spaces provided
- Mathematical tables and electronic calculators may be used
- All working must be clearly shown where necessary.
- This paper consists of 12 printed pages.

FOR EXAMINERS USE ONLY

Question	Maximum Score	Candidates score
1	10	
2	7	
3	7 ½	
4	14	
5	6 ½	
6	5	
7	3	
8	7	
9	6 ½	
10	9 ½	
11	4	
TOTAL SCORE	**80**	

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1. The table below gives information on four elements by letters A, B, C and D. Study it and answer the questions that follow. The letters do not represent the actual symbols of the elements.

Element	Electronic arrangement	Atomic radius (nm)	Ionic radius (nm)
A	2.8.2	0.136	0.065
B	2.8.7	0.099	0.181
C	2.8.8.1	0.203	0.133
D	2.8.8.2	0.174	0.099

(a) Which **two** elements have two similar chemical properties? Explain.   (2 Marks)

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(b) What is the most likely formula of the oxide of B?   (½ Mark)

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(c) Which element is a non-metal?   (1 Mark)

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(d) Which one of the elements is the strongest ?
   (i)   Reducing agent?   (1 Mark)

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   ....Oxidisi

   ng agent?   (1 Mark)

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(e) Explain why ionic radius of D is less than that of C. (1 Mark)

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(f) Explain why the ionic radius of B is bigger than its atomic radius. (1 Mark)

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(g) Give the chemical family to which the element.
   (i) A and D belong (½ Mark)

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   (ii) B belong (½ Mark)

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   (iii)C belong (½ Mark)

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(h) State any **two** uses of element B. (1 Mark)

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2. Study the diagram below and answer the questions that follow.
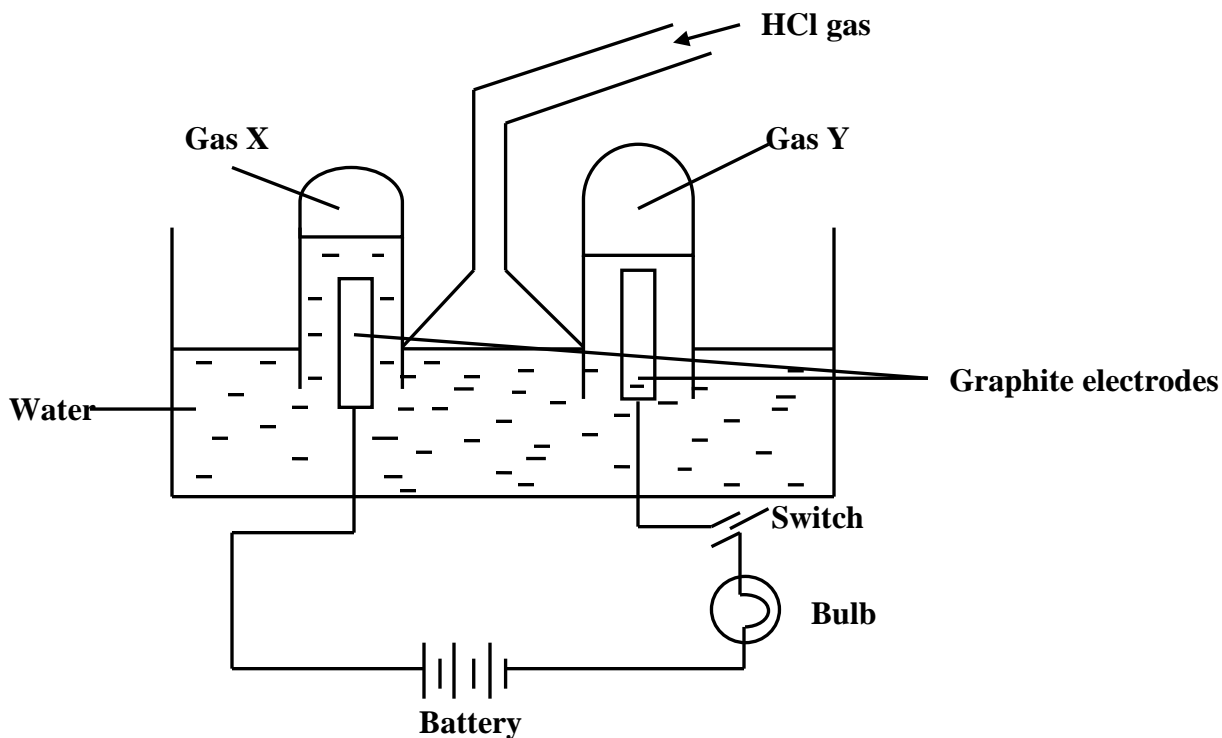
When some hydrogen gas is allowed into the water and the mixture stirred the bulb lights up and gases X and Y are formed.

(a) Name gas X... (½ Mark)

    gas Y... (½ Mark)

(b) Write the chemical equations of how each of the gases is formed.
    Gas X   (1 Mark)

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    Gas Y   (1 Mark)

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(c) State any **two** uses of gas X. (1 Mark)

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(d) Explain why the bulb does not light before the hydrogen chloride gas is let into water. (1 Mark)

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(e) Explain using equations why the volume of gas X is less than that of gas Y. (2 Marks)

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3. The extraction of aluminium from its ore takes place in two stages, purification stage and electrolysis stage. The diagram below shows the set up for the electrolysis stage.

Molten

Aluminium liquid

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes
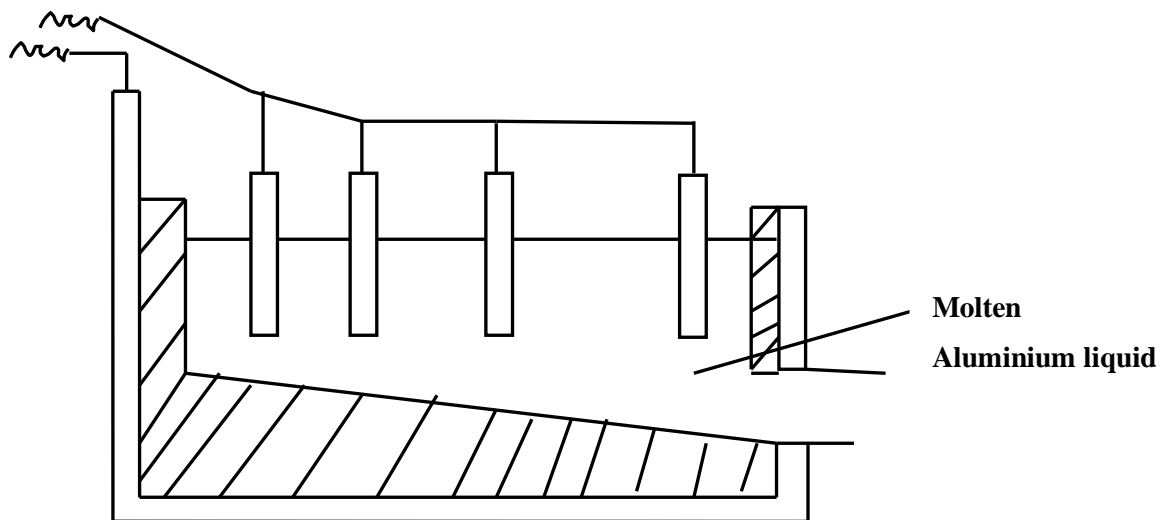
(a) Name the ore from which aluminium is extracted.   (½ Mark)

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(b) Name **one** impurity which is removed at purification stage.   (½ Mark)

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(c) Label on the diagram each of the following:

Anode   (½ Mark)

Cathode   (½ Mark)

Region containing the electrolyte   (½ Mark)

(d) The melting point of aluminium oxide is 2054^0C but electrolysis is done between 800^0C - 900^0C.

    (i) Why is the electrolysis not carried out at 2054^0C.?   (1 Mark)

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    (ii) What is done to lower the temperature of the electrolysis cell from 800^0C - 900^0C?
(1 Mark)

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    (iii)The aluminium which is produced is tapped off as liquid. What does this imply about its melting point?   (1 Mark)

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(e) A typical electrolysis cell uses a current of 40000 ampheres. Calculate the mass (in kilograms) of aluminium produced in one hour. (2 Marks)

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4. The table below gives the volume of the gas provided when different volumes of 2M hydrochloric acid were reacted with 0.6g of magnesium powder at room temperature.

Volume of 2M hydrochloric acid (cm^3)	Volume of gas (cm^3)
0	0
10	240
20	480
30	600
40	600
50	600

(a) Write an equation for the reaction between magnesium and hydrochloric acid, (1 Mark)

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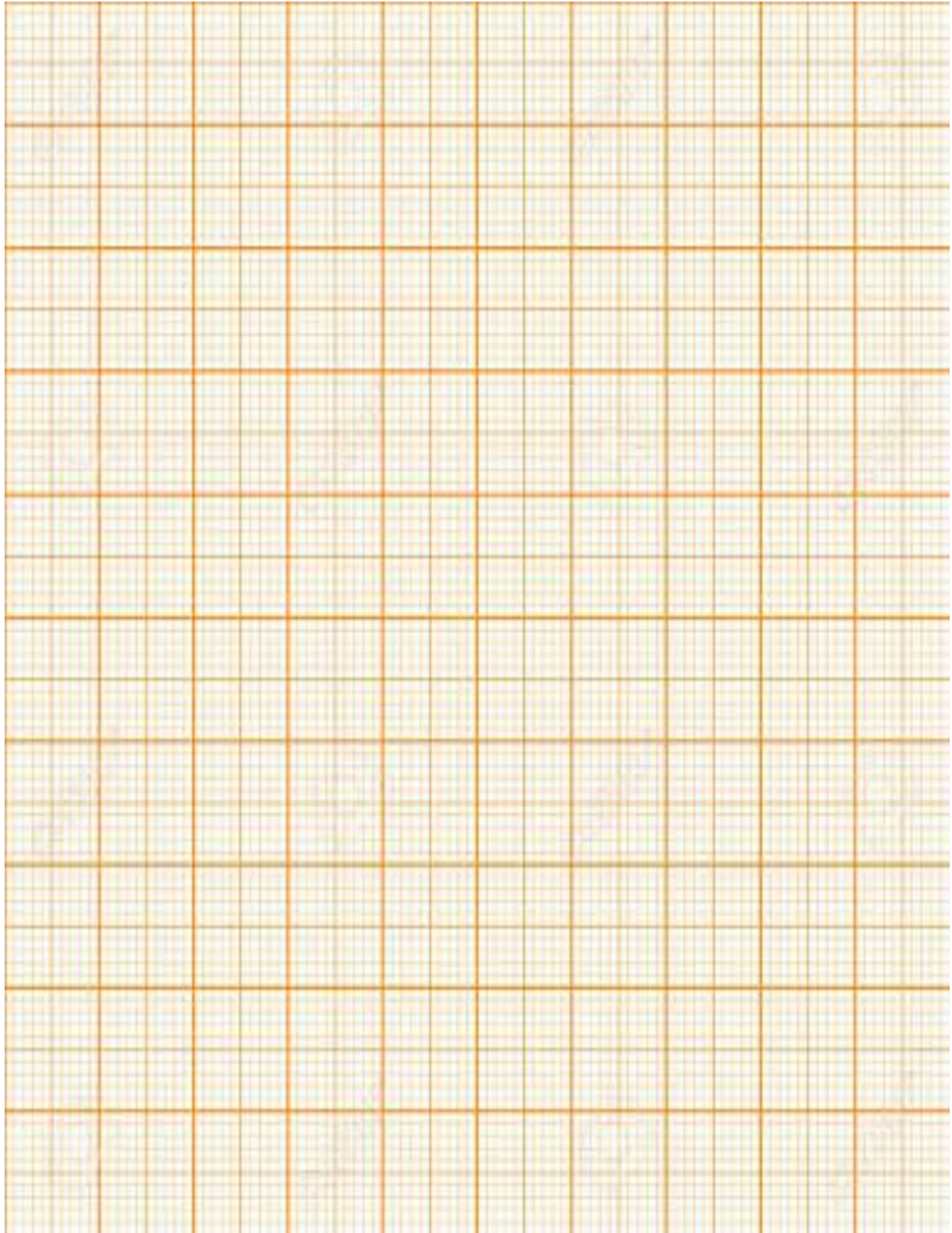
(b) On the grid provided, plot a graph of the volume of gas produced (vertical axis) against the volume of acid added (note the reaction comes to completion, the volume of the gas produced directly proportional to the volume of the acid added). (3 Marks)

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(c) From the graph determine:
   (i) The volume of the gas produced if $12.5cm^3$ of 2M hydrochloric acid had been used. (1 Mark)

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   (ii) The volume of 2M hydrochloric acid which when reacted completely with 0.6g of magnesium powder. (1 Mark)

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(d) On the same graph paper sketch the curve of the reaction when reacted with,
   (i) 0.6 g of magnesium ribbon were used instead of magnesium powder with 2M hydrochloric acid. (1 Mark)

   (ii) 3M hydrochloric acid was used instead of 2M hydrochloric acid. (1 Mark)

   (iii) 0.6g of magnesium powder were used with 2M hydrochloric acid at a lower temperature than the original temperature of the 2M hydrochloric acid in the first case (1 Mark)

(e) Given that one mole of the gas occupied $24000cm^3$ at room temperature, calculate the relative atomic mass of magnesium. (2 Marks)

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(f) State and explain the effect on the rate of bubbling of the gas if :
   (i) 0.6g of Magnesium ribbon was used instead of magnesium powder. (1 Mark)

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(ii) 3M hydrochloric acid was used instead of 2M hydrochloric acid. (1 Mark)

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(iii) When 0.6g of magnesium powder is used 2M hydrochloric acid at a lower temperature instead of the temperature of the initial experiment. (1 Mark)

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5. Petrol (octane) a long hydrocarbon alkane can be converted to ethene and hydrogen gas mixtures as follows:

$$C_8H_{18(l)} \longrightarrow 4C_2H_{4(g)} + H_{2(g)}$$

Octane   ethene   hydrogen
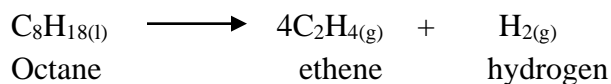
(a) (i) What do we call the process by which the products are obtained from octane? (½ Mark)

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(ii) Give **two** conditions needed in this reaction. (1 Mark)

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(b) Unleaded fuel is now widely used and has to be used in modern cars fitted with catalytic converters.

    (i) State the merits of unleaded petrol over 'leaded' petrol.   (1 Mark)

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    (ii) What is the role of the catalytic converter?   (1 Mark)

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    (iii) Why wouldn't the converters work with leaded petrol?   (1 Mark)

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    (iv) List **four** air pollutants produced by leaded petrol fuel used in automobile engines or any other petrol propelled engine.   (2 Mark)

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6. A natural element represented by letter Y has two types of atoms. The composition of the particles is as summarised below:

Type of atom	Nucleons present	% composition
$^{63}_{29}Y$	29, 34	69.1
$^{65}_{29}Y$	29, _____	30.9

(a) Complete the missing number. (½ Mark)

(b) What is the name assigned to these two types of atoms? (½ Mark)

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(c) Which atom has the least percentage of abundance? (½ Mark)

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(d) Calculate the relative atomic mass of Y. (2 Marks)

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(e) Explain what is made by nuclear particles giving examples where possible.
(1½Marks)

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7. a) State graham's law of gas diffusion. (1 Mark)

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b) $60cm^3$ of oxygen gas diffuses through a porous plug in 50 seconds. How long would it take $60cm^3$ of sulphur (iv) oxide gas to diffuse through the same plug under the same condition? (S=32, O=16). (2 Marks)

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8. Below is a list of potential differences obtained when metals X, Y, Z, K and L are used in the following electrochemical cell.
    Metal(s)/metal ion (aq)//copper(ii)ions/copper.

Metal	E^{θ} (volts)
X(Valence 2)	-1.10
Y	-0.46
Z	0.00
K	+0.45
L(Valence 2)	+1.16

(a) What is metal Z? Explain. (1 Mark)

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(b) Which **two** of the above metals in an electrochemical cell would produce the largest electromotive force across the cell? What is this electromotive force? (2 Marks)

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(c) Write the cell equation of the pair of metals that will produce the largest potential difference. (1 Mark)

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(d) Write the cell equation of the pair of metals that will produce the largest negative potential difference. Determine this voltage. (3 Marks)

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9. a) A mass of 56g a saturated solution of salt X at 25^0C yield 14g of the solid when evaporated to dryness. What is the solubility of the salt at 25^0C. (2 Marks)

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b) Bromine reacts with hydrogen to form hydrogen bromide gas as shown below:

$$H_{2(g)} + Br_{2(g)} \longrightarrow 2HBr_{(g)} \quad \Delta H = -128Kj$$

    (i) Determine the molar heat of the above reaction.   (1 Mark)

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    (ii) Write the equation for the above case that show the molar heat of formation of hydrogen bromide gas.   (½ Mark)

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c) State and explain the effect of the following on the equilibrium of the reaction indicated below.

$$H_{2(g)} + Cl_{2(g)} \rightleftharpoons 2HCl_{(g)} \quad \Delta H = -108KJ.$$
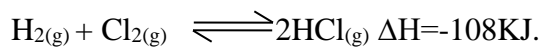
    (i) Increase in pressure.   (1 Mark)

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    (ii) Increase in temperature.   (1 Mark)

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    (iii)Removal of chlorine gas.   (1 Mark)

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10. a) A sample of mass of X grammes of a radioactive isotope decays to 50 grammes in 100 days. The half life of the isotope is 25days. Calculate the initial mass of the isotope X.

(2 Marks)

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Study the scheme given below and answer the questions that follow;
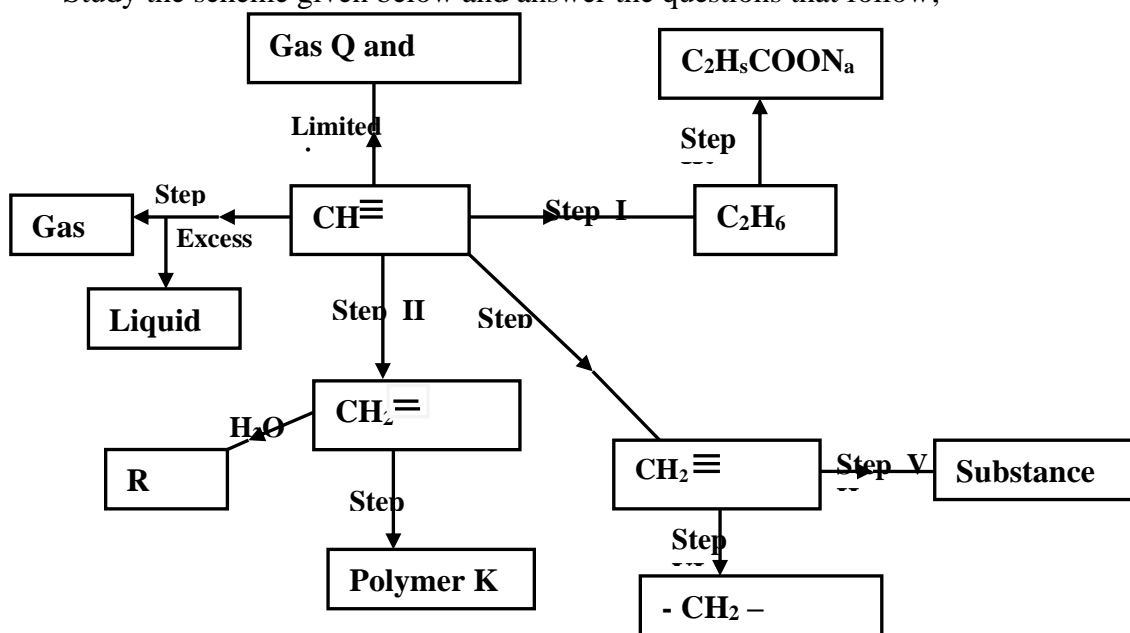
b) Name the reagents used in:

Step I.. (½ Mark)

Step II... (½ Mark)

Step III..(½ Mark)

Step IV..(½ Mark)

Step VII... (½ Mark)

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c) Identify substance:

L .... (½ Mark)

P .... (½ Mark)

Q .... (½ Mark)

N .... (½ Mark)

K .... (½ Mark)

R .... (½ Mark)

d) Draw structural formula for the following substances

R (½ Mark)

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K (½ Mark)

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N (½ Mark)

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e) State **one** disadvantage of continued use of substance K. (½ Mark)

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11. a) 0.1mole of sodium chloride was dissolved in $100cm^3$ of water. Calculate the concentration of this aqueous solution in grams per dm^3 (Na=23, Cl=35.5). (2Marks)

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b) Draw reaction cycles for the cases shown below. (2Marks)

$S_{(s)} + ½ O_{2(g)} \longrightarrow SO_{(g)}$

$SO_{(g)} + ½ O_{2(g)} \longrightarrow SO_{2(g)}$

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Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes
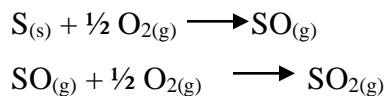
Name ……………………………………………………………..…………….

Index No…………………….……………. School ……………………………...

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

233/3
CHEMISTRY
PAPER 3
(PRACTICAL)
JULY / AUGUST
$2\frac{1}{4}$ **HOURS**

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS:
- Answer **ALL** questions in the spaces provided.
- You are **NOT** allowed to start working with the apparatus for the first 15minutes of the $2\frac{1}{4}$

  hours. Allowed for this paper. This time will enable you read through the question paper and make sure you have all the chemicals and apparatus required.
- Mathematical tables and electronic calculators may be used.
- All working **must be** clearly shown where necessary.

FOR EXAMINERS USE ONLY

Question	Maximum score	Candidate's score
1	14	
2	15	
3	11	
TOTAL SCORE	40	

This paper consists of 6 printed pages

Candidates should check to ensure that all pages are printed as indicated and no questions are missing

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

1. You are provided with,
   - A dibasic acid - Solid M (H_2X).
   - 0.1M sodium carbonate, solution N.

   You are required to:
   - Prepare a saturated solution of solid M.
   - Dilute the saturated solution of M and standardise it using solution N.
   - Determine the solubility of solid M at room temperature.

   Procedure 1

   (a)
   (i) Measure $30cm^3$ of water using a measuring cylinder and transfer it into a measuring cylinder and transfer it into a clean $250cm^3$ conical flask. Add all the solid M provided and shake it vigorously for five minutes.
   (ii) Measure and record the steady temperature of the resulting mixture.
   Temperature.. ^0C.   (1 Mark)
   (iii) Filter the mixture from (i) above using a dry filter paper and filter funnel into a clean dry conical flask.
   (iv) Measure accurately $20cm^3$ of the filtrate with a $100cm^3$ measuring cylinder. To the solution in the measuring cylinder, add distilled to make it up to $100cm^3$. Transfer this solution into a clean dry beaker, and label it solution D.
   (v) Fill the burette with solution D. Pipette $25cm^3$ of the solution N into a conical flask and add 3 drops of phenolphthalein. Titrate with solution D. Record your results in the table below.
   Repeat the titration to obtain three concordant volume.
   Table 1

	I	II	III
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Titre (cm^3)			

   (4 Marks)

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(b) i)   Calculate the average volume of solution D used.   (1 Mark)

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   ii)   Calculate the number of moles of sodium carbonate in the volume of solution N used.
                                                                                                             (1 Mark)

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   iii)   Calculate the number of moles of acid in solution D which reacted with the sodium
              carbonate, solution D.   (2 Marks)

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   iv)   Calculate the number of moles of acid in $100cm^3$ of solution D.   (1 Mark)

....

....

....

   v)   Calculate the molarity of the saturated solution of M.   (2 Marks)

....

....

....

....

   vi)   Calculate solubility of solid M (relative molecular mass = 118).   (1 Mark)

....

....

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....

....

vii)   Write a balanced chemical equation of the reaction taking place in procedure 1 above.

(1 Mark)

....

....

....

viii)   Write an ionic equation of the chemical reaction taking place in (vii) above.

(1 Mark)

....

....

2. You are provided with;
    -   Solution A – 1M solution of a strong acid.
    -   Solution B – 1M solution of sodium hydroxide.
    You are required to:
    -   Determine the basicity of the strong acid solution A.
    -   Find the heat of neutralisation of sodium hydroxide, solution B.

Procedure 2

(a) Using a 50ml measuring cylinder measure 40cm^3 of solution A into a 100ml plastic beaker. Measure and record the steady temperature T_1 of the solution in **table II** below. With a clean 10ml measuring cylinder measure 5cm^3 of solution B. Pour this solution into the 100ml beaker containing 40cm^3 of solution   A. Stirring gently with a thermometer, measure the highest temperature T_2 of the mixture, record this in **table II** below. Rinse the measuring cylinders, thermometer and 100ml plastic beaker. Repeat the procedure above using the volumes of solution A and B indicated in the **table II** and hence complete the table. Remember to rinse the apparatus after each experiment.

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Table II

Experiment number	1	2	3	4	5	6	7	8
Volume of solution A (cm^3)	40	35	30	25	20	15	10	5
Volume of solution B (cm^3)	5	10	15	20	25	30	35	40
Initial temperature $T_1{}^0C$								
Final temperature $T_2{}^0C$								
Temperature change $\Delta T{}^0C$								

(4 Marks)

(a) Plot a graph of ΔT against the volume of solution used. (3 Marks)

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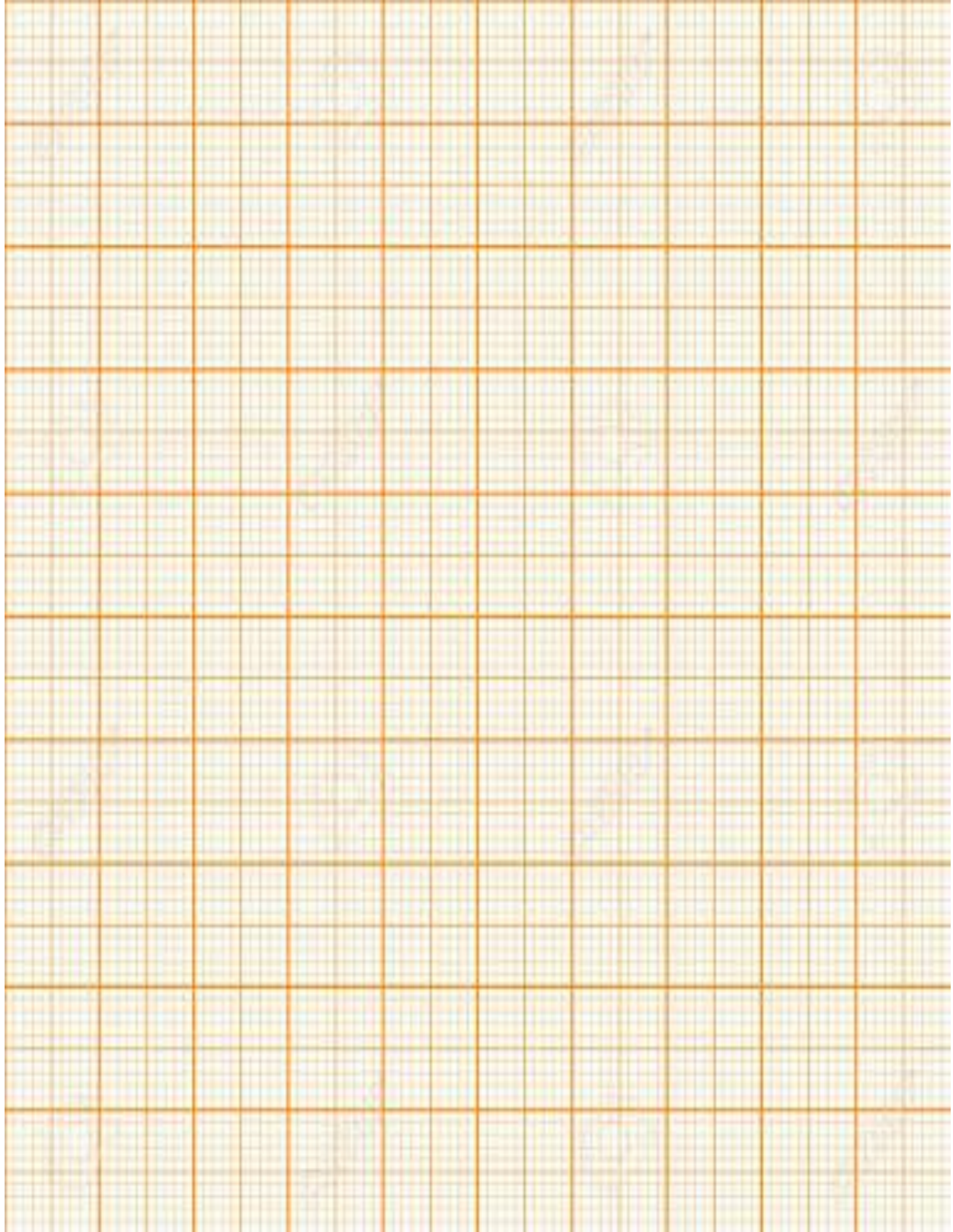
(b) i) What is the maximum rise in temperature?   (1 Mark)

....

....

ii) Using information from the graph, calculate the number of moles of acid in solution A needed to produce the temperature change above?   (2 Marks)

....

....

....

....

iii) From the graph, determine the number of molecules of sodium hydroxide needed for complete neutralization of the acid.   (2 Marks)

....

....

....

....

iv) Calculate the number of moles of H^+ per mole of acid (i.e. basicity).(1 Mark)

....

....

....

....

c) Using your experimental results, calculate the molar heat of neutralisation of sodium hydroxide (specific heat capacity of water = 4.2 $Jg^{-1}k^{-1}$).   (2 Marks)

....

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....

3. You are provided with solid X carry out the tests below using the solid. Identify any gas(s) produced during the tests. Record your observations and inferences in the spaces provided in the table.

(a) Describe the appearance of solid X.   (½ Mark)

....

....

....

(b) Place a spatula end full of solid X into a clean boiling tube. Add about $10cm^3$ of distilled water, shake well to dissolve. Divide the resulting solution into 4 equal portions for use in tests C(i) to (iv) below.

Observations	Inferences
(½ mark)	(½ mark)

(c) i)   To the first portion of solution of solid X add dilute 1M sodium hydroxide solution dropwise until in excess.

Observations	Inferences
(1 mark)	(1 mark)

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ii) To the second portion 1M aqueous ammonia solution dropwise until in excess.

Observations	Inferences
(1 mark)	(1 mark)

iii) To the third portion add 2 – 4 drops of sodium sulphate or dilute sulphuric(vi) acid solution.

Observations	Inferences
(½ mark)	(1 mark)

iv) To the fourth portion add 2 – 3 drops of sodium chloride (or dilute hydrochloric acid) solution.

Observations	Inferences
(½ mark)	(½ mark)

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(d) Place another half spatula end full of solid X into a clean dry hard test-tube. Heat it gently until there is no further change. Test for the gas(s) evolved using both wet blue and red litmus papers separately and a glowing a splint.

Observations	Inferences
(2 marks)	(1 mark)

Name _____ **Index No**_____

Candidate's Signature_____ **Date:** _____

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2020 TOP EXAMINERS' MOCK SERIES 2

COMPUTER STUDIES

Paper 1 (Theory)

July/August **2 ½ hours**

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)   This paper consists of **TWO** sections: **A** and **B**.

    d)   Answer **ALL** the questions in section **A**.

    e)   Answer question **16** and any other **THREE** questions from Section **B**.

    f)   **ALL** answers should be written in the spaces provided on the question paper.

    g)   *This paper consists of 15 printed pages*

    h)   *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	Questions	Score
A	1 – 15	
B	16	
	17	
	18	
	19	
	20	
Total Score		

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ANSWER ALL QUESTIONS IN THIS SECTION

1. Name any two home row keys   (2mks)

    ....

    ....

    ....

2. Define the following terms in reference to computer software's   (2mks)

    i)   Integrated software

    ....

    ....

    ii)   Proprietary software

    ....

    ....

3. Differentiate between complex instruction set computer and reduced instruction set computer

                                                                                                    (2mks)

    ....

    ....

4. The table below consists of various devices and their respective IRQ numbers;

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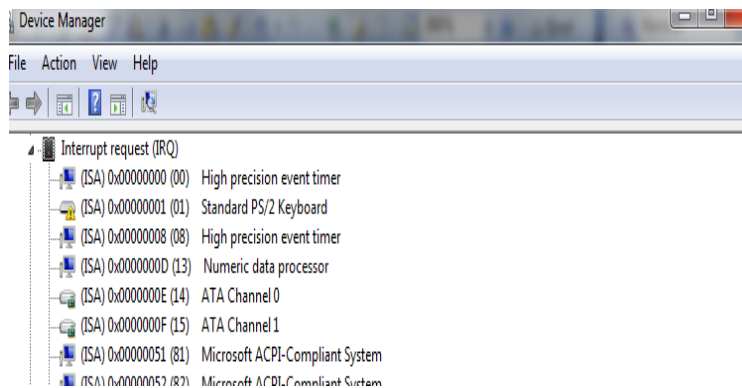
a) Explain why each device is assigned a unique IRQ number   (2mks)

………

……

b) What is likely to happen if two or more devices happen to share IRQ numbers (1mk)

………

……

5. (a).A computer has one floppy drive and one hard disk drive; assign the drives their respective drive

letters   (2mks)

    i)   Floppy drive ………………………………………………………………………………………………………

    ii)   Hard disk drive……………………………………………………………………………………………………

(b). computer I idle but the hard disk light is blinking, indicating some activities. State two possible

causes of this (2mks)

……

……

……..

6. a) Define the term blocking text as used with word processors   (1mk)

………

……..

b)   Differentiate between footnotes and end notes   (2mks)

……

……

……

……

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c)   Differentiate between orphan and window as used in word processing (2mks)

………

………

………

………

7. a) Explain how the following data can be entered on MS-excel worksheet   (2mk)

07257254325
0721456789

………

………

………

b) Name the automatic alignment of labels when entered on Ms-excel worksheet (2mks)

………

……

8. What do you understand by the term layering as used in DTP   (1mk)

………

……

b) What is the importance of layering?   (1mk)

………

……

9. Differentiate between data security and data control   (2mks)

………

………

………..

10. The first column in the table below contains the formulae as stored in to the cell F10 of a

spreadsheet.   Enter the formulae as they would appear when copied to cell M20 of the same

spreadsheet.   (3mks)

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Formula in F10	Formula in M20
= D10*E10	
= A$25	
= D13	

11. Explain the following terms as used in program implementation.   (2 marks)

(i) Parallel running

………

………

………..

ii) Direct change over

………

………

……

12. State the stage of system development in which: (3mks)

(i)   A flowchart would be drawn

………

……..

(ii)   The programmer would check whether the program does as required

……

……….

(iii)   The user guide would be written

……

……….

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13. Simulation is one of the application areas of computers,

    (ii)   What is meant by the term simulation?   (1mk)

    ………

    ………

    …….

    (ii)   Name **two** application areas of simulation.   (1mk)

    ………

    ………

    ……

14. a) Distinguish between Boundary and Environment in system development   (2mks)

    ………

    ……

    b) What do you understand by the term **prototyping?**   (1mk)

    ………

    ………

    ……

15. What is the importance of OSI model?   (1mk)

    ………

    ………

    ……

ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS

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16. a) In a computer contest with 30 entries, three papers are tested and the final marks graded

according to the average of the papers.

Draw a flowchart and a pseudocode to:

- Read a student's name, school, and input the marks repeatedly for the 3 papers.
- Determine the student average mark
- Assign a grade to the student depending on the average mark as follows:

Mark		**Grade**
$80 \leq$	Mark	A
$60 \leq$	Mark < 80	B
$40 \leq$	Mark <60	C
	Mark <40	F

- Display the Students name, school Average Mark and the grade
- Repeat the above steps for all the 30 entries in the contest.

(a) Pseudocode (6mks)

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(b).Flowchart (7mks)

((iii).The following section of pseudocode algorithm should:

- Input 500 numbers

- Generate a ratio called **k**

- Output each value of **k**

- Output how many numbers were larger than 10

Total =1

FOR X=1 TO 500

IF NUMBR <10 THEN TOTAL = TOTAL +1

K=X/NUMBR

X=X+1

OUTPUT K

NEXT X

OUTPUT X

There are **five** errors in the above code. Locate **any two** errors and suggest corrections for them.   .
(**2marks**)

Error1 ……

Correction ………………………………………………..………………………………………………………………………………

Error 2 ………

Correction ……

17. a) Distinguish between logical and physical computer files.   (2mks)

……

………

   (b) (i) Define the term computer ethics.   (1mk)

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....

....

....

(ii). Give two examples to show how a person who has committed   Computer crime

can help to improve a computer system.   (2 mks)

....

....

(c). (i) Explain the term normalization as used in databases? (1mk)

....

....

....

(ii) The internet can be used to source information about emerging issues that may not be available in print form. Give two advantages and two disadvantages of information obtained from the internet.

.   (4 Marks)

....

....

....

....

....

(iii)   Outline any two controllers used to connect optical or hard drive on the

Mother board (2mk)

....

....

(iv). Differentiate between COM and LPT ports (2mks)

....

....

....

(v). List down any two tools and requirements needed during computer set up and cabling (1mk)

....

....

18. a) Outline any 2 Examples of wireless transmission media   (2mks)

....

....

....

   b) Name any **two** functions of network operating systems   (2mks)

....

....

....

   c) Study the following diagram and answer the questions that follow;

```
                                        ┌─────────────────┐
                                        │ LAN             │
                      ┌──────────────┐  └─────────────────┘
                      │ According to │  ┌─────────────────┐
                  ┌──▶│ size         │─▶│ B               │
                  │   └──────────────┘  └─────────────────┘
┌──────────────┐  │                     ┌─────────────────┐
│ Classification│─┤                   ─▶│ C               │
│ of networks  │  │                     └─────────────────┘
└──────────────┘  │   ┌──────────────┐  ┌─────────────────┐
                  └──▶│ A            │─▶│ Peer to peer    │
                      └──────────────┘  │ networks        │
                                        └─────────────────┘
                                        ┌─────────────────┐
                                      ─▶│ D               │
                                        └─────────────────┘
```
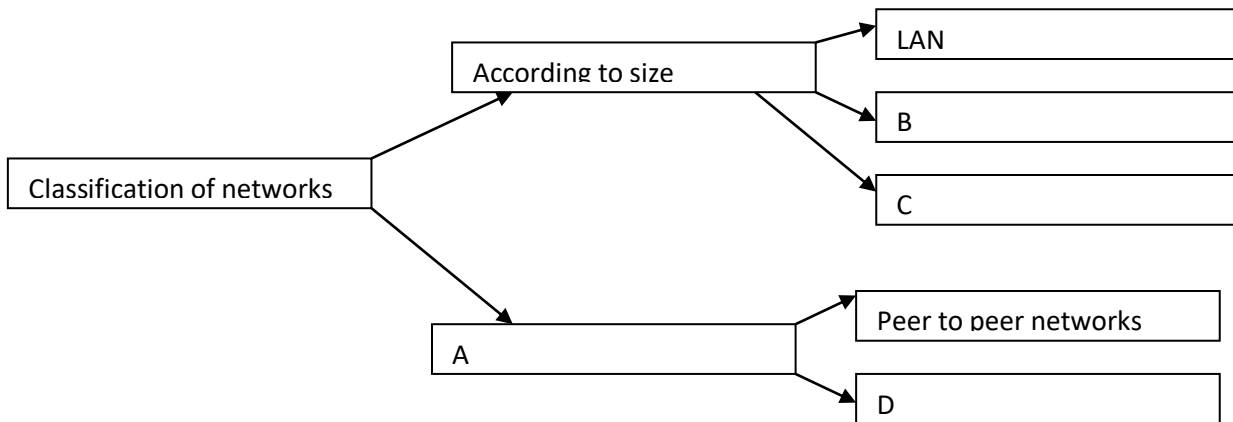
   i)   Name part A, B, C and D   (4mks)

      A...

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B..

C..

D..

d) Explain how you would prepare a patch code   (5mks)

....

....

....

....

....

....

e) Distinguish between share level security and user-level security as used in networking   (2mks)

....

....

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....

19. (a) Describe **two** ways in which a computer can represent a positive number and a negative number.   (2 mks)

....

....

....

....

   (b)   A particular computer stores numbers in a single 8-bit word. How would it

          represent 0.3125_{10}?   (3 marks)

....

....

....
....
....
....
....

(c)   What is the decimal equivalent of the number 1.0111_2?   (2 marks)

....
....
....
....

(d)   Perform the decimal subtraction $14_{10} - 6_{10}$ using

(i)   Regular binary;   (3 marks)

....
....
....
....
....

(ii)   One's complement.   (2 marks)

....
....
....

(e) .Convert 107_{10} to binary using place value method   (3mks)

....
....

....

....

....

20. (i). Windows may experience some problems such as:

- Failure to load to operating system during booting process:

- The computer hangs (stops responding)

- Abnormal restarting

- Displaying a blue screen with a message such as fatal exception error has occurred

(a) State two possible causes of the above problems. (2mks)

....

....

....

(b) Explain how the problems can be resolved (2mks)

....

....

....

(c) Define the term interactive processing. (2mks)

....

....

....

(ii) Explain why input screens are better data entry designs than entering data directly to a

table.   (2 mks)

....

....

....

(iii). List two career opportunities associated with databases.   (2 mks)

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....

....

....

(iv)   Distinguish between a table in word-processing application and a table in a database

applications. (2 mks)

....

....

....

(v)   Name the following symbols that represent various ports found at the back of the system

unit of the computer (3mks)
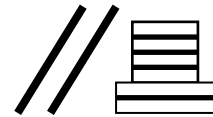
(i)_____   (ii)_____   (iii)_____

451/2
COMPUTER STUDIES
PAPER 2 (PRACTICAL)
JULY / AUGUST 2020
2 ½ HOURS

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES.

- *Type your **name** and **index** number at the top right hand corner of each printout.*
- *Sign and write the date of the examination below the name and index number on each printout.*
- *Write your name and index number on the compact disks*
- *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 compact disks*
- *Answer all the **questions***
- *All questions carry equal marks.*
- *All answers **must** be saved in your compact disks*
- *Make a printout of the answers on the answers sheets provided.*
- *Hand in **all** the printouts and the compact disks*

1.   (a)   Create a database called **SCHOOL**.   (2 Marks)

        (b) Create three tables Examination, **DOS** and **BOARDING** with the fields as shown below.
                                                                                        (10 Marks)

        (c).   Create a relationship between the three tables and enforce integrity.   (6 Marks)

        (d).   Enter the data items in the given tables three tables.   (15 Marks)

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Examinations				
Admission Number	Mathematics	English	Kiswahili	Biology
1	45	67	90	23
10	45	89	90	20
2	45	70	80	45
3	89	90	90	20
4	78	9	90	50
5	67	89	60	90
6	67	90	7	80
7	34	78	70	90
8	23	50	38	90
9	23	15	67	20

DOS				
Admission Number	SName	Other Names	KCPEMark	Year of KCPE
1	PETER	BARASA	327	2007
10	JOHNSON	SUK	250	2001
2	ALEX	OJWANG'	340	1998
3	CHEPKUTO	ESTHER	250	2008
4	WEKESA	RAYMOND	450	2007
5	ALEX	WAMWANA	410	2003
6	JANE	KILONZO	400	2000
7	MATHEW	KARIUKI	450	1999
8	NASIMIYU	CATHEEN	290	2003
9	KIMATHI	JOHN	3000	2001

BOARDING			
Admission Number	UNIFORM	TOOL	TOOL NAME
1	No	12	JEMBE
10	Yes	20	JEMBE
2	No	11	PANGA
3	Yes	1	SLASHER
4	Yes	111	JEMBE
5	No	15	RAKE
6	Yes	22	BASIN
7	Yes	11	BROOMS
8	Yes	90	RAKE
9	Yes	23	BUCKET

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(e) Design a query that would display the following fields as shown below and write down the formulae for getting the total score and criteria for extracting the records below (10 Marks)

Admin							
Admission Number	UNIFORM	SName	KCPEMark	Mathematics	English	Kiswahili	TOTAL SCORE
1	Yes	CHEPKUTO	250	89	90	90	269
10	Yes	WEKESA	450	78	9	90	177
2	Yes	JANE	400	67	90	7	164

(f) Design a report that would sort the following in ascending order in the order of the following fields, Total score, KCPE Score, SName the Admission Number and the report should display all the fields. Save the report as administration (5 Marks)

(g) Print, administration and admin (2 Marks)

Q2. Using a word processing package, type the text as shown below **and** save it **as Computers (35 marks).**

Chapter 1: Introduction to Computer

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Chapter 1: Introduction to Computers
OBJECTIVES

- After completing this chapter, students will be able to.
- Explain why it is important to be computer literate
- Define the term computer
- Identify the components of a computer
- Explain why a computer is a powerful tool
- Differentiate among the various categories of software
- Explain the purpose of a network
- Discuss the uses of the Internet and the World Wide Web
- Describe the categories of computers and their uses

CHAPTER OVERVIEW
This chapter presents a broad survey of concepts and terminology related to computers. The idea of computer literacy is introduced. Students discover what a computer is and what it does. They learn about the components of a computer, the power of computers, computer software and networks and the internet. Categories of computers are identified, including personal computers, minicomputers, mainframe computers and super computers. Students find out how people employ computers from home users to large business users. Finally they learn how people use computers to provide information. Reading and understanding the material in this chapter should help students better understand these topics as they are presented in more detail in the following chapters.

The vocabulary of computing is all around you. Before the advent of computers, memory was the mental ability to recall previous experiences; storage was an area where you kept out-of-season

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clothing; and communication was the act of exchanging opinions and information through writing, speaking, or signs. In today's world, these words and countless others have taken on new meanings as part of the common terminology used to describe computers and their use.

When you hear the word computer, initially you may think of those found in the workplace - the computers used to create business letters, memos, and other correspondence; calculate payroll; track inventory; or generate invoices, In the course of a day or week, however, you encounter many other computers. Your home, for instance, may contain a myriad of electronic devices, such as cordless telephones, VCRs, handheld video games, cameras, and stereo systems that include small computers. Computers help you with your banking in the form of automatic teller machines (ATMs) used to deposit or withdraw funds. When you buy groceries, a computer tracks your purchases and calculates the amount of money you owe; and sometimes generates coupons customized to your buying patterns.

Even your car is equipped with computers that operate the electrical system, control the temperature, and run sophisticated antitheft devices.

Computers are valuable tools. As technology advances and computers extend into every facet of daily living, it is essential you gain some level *of computer literacy.* To be successful in today's world, you must have a knowledge and understanding of computers and their uses.

(b). Hang indent the paragraph starting with 'the vocabulary of computing......'by 2 cms. (3 Marks)

(c).   Change the line spacing of text under 1.1   Computer literacy to 2" and save the document
as :   Literacy.   (4 Marks)

(d).   Change the title' **Chapter 1: Introduction to Computers** 'to toggle case   (2 Marks)

(e).   Animate the OBJECTIVES to have a blinking background save as A; Blink(3 Marks)

(f)   Print **Computers** and: **Literacy.**   (2 Marks)

NAME: …………………………………………………………………………..…..…..

INDEX NO:…...………………….. **SCHOOL:**……………….…………………….

Candidate's signature: ………………… **Date:** …………………………………….

313/1

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C.R.E
Paper 1
July/August 2020
2 ½ Hours

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2020 TOP EXAMINERS' MOCK SERIES 3

INSTRUCTIONS TO CANDIDATES

Answer **ANY FIVE** questions in the answer booklet provided.

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

1. a) Give reasons why the Bible is referred to as a library.   (5 Marks)

    b)   Highlight the differences between the creation stories in Genesis 1 and 2. (8 Marks)

    c) What are the causes of evil in Kenya today?   (7 Marks)

2. a) State the promises of God to Abraham.   (8 Marks)

    b) Show ways in which Abraham demonstrated his faith in God.   (7 Marks)

    c) What lessons can be learned from Abraham's willingness to sacrifice his son? (5 Marks)

3. a) King Jeroboam made Israelites in the Northern Kingdom turn away from God. Explain this statement (8 Marks)

   b) Explain the reasons that had led to idolatry in Israel. (5 Marks)

   c) What are the causes of power struggle in churches in Kenya today? (7 Marks)

4. a) What were the roles of prophets in the Old Testament? (5 Marks)

   b) Describe the visions of Amos. (8 Marks)

   c) How does God reveal himself to Christians today? (7 Marks)

5. a) Name **six** occasions when Nehemiah prayed. (6 Marks)
   b) Explain the problems encountered by Nehemiah in rebuilding the wall of Jerusalem.
   (8 Marks)
   c) What is the importance of prayer in the life of a Christian? (6 Marks)

6. a) Outline factors that contributed to harmony and social responsibility in the African community. (7 Marks)

   b) Identify the moral values taught in African Traditional communities. (8 Marks)

   c) Mention the factors undermining the role of elders in the society today. (5 Marks)

NAME: …………………………………………………………………………..

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INDEX NO: …….....………………….

SCHOOL:………………………………….

Candidate's signature: ………………

Date: ………………………………….

313/2

C.R.E.

Paper 2

July/August 2020

Time 2 ½ Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

Answer **ANY FIVE** questions in the answer booklet provided.

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

1. a) Describe the visit of the Angel to the shepherds on the night Jesus was born. (8 Marks)

    b) State the nature of God from the magnificate.   (7 Marks)

    c) Give **five** reasons why children should take part in church activities today. (5 Marks)

2. a) Describe the healing of the centurion's servant.   (8 Marks)

    c)   Show ways in which Jesus showed concern for the poor and neglected in the society.

                                                                                         (5 Marks)

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c) State the problems faced by new converts today. (7 Marks)

3. a) Narrate the parable of the rich fool with reference to Luke 12:13-34. (6 Marks)

b). Identify and explain three practices that Jesus criticized the Pharisees about. (6 Marks)

c) State **four** teachings that Christians learn about the right attitude towards wealth from the parable of the rich fool (8 Marks)

4. a) Identify the spiritual gifts as taught by Paul. (8 Marks)

c) Show ways in which the Holy Spirit was manifested on the day of Pentecost. (6 Marks)

c) What is the Christian criteria for discerning the gifts of the Holy spirit. (6 Marks)

5. a) Outline Christian teaching on marriage. (8 Marks)

b) How should Christians prepare for marriage? (7 Marks)

c) Give reasons why Christians break marriage vows. (5 Marks)

6. a) Mention **five** roles of professional ethos in society. (5 Marks)

b) Outline Christian teachings on wages. (7 Marks)

c) State how children have been abused in places of work in Kenya today. (8 Marks)

Name ………………………………………………   Index No……………..……….…………….

School ……………………………………………..   Candidate's Signature …………….………

Date: ………………………………………

101/1 ENGLISH

Paper 1

July / August 2020

Time: 2 Hrs

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the space provided.
- Answer **ALL** the questions in this question paper.
- All the answer must be written in the spaces provided in this question paper.

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	10	
3	30	
TOTAL SCORE	**40**	

This paper consists of 6 printed pages.

Candidates should check to ensure that all pages are printed as indicated and no questions are missing

Prefer Calling *Sir Obiero Amos @ 0706 851 439 for the Marking Schemes*

1. **Functional writing**

   Imagine that you are the secretary of a commission that has investigated conditions in your country's prisons and what can be done to improve these conditions. Write a report. (20 Marks)

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Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

2.   **CLOZE TEST**   (10 Marks)

Complete the passage below by filling in the blank spaces with the most appropriate words.

A certain couple was worried about (1)……………………………. son not wanting to study mathematics at the (2) …………………………. he was in, so they decided to send him to missionary school. (3) …………….…..... the first day of school, their son came racing into the house, went to his room and (4) ………………………….. the door shut. His parents were a little (5) ………………………………. about this and they went to his room to see if he was okay. They found him sitting at his desk doing his homework.

The boy kept on doing that for the rest of the term, the son brought home his report card, gave (6) …………………… to his parents. When they looked at it they saw an A under (7) ………………………… Mother and father were very (8)…………………………… and asked their son, "what changed your (9) …………………………….. about mathematics?"

The son looked at his parents and said, "Well on the first day when I walked into the classroom, I saw a guy nailed to the plus sign at the front of the classroom behind the teachers desk and I knew they meant

(10) ……………………….

3.   **(a)The battle**

Helmet and rifle, pack and overcoat

Marched through a forest, somewhere up ahead
Guns thudded. Like the circle of a throat
The night on every side was turning red.

They halted and they dug. They sang like moles
Into the clammy earth between the trees
And soon the sentries, standing in their holes,
Felt the first snow. Their feet began to freeze
At dawn the first snow. Their feet began to freeze

At dawn the first shell landed with a crack
Then shells and bullets swept the icy woods.
This lasted many days. The snow was now black.

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

The corpse stiffened in their scarlet hoods

Most clearly of that battle I remember
The tiredness in the eyes, how hands looked thin
Around a cigarette, and the bright ember
Would pulse with all the life there was within

(Louis Simpzon)

i.   Identify the examples of onomatopoeia used in the poem.   (2 Marks)

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ii.   Identify at least four words that have the /i: / sound.   (2 Marks)

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iii. Give at least two examples of alliteration used in the poem.   (2 Marks)

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a) Draw two columns then place each of the following words in the corresponding column to show

whether it has a /z/ or /s/ sound   (5 Marks)

See, piece, scissors, waste, season, phase, axe, news, miser, girls

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Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

b) Use each of the following words twice in a sentence to bring out two different meanings of the word. Do not change the form of the word. (3 Marks)

Figure

Peter

Order

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c) Provide a homophone for each of the following. (3 Marks)

   i.   Die..

   ii.   Which...

   iii. Waist..

   iv. Council..

   v.   Profit..

   vi. Owe..

d) Imagine that you were to narrate a story to an audience, how would you alert them that you are about to narrate the story? (4 Marks)

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e) Write two things we need to do in order to have effective telephone conversation. (1 Marks)

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Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

Mulwa walks to the neighbour's house from where blaring sounds of music can be heard. He knocks at the door and his neighbour appears.

Mulwa: I want you to turn off the music

Neighbour: You want me to ……….. my foot! What impertinence! And why must I obey your orders?

Mulwa: You see I am trying to study.

Neighbour: That's your problem, for all I care

Mulwa: But I have an exam tomorrow.

Neighbour: So?

Mulwa: You turn down the volume

Neighbour: Young man, you mind your own business and let me be…….!

Now write the dialogue of at least eight exchanges, in which you use etiquette.   (8 Marks)

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NAME_____ SCHOOL _____

Index Number_____/_____

Candidate's signature _____Date_____

101/2
ENGLISH
Paper 2
(Comprehension, Literary appreciation and Grammar)

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

Instructions to candidates:
   *a) Write your **name, school** and **index number** in the spaces provided above.*
   *b) **Sign** and write the **date** of examination in the spaces provided.*
   *c) Answer **all** the questions in this paper.*
   *d) All your answers **must** be written in the spaces provided in this question paper.*
   *e) This paper consists of **ten (10)** printed pages.*
   *f) Candidates should check to ascertain that **all** the pages are printed as indicated and that **no** questions are missing.*

For examiner's use only

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

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

1. *Read the following passage and then answer the questions that follow. (20 marks)*

The question is at least as old as Socrates: If we know what the right thing to do is, why do we not do it? It is an especially acute question when applied to global warming. The science showing that carbon dioxide emissions are already changing the planet's climate, and are likely to have severe effects (melting ice caps, sea-level rise, and species extinction), is compelling and now barely disputed. Almost 90% of Europeans say they recognize climate change as a major issue, and 75% identify fossil fuel emissions as a major cause.

And yet, as was widely discussed at a conference of environmentalists, geologists and writers in May 2006 in Ankelohe, Germany, public understanding has not translated into even the simplest of public actions. Less than 1% of Britons, for example, have switched their home electricity to renewable sources, even though it requires little more than a phone call to one's existing provider. Proportions on the continent are slightly higher, but there is clearly no rush to go green or — shudder — stop driving cars.

Why such a disconnect between information and action? Part of the problem is that environmental advocates emit mixed messages. In mid-May 2006, Britain's *Guardian* published a front-page story showing that five companies in Britain produce more CO_2 pollution in a year than all the country's motorists combined. That is a strong argument for targeting industries, but the average reader could hardly be blamed for thinking, "Why should I bother to cut down my driving?"

Similarly, not enough thought has been devoted to the best role for government. Climate change is too **vast** a problem for individuals to solve alone, and some big businesses have an **incentive** not to solve it. That leaves government to take the lead, which is tricky, because over-reliance on government can allow individuals to **fob off** their own responsibilities. What is worse, government power seems to tickle autocratic fantasies. In my experience, environmentalists spend far too much energy advocating hard-line government 'solutions' that do not stand a chance of being enacted. Sure, it might be good for the planet if governments banned the use of sports-utility vehicles or, for that matter, of all fossil fuels. Yet not only is it hard to sell outright prohibitions to voters, but the sad

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

truth is that governments have a woeful record in even the mildest interventions. One of the most significant innovations in the last decade has been Europe's carbon-emission trading scheme: some 12 000 companies, responsible for more than half of the EU's emissions, have been assigned quotas. Companies with unused allowances can sell them; the higher the price, the greater the incentive for firms to cut their use of fossil fuels. The system seemed to work for about a year — but now it turns out that Europe's governments allocated far too many credits, which will likely hinder the program's effectiveness for years.

Perhaps the real reason that well-intentioned consumers do not change is that they do not see any benefit. Climate change may be a frightening, irreversible **calamity**, but its worst effects will not be felt next week or next year. The planet looks the same regardless of whether we use environmentally friendly technology or we do not care how much CO_2 we emit. But sure as the sun rises and sets every day, if we do not cut down on carbon emissions, then we may not have a planet to hand over to the next generation.

(Adapted from *Times*, June 5, 2006)

a) According to the passage, what are the effects of global warming? (4 marks)

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b) What, according to the passage, is the main cause of global warming? (2 marks)

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c) How does Britain encourage people to use renewable electricity? (3 marks)

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d) Paraphrase the following sentence: That is a strong argument for targeting industries, but the average reader could hardly be blamed for thinking, 'Why should I bother to cut down my driving?' (4 marks)

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e) What message does the writer communicate in this passage? (4 marks)

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f) Explain the meaning of the following words and expression as used in the passage.

(4 marks)

i)   Fob off

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ii)   Incentive

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……………………………………..……………………………………...………
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iii)   Calamity

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………………………………………………………………………………..
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iv)   Vast

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2. Read the extract below and answer the questions that follow. (25 marks)

Nora: It's a shame to say that. I do really save all I can.

Helmer:*(laughing)*That's very true, - all you can. But you can't save anything!

Nora: *(smiling quietly and happily)*You haven't any idea how many expenses we skylarks and
     squirrels have, Torvald.

Helmer: You are an odd little soul. Very like your father. You always find some new way of
     wheedling money out of me, and as soon as you have got it, it seems to melt in your hands.
     You never know where it has gone. Still, one must take you as you are. It is in the blood: for
     indeed it is true that you can inherit these things, Nora.

Nora: Ah, I wish I had inherited many of papa's qualities.

Helmer: And I would not wish you to be anything but just what you are, my little skylark. But do
     you know, it strikes me that you are looking-rather—what shall I say- rather uneasy today?

Nora: Do I?

Helmer: You do, really. Look straight at me.

Nora : *(looks at him)* well?

Helmer: *(wagging his finger at her)* Hasn't Miss Sweet Tooth been breaking rules in town today?

Nora: No; what makes you think that?

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

Helmer: Hasn't she paid a visit to the **confectioner's?**

Nora: No, I assure you, Torvald-

Helmer: Not been nibbling sweets?

Nora: No, certainly not.

Helmer: Not even take a bite at a macaroon or two?

Nora: *(going to the table on the right)* I shouldn't think of going against your wishes.

Helmer: No, I am sure of that: besides, **you gave me your word**- *(Going up to her)* Keep your little Christmas secrets to yourself, my darling. They will be revealed tonight when the Christmas tree is lit, no doubt.

Nora: Did you remember to invite Doctor Rank?

Helmer: No. But there is no need; as a matter of course, he will come to dinner with us. However, I will ask him when he comes this morning. I have ordered some good wine. Nora, you can't think how I am looking forward to this evening.

Nora: So am I! And how the children will enjoy themselves, Torvald!

Helmer: **It is splendid to feel that one has a perfectly safe appointment**, and a big enough income. It is delightful to think of, isn't it?

Nora: It's wonderful!

a) Place this extract in its immediate context. (4 marks)

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b) Explain the dramatic irony in this extract. (3marks)

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c) Helmer says here, "it is splendid to feel that one has a perfectly safe appointment". What is he referring to? (1 mark)

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d) What issues on money and gender emerge in this extract? (4 marks)

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e) Identify and illustrate any two ways the playwright has used language to achieve foregrounding in this extract. (4 marks)

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f) What do we learn about the character of Nora in this extract? (4 marks)

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g) Imagine you are directing this play. Which quality would you look for in an actor to play the role of Torvald? (2marks)

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h) Explain the meaning of the following expressions as used in the extract? (3 marks)

i) Wheedling money out of me……………………………………………….………..………...

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ii) Confectioner's…………………..…………………………………………………..………..……

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iii) You gave me your word…………………………………………………………………………...

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3. Read the poem below and then answer the questions that follow. (20 marks)

No coffin, no grave   **by Jared Angira**

He was buried without a coffin
Without a grave
The scavengers performed the post-mortem
 In the open mortuary
Without sterilized knives
In front of the night club

Stuttering rifles put up
The gun salute of the day
That was a state burial anyway

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

The car knelt
The red plate wept, wrapped itself in blood its
master's

The diary revealed to the sea
The rain anchored there at last
Isn't our flag red, black and white?
So he wrapped himself well

Who could signal yellow
When we had to leave politics to the experts
And brood on books
Brood on hunger
And schoolgirls
Grumble under the black pot
Sleep under torn mosquito net
And let lice lick our intestines
The lord of the bar, money speaks madam
Woman magnet, money speaks madam
We only cover the stinking darkness of the cave of our mouths
And ask our father who is in hell to judge him
The quick and the good.

Well, his diary, submarine of the Third World
War
Showed he wished
To be buried in a gold-laden coffin
Like a VIP
Under the jacaranda tree beside his palace
A shelter for his grave
And much beer for the funeral party

Anyway one noisy pupil suggested we bring
Tractors and plough the land.

*(From **Poems from East Africa**, D. Cook andD. Rubadiri (Eds,): East African*

EducationalPublishers)

a) Briefly explain what this poem is about. (3 marks)

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Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

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b) Explain the use of onomatopoeia in the poem. (2 marks)

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c) Identify and explain the tone of the poem. (4 marks)

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d) Comment on the central theme of the poem. (3 marks)

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e) Explain the meaning of the following lines:

   i) who could signal yellow. (2 marks)

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....

   ii)   submarine of the Third World War

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    f) How else can people bring change in society without assassinating politicians? (2mks)

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    g) Explain the meaning of the following words as used in the poem

i) Anchored   (1mk)

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....

....

ii) Brood   (1mk)

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4. Grammar   (15 Marks)

    a) *Complete the following sentences by choosing the appropriate expressions tofill the gaps. (3marks)*

i) Although Nduati is a great friend of mine, I ………………………………. him on a few important issues. *(differ to, differ with)*

ii) As good citizens, we must all pay our taxes ………………………………………. the policy. *(in accordance to, in accordance with)*

iii) She chose her career …………………………………………. *(independent of, independent to)*her father's influence.

    b) *Rewrite the sentences below according to the instructions given after each. (3marks)*

i) My father would not allow us to attend night parties under any circumstances.

(Begin: Under no circumstances ……………………………..)

………

………

ii) Strangers should not be allowed into the compound without the security officer's permission.

(Begin: On no account……..……………………..)

………

………

Iii) The plane had just taken off when one of the passengers began to scream.

(Begin: Scarcely ……………..…..)

c) **Rewrite the following sentences avoiding repetition.** *(2 marks)*

i) Always be frank and open with your friends. When you are frank and open to your friends, you willwin your friends trust and confidence.

………

………

ii)Help yourself to some oranges. These oranges are sweet but those oranges are sweeter.

………

………

d) **Combine each of the following pairs of sentences by making one of them a relative clause.**

(2 marks)

i) Kasoha joined our school this term. She is very good at grammar.

………

………

ii) The generator had been on the whole night. It broke down in the morning.

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

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    e) *Add an appropriate question tag to each of the following statements.(3marks)*

i) They aren't serious.

....

....

ii) He bought a new house last month.

....

....

iii) Let us go.

....

....

    f) *Fill in the gapsusing the present perfect form of the verbs in brackets. (2 marks)*

    h) I .... (visit) many places.

    ii) My wife ....….………. (join) me in most of these trips.

NAME…………………………………………………………………………………

INDEX NO……………………………………..SCHOOL…………………………..

DATE…………………………CANDIDATE'S SIGNATURE…………………………

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2020 TOP EXAMINERS' MOCK SERIES 2

101/3 ENGLISH

PAPER 3

(Creative composition and essays based on set texts)

Time: 2hrs 30 mins.

INSTRUCTIONS TO CANDIDATES

. write your name, index number and the name of your school in the spaces provided

. Answer any 3 questions

. Question one and two are compulsory

. Choose one question in question 3

. Each essay must not exceed 450 words

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	20	
3	20	
TOTAL SCORE	60	

Imaginative composition

1 (a) write a composition to illustrate the proverb: (20 MKS)

"As you make your bed, so you must lie on it."

OR

  (b) "Education is the surest way to achieve the much needed national integration in Kenya today. "Write a composition supporting or opposing this statement.

2. **The compulsory set text:**   **(20MKS)**

The novel; Blossoms of the Savannah by Henry ole kulet.

Bad decisions can adversely affect our lives. Using Blossoms of the Savannah, write an essay in support of the statement with illustrations from the novel.

3. Optional set text

Answer any of the following questions

   (a) **Memories we lost and other stories**. "Greed and Materialism can lead to grave consequences." In reference to the story 'How Much Land Does a Man Need' by Leo Tolstoy, write an essay to illustrate the truth of this statement. (20 MKS)

   (b) **The novel: the pearl by John Steinbeck**. "Greed leads to evil." Write a composition to show the truth of this statement using illustrations from john Steinbeck's the pearl.(20 MKS)

   (c) The play: inheritance by David Mulwa.

'Lacuna is an epitome of evil.' Drawing examples from David Mulwa's inheritance, write an essay illustrating the truth of the statement

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Name ……………………………………………………………………………………

Index No……………................…… School ……………….…….…………

Candidates Signature ………...………..…… Date: …………………….…………….

312/1

GEOGRAPHY

Paper 1

July / August 2020

Time: 2 ¾ Hours

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES.

- This paper has **two** sections: **A** and **B**
- Answer **all** the questions in section **A**. In Section **B** answer questions **6** and any other **two** questions.
  All answers **must** be written in the answer booklet provided.

- Candidates should check the question paper to ascertain that all the pages are printed and that no questions are missing

This paper consists of 4 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

SECTION A

Answer all the questions in this section

1. a) What is isostasy. (2 Marks)

   b) Name **two** theories that explain the origin of continents. (2 Marks)

2. a) What is the ITCZ? (2 Marks)

   b) i) State **two** causes of ocean currents . (2 Marks)

      ii) Name **two** effects of Banguela currents along the coast of south West Africa.
      . (2 Marks)

3. a) State **three** factors that influence the occurrence of surface run-off. (3 Marks)

   b) Name **two** types of ocean tides. (2 Marks)

4. a) State **three** effects of the revolution of the earth. (3 Marks)

   b) State **two** conditions experienced when the sun is overhead the tropic of cancer.
   . (2 Marks)

5. a) State **two** sources of sedimentary rocks. (2 Marks)

   b) State **three** factors which determine the ease and degree of change of original rock during metamorphism. (3 Marks)

SECTION B

Answer question 6 and any other <u>two</u> questions from this section

6. Use the map of Belgut 1:50,000 provided to answer the following questions sheet 117/3
   a) i) Give the magnetic inclination of the area covered by the map. (2 Marks)

      ii) What is the longitudinal extent of this map extract? (2 Marks)

   b) i) Give **six** figure grid reference of the trigonometrical station at Kiptere. (2 Marks)

      ii) Identify **two** types of vegetation (natural) shown on the map. (2 Marks)

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c) i) Citing evidence from the map, give **four** economic activities carried out in the area covered by the map. (4 Marks)

   ii) Give **two** adjoining sheets to the area covered by the map. (2 Marks)

d) i) Calculate the bearing of the trigonometric station 1874 117513 from Gaparock school at Grid   square 5640 in the map. (2 Marks)

   ii) State **two** methods used to represent relief in the area covered by the map.(2 Marks)

e) i) Draw a cross section from grid reference 550640 to 590660 using a vertical scale 1cm represents 20m (4 Marks)

   ii) On the cross section, mark and name the
   - A river
   - A hill
   - Dry weather road (3 Marks)

7. a) i) State **three** main causes of the horizontal movement of ocean water. (3 Marks)

    ii) Describe the process of the formation of a spit. (6 Marks)

   b) Explain **three** significance of oceans to human beings. (6 Marks)

   c) i) Mention **three** classes of lakes according to formation . (3 Marks)

    ii) Describe how Lake Victoria was formed. (5 Marks)

    iii) Give **two** reasons why some lakes in the rift valley have fresh water. (2 Marks)

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8. Use the map below to answer questions (a) and (b)

a) Name
   i)   The type of climate found in the shaded area marked Q   (2 Marks)

   ii)   The ocean current marked R and S   (2 Marks)

b) i) Identify climate T   (2 Marks)

   ii) Describe characteristics of the climate marked T   (6 Marks)

c) Explain how the following factors influence climate;
   i)   Altitude   (5 Marks)
   ii)   Winds   (4 Marks)

d) Give reasons why Stevenson screen is
   i)   Painted white   (2 Marks)
   ii)   Has louvers   (2 Marks)

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9. The following map shows the location of fold mountain ranges of the world. Use it to answer the questions below.
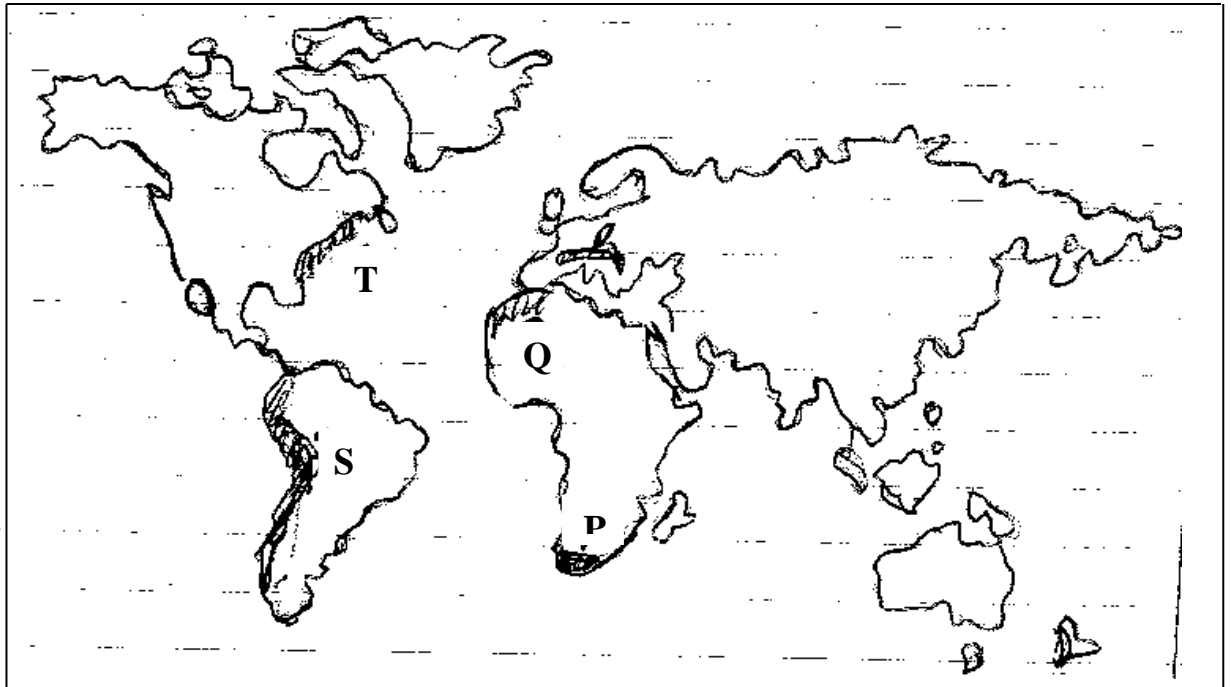
a) i) Name the mountain ranged marked P, Q, R, S and T   (4 Marks)
    ii) What is geosyncline   (2 Marks)
    iii) Explain how the existence of a geosyncline may lead to the formation of fold mountains
                                                                          (8 Marks)

b) Explain **three** positive effects of folding to human activities.   (6 Marks)

c) You are to carry out a field study on external land forming processes in an area near your school
    i)   Name **three** methods you would use to collect the data.   (3 Marks)
    ii)   Give **two** data recording activities you would use.   (2 Marks)

10. a) i) State **three** factors which contribute to the development of hot deserts. (3 Marks)

   ii) Name **three** processes through which wind erodes a dessert landscape. (3 Marks)

   b) Using diagrams explain the formation of;
   i) Zeugen   (6 Marks)

   ii) Rock pedestal   (6 Marks)

   c) i) Distinguish between an acqufer and a water table.   (2 Marks)

   ii) Explain **five** ways in which groundwater is of significance to human activities.
   .   (5 Marks)

Name ……………………………….…………… Index No……………………..……………

School ……………………………………….… Candidates Signature ……..…..…………

Date: …………………………………….

312/2

GEOGRAPHY

Paper 2

July / August 2020

Time: 2 ¾ Hours

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES.

- ❖ This paper has **two** sections: **A** and **B.**

- ❖ Answer **all** the questions in section **A**. In Section **B** answer questions **6** and any other **two** questions.

- ❖ All answers **must** be written in the answer booklet provided.

- ❖ Candidates should check the question paper to ascertain that all the pages are printed and that no questions are missing

This paper consists of 4 printed pages.

Candidates should check to ensure that all pages are printed as indicated and no questions are missing

SECTION A

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

Answer all the questions in the answer booklet provided

1. a) Name **two** areas in Kenya which are being exploited for geothermal power.   (2 Marks)

    b) State **two** factors that hinder expansion of geothermal power production in Kenya. (3 Marks)

2. a) State **two** factors that can lead to development of slum settlement in an urban center. (3 Marks)

    b i) Define hinterland.   (2 Marks)

    ii) Give **two** factors that affect the extension of hinterland.   (2 Marks)

3. a) Mention **one** main problem faced in efforts to eradicate Tsetsefly in Lambwe valley. (1 Mark)

    b) State **three** effects of wind as an environmental hazard in Kenya.   (3 Marks)

4. a) State any **three** functions of central business district.   (3 Marks)

    c)   Outline **two** factors contributing to the development of major urban centres in East Africa.

                                                                                        (2 Marks)

5. a) State **three** physical conditions that favour growing of oil palm in Nigeria.   (3 Marks)

SECTION B

*Answer question six and any other **two** questions from this section*

6. The table below shows the 2009 population census per district for central province of Kenya.

District	Population
Nyandarua	479,902
Nyeri	661,156
Kirinyanga	457,105
Muranga	348,304
Kiambu	744,010
Thika	645,713
Maragua	387,969

    a)   i) A part from the bar graph, name **three** other methods that can be used to represent the above

        data.   (3 Marks)

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ii) Draw a simple bar graph to represent the data above. Use a scale of 1cm to represent 100,000 persons   (6 Marks)

iii) Give **four** advantages of using bar graph to represent statistical data.   (4 Marks)

b) Calculate the population density for Kiambu district given that the area is 1324km^2 (2 Marks)

c)   i) A part from rural - rural migration state **two** other types of migration.   (2 Marks)

ii) Explain **four** causes of rural-rural migration in Kenya.   (8 Marks)

7. a)i) State **three** factors favouring the world's major fishing grounds .   (3 Marks)

ii) Describe **three** types of fish according to their habitats.   (6 Marks)

b) Give **four** reasons why fresh water fishing in E. Africa is more wide spread than Marine fishing.
                                                                                       (8 Marks)

c) Explain **three** ways in which the significance of fishing in Kenya and in Japan is similar.(6 Marks)

d) State **two** measures taken to conserve fisheries in Kenya.   (2 Marks)

8. a)   i) Give **three** main countries where most tourists to Kenya come from.   (3 Marks)

ii) Name **two** leading National parks in Kenya that receive highest number of visitors. (2 Marks)

b)   i) Give **three** physical factors of tourist attraction in Kenya.   (3 Marks)

ii) Explain **four** measures that have been taken to promote tourism in Kenya.   (8 Marks)

c) List **five** social-economic factors which have led to the development of tourism in Switzerland.
                                                                                       (5 Marks)

d) State **five** problems that face tourism in Kenya.   (5 Marks)

9. a) i) Name **two** wheat producing provinces in Kenya.   (2 Marks)

ii) Explain **three** physical conditions that favour wheat growing in Kenya.   (6 Marks)

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b) Below is a sketch map of Canada. Draw and on it mark and name the main wheat growing provinces.

(3 Marks)
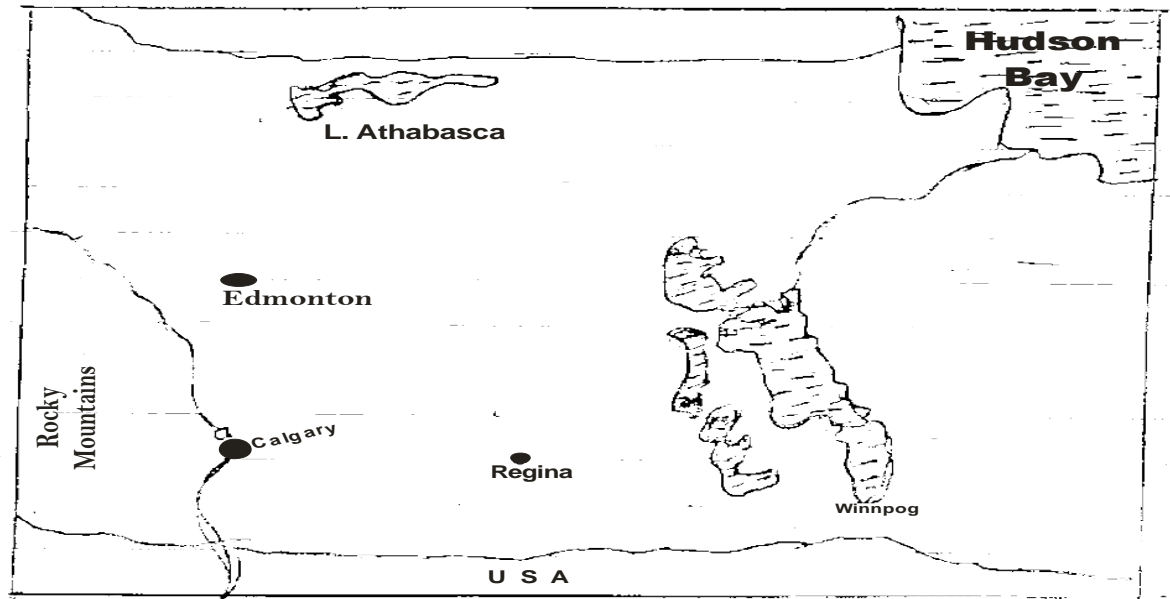
ii) State **four** problems facing wheat production in Canada. (4 Marks)

c) You are to carry out a field study of Horticultural activities on a farm within the vicinity of your

school.

i) Describe how you would plan for the study. (4 Marks)

ii) What kind of information would you collect in the field? (3 Marks)

d) Mention **three** problems the holticultural farmers may be facing. (3 Marks)

10. a) i) Differentiate between modes of transport and units of carriage. (3 Marks)

ii) Below is a sketch map of the great lakes and St. Lawrence Seaway. Use it to answer the question

a(ii)
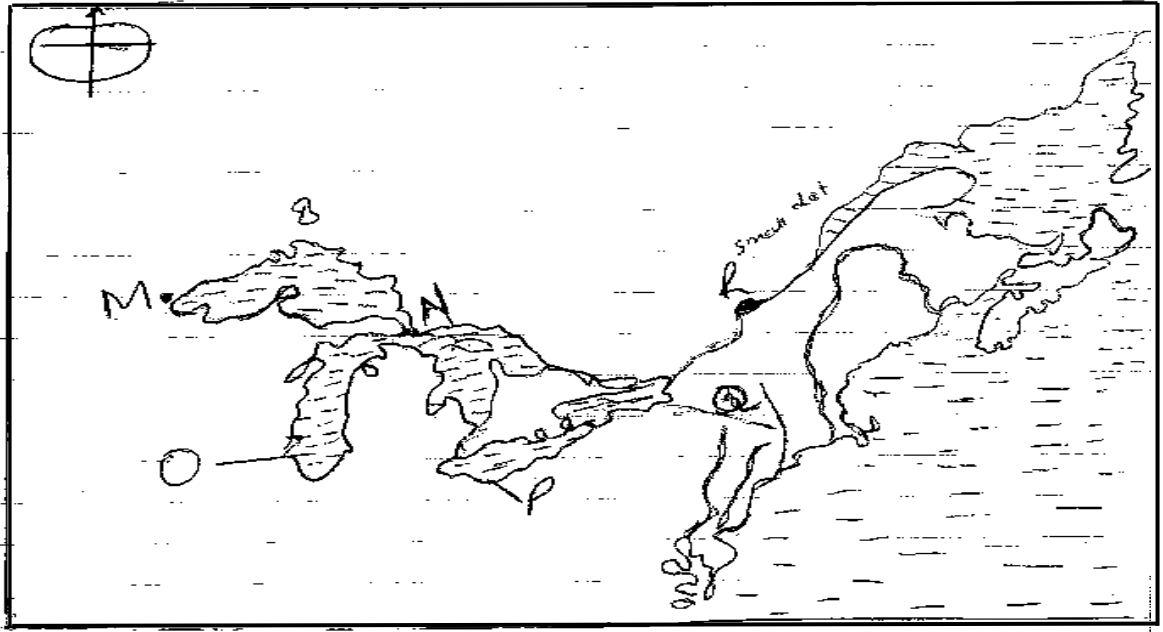
iii) Name lakes O and P   (2 Marks)

   Name ports M and R   (2 Marks)

b) Explain **three** ways in which the great lakes and St. Lawrence Seaway has contributed to the
   economies of the United States of America and Canada.   (6 Marks)

c) Explain **three** ways in which the advantages of water transport differ from those of railway
    transport.   (6 Marks)

d) i) A part from transportation give **three** other economic uses of rivers in Africa.   (3 Marks)

   ii) State **five** factors that hinder the development of river transport in Africa.   (5 Marks)

NAME: ………………………………………………………….   INDEX NO: ….…..……………………..………….

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SCHOOL: ………………………………………………………. Candidate's signature: …………………..……………

Date: …………………..………………….

311/1

History and Government

Paper 1

July/August 2020

2 ½ Hours

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

a) This paper consists of three sections **A**, **B** and **C.**

b) Answer **ALL** the questions in section **A**, **THREE** questions from section B and **TWO** questions from Section **C** in the answer booklets provided.

This paper consists of 2 printed pages.

Candidates should check to ensure that all pages are printed as indicated and no questions are missing

SECTION A (25MARKS)

Answer ALL the questions in this section

1. Give **two** limitations of using archeology as a source of history and Government. (2mks)
2. State **two** reasons for Akamba active participation in the long distance trade. (2mks)
3. State the theory which explains the origin of the Kenyan communities. (1mk)
4. Name **two** examples of the Southern cushites who settled in Kenya. (2mks)
5. Give **two** pre-historic sites in Kenya where cremated remains of human beings were discovered during the late Stone Age period. (2mks)
6. Give the **most** significant aspect of the Nandi social organization. (1mk)
7. Which **two** trade items were obtained by the Romans in the Kenyan Coast by 1500AD? (2mks)
8. Which was the **main** negative result of plantation Agriculture during the sultan-ship of Seyyid Said? (1mk)
9. State **two** reasons that may lead to deprivation of freedom of expression to a Kenyan citizen. (2mks)
10. Which is the **main** disadvantage of using negotiation as a method of conflict resolution? (1mk)
11. Give **two** aims of Taita Hills Association during the colonial period. (2mks)
12. Identify the **main** source of national philosophies adopted at independence. (1mk)
13. Who is the chief executive officer of the county government? (1mk)
14. Name the parastatal in charge of tax collection in Kenya. (1mk)
15. Why was Prof. Wangari Maathai was awarded the Nobel peace prize in the year 2004. (1mk)
16. State the document that contains the rights of the children. (1mk)
17. State the **two** oaths administered during the Agiriama resistance to foster unity. (2mks)

SECTION B (45MARKS)
Answer any THREE questions in this section

18. a) Identify **three** cultural practices which the Bantu acquired from the cushites. (3mks)
    b) Discuss **six** social organization of the Agikuyu in the 19th century. (12mks)

19. a) Give **five** reasons which led to the coming of the Oman Arabs to the East African Coast. (5mks)
    b) Describe how Seyyid Said contributed towards development of international trade along the Kenyan coast in the 19th century. (10mks)

20. a) State **five** grievances of the Africans in Kenya during the colonial period. (5mks)
    b) Explain **five** reasons why Nandi resistance failed. (10mks)

21. a) State **five** external factors that accelerated struggle for independence in Kenya between 1945-963. (5mks)
    b) Explain the methods used by the colonial government to discourage the activities of mau mau (10mks)

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SECTION C (30MKS)

Answer any <u>TWO</u> questions in this section

22. a) Why is national integration encouraged in Kenya? (5mks)
    b) Explain the methods of conflict resolutions applied by the Kenyan society today. (10mks)

23. a) Identify **three** ways through which one can become a member of parliament in Kenya. (3mks)
    b) How is parliamentary supremacy exercised in Kenya? (12mks)

24. a) Which **five** factors are likely to undermine the performance of the county government.(5mks)
    b) Explain **five** demerits of democracy. (10mks)

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NAME: ………………………………………………………………………. INDEX NO: ……………………………….

SCHOOL: ………………………………………………………………. Candidate's signature: …………………

Date: ……………………………………….

311/2

History and Government

Paper 2

July/August 2020

2 ½ Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

a) This paper consists of three sections **A**, **B** and **C.**

b) Answer **ALL** the questions in section **A**, **THREE** questions from section B and **TWO** questions from

Section **C** in the answer booklets provided.

This paper consists of 2 printed pages.

Candidates should check to ensure that all pages are printed as indicated and no questions are missing.

SECTION A (25 MARKS)

Answer <u>ALL</u> the questions in this section

1. State **two** forms of oral tradition as sources of information on history and government. (2mks)
2. Identify the **main** role of a government. (1mk)
3. Identify **two** natural disasters that forced early man to turn from hunting and gathering to agriculture.

   (2mks)

4. Name the **main** commodity of trade from West Africa during trans-Atlantic trade. (1mk)
5. State **two** government policies which contributed to industrialization in India. (3mks)
6. Sate **two** reasons why early mammals lived on trees. (2mks)
7. Name **one** commune in Senegal where the assimilation policy was successful. (1mk)
8. Give the **main** function of the royal fire in the Mwene Mtapa kingdom. (1mk)
9. Give **two** factors why the von schlieffen plan of German failed during World War I. (2mks)
10. Identify **one** early metal that was used in Africa. (1mk)
11. State **two** roles of the lukiko of Buganda kingdom. (2mks)
12. Give **two** characteristics of the cold war. (2mks)

   13. What was the **main** reason behind the phoney war period during the Second World War.

   (1mk)

14. State the **immediate** cause of world war two. (1mk)
15. Distinguish between a written constitution and unwritten constitution. (1mk)
16. Give **one** use of Gold in ancient Egypt. (1mk)
17. Name **one** elder who helped end cold war. (1mk)

SECTION B (45 MARKS)
Answer any <u>THREE</u> questions in this section

18. a) State **three** social effects of Trans-Atlantic trade in West Africa. (3mks)
    b) Discuss **six** factors that lead to decline of Trans-Atlantic trade. (12mks)

19. a) List down **three** economic activities of the shona. (3mks)
    b) Describe **six** social organizations of the shona. (12mks)

20. a) Name **three** leaders of Maji maji uprising in Southern Tanganyika. (3mks)
    b) Explain **six** positive results of maji maji uprising in Southern Tanganyika. (12mks)

21. a) State **five** methods used by Mozambican nationalist to struggle for independence. (5mks)
    b) Discuss **five** contributions of Kwame Nkrumah to the liberation struggle in Africa. (10mks)

SECTION C (30 MARKS)

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

Answer any <u>TWO</u> questions in this section

22. a) State **three** reasons why Tanzania adopted multiparty system of government. (3mks)

    b) Discuss **six** political challenges Tanzania has faced since independence. (12mks)

23. a) List **five** characteristics of Common Wealth. (5mks)

    b) Elaborate **five** functions of the security council of U.N.O. (10mks)

24. a) State **three** functions of the congress in U.S.A. (3mks)

    b) Explain **six** roles of the British monarchy. (12mks)

Name ………………………………………….   Index No………….............……………

School …………………………………………   Candidates Signature ………............……..

                                                   Date: ………………….………………

441/1

HOME SCIENCE

Paper 1

Theory

July / August 2020

Time: 2 ½ Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES
- ❖ This paper consists of **three** sections A, B and C.
- ❖ All the questions in Section **A** and **B** and are **compulsory**.
- ❖ Answer any other **two** questions in section **C**.
- ❖ Answers to all questions must be written in the answer booklet provided.

FOR EXAMINER'S USE ONLY

Section	Question	Maximum Score	Candidate's Score
A	1-16	40	
B	17	20	
C	18	20	
	19	20	
	20	20	
TOTAL SCORE		**100**	

This paper consists of 8 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

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SECTION A (40 MARKS)

Answer ALL the questions in this section in the spaces provided.

1. State **three** reasons for using tucks in children's garments. (3 Marks)

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2. Give **three** advantages of having labels on consumer products. (3 Marks)

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3. Explain how the length of yarns affect the quality of a fabric. (4 Marks)

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4. List **two** traditional methods of preserving food. (2 Marks)

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5. Mention **two** problems related to food products a consumer should report to the Kenya Bureau of Standards (KEBS). (2 Marks)

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6. State **three** flavouring essences used in cake making. (3 Marks)

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7. Explain what is meant by thermoplastic fibre. (2 Marks)

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8. Give **two** advantages of good lighting in the kitchen. (2 Marks)

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9. Name **three** groups of synthetic fibres. (3 Marks)

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State **two** reasons for using trimmings during garment construction. (2 Marks)

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10. List **two** roles of traditional birth attendants (TBAS). (2 Marks)

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11. State **two** advantages of good ventilation. (2 Marks)

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12. Name **two** methods of removing fixed dirt from terrazzo floor.   (2 Marks)

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13. Name **three** factors to consider when preparing rechauffe dishes.   (3 Marks)

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14. Mention **two** requirements for a dry food store.   (2 Marks)

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15. State **three** functions of the skin.   (3 Marks)

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SECTION B. (20 MARKS)

16. You are staying with your aunt who is HIV positive.

a) Describe how you would help in cleaning your Aunt's mouth. (6 Marks)

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b) Describe how you would clean a plastic basin she has used in the room. (6 Marks)

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c) Describe how you would wash and treat a cotton bed sheet she has used.(8 Marks)

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SECTION C (40 Marks)
Answer any TWO questions in this section

17. a) Explain **three** ways in ways in which the supply of breast milk may be improved.
(3 Marks)

   b) Describe how to fix a shaped facing on a round neck of a garment whose shoulder seems

   have been prepared. (11 Marks)

   c) Suggest **six** ways of reducing expenditure on food. (6 Marks)

18. a) Give **four** reasons for reasons having a work plan before starting a days work. (4 Marks)

   b) State **five** reasons for serving soup to a person suffering from influenza. (5 Marks)

   c) State **five** aspects of development brought about by child play. (5 Marks)

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d) In the absence of a refrigerator/freezer, state **six** practices which would ensure that left over foods don't go bad. (6 Marks)

19. a) Describe the procedure for preparing gathers ready for attachment. (5 Marks)

b) Explain **five** advantages of stewing as a method of cooking. (5 Marks)

c) Give **three** reasons for each of the following practices in cookery

i) Using tomatoes (3 Marks)

ii) Sieve flour before use (3 Marks)

d) Giving a reason in each case, state **four** precautions to take when bathing a baby.

.   (4 Marks)

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Name …………………………………………………………..………………………

Index No…………...............….……   School ………………………………………

Candidates Signature ………...……..……   Date: …………………….……………

441/2

HOME SCIENCE

Clothing Construction

Paper 2

Practical

July / August 2020

2 ½   Hours

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

a) This paper consists of **three**printed Pages.

b) Candidates should check the question paper to ascertain that all the pages are printed as indicated

and that   no questions are missing.

This paper consists of 3 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing.

A pattern of a pair of shorts is provided. You are advised to study the sketches; instructions and the layout carefully before you begin the test.

Materials provided

1. Pattern pieces
   A. Short front
   B. Short back
   C. Pocket
   D. Waist band
2. Plain light weight cotton fabric 50cm long by 90cm wide.
3. Cotton sewing thread to match the fabric.
4. Embroidery thread 125cm long.
5. One button 1.3cm with two holes.
6. One large envelope.

THE TEST

Using the materials provided, cut out and make the LEFT LEG of the shorts to show the following processes.

a) Making back dart.
b) Embroidering the letters on the pocket using stem stitches.
c) Preparing and attaching patch pocket.
d) Working of the side seam using an open seam.
e) Working of the inner leg seam using French seam.
f) Preparing and fixing waist band.
g) Fixing button.
h) Managing half of the seam using slip hemming (include both seams).

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SHORT VIEW

Front

Back
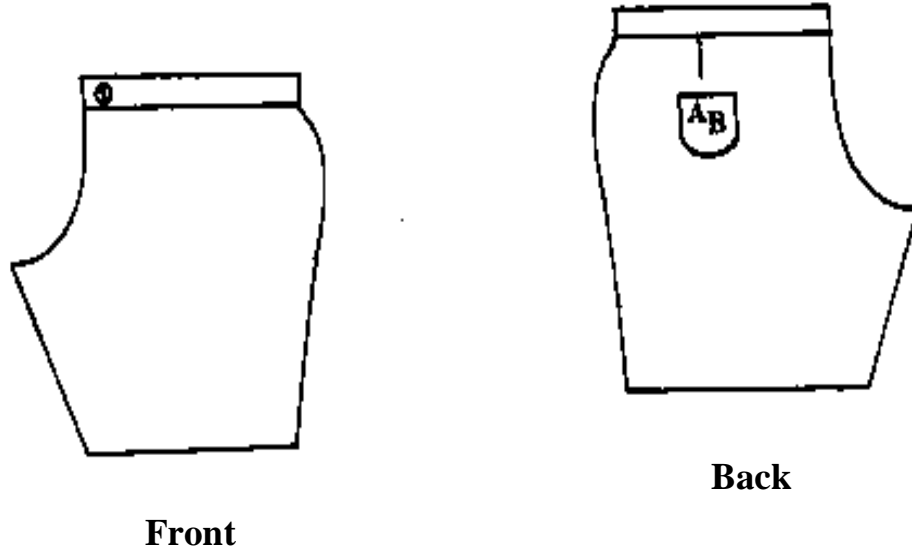
LAYOUT (Not drawn to scale)
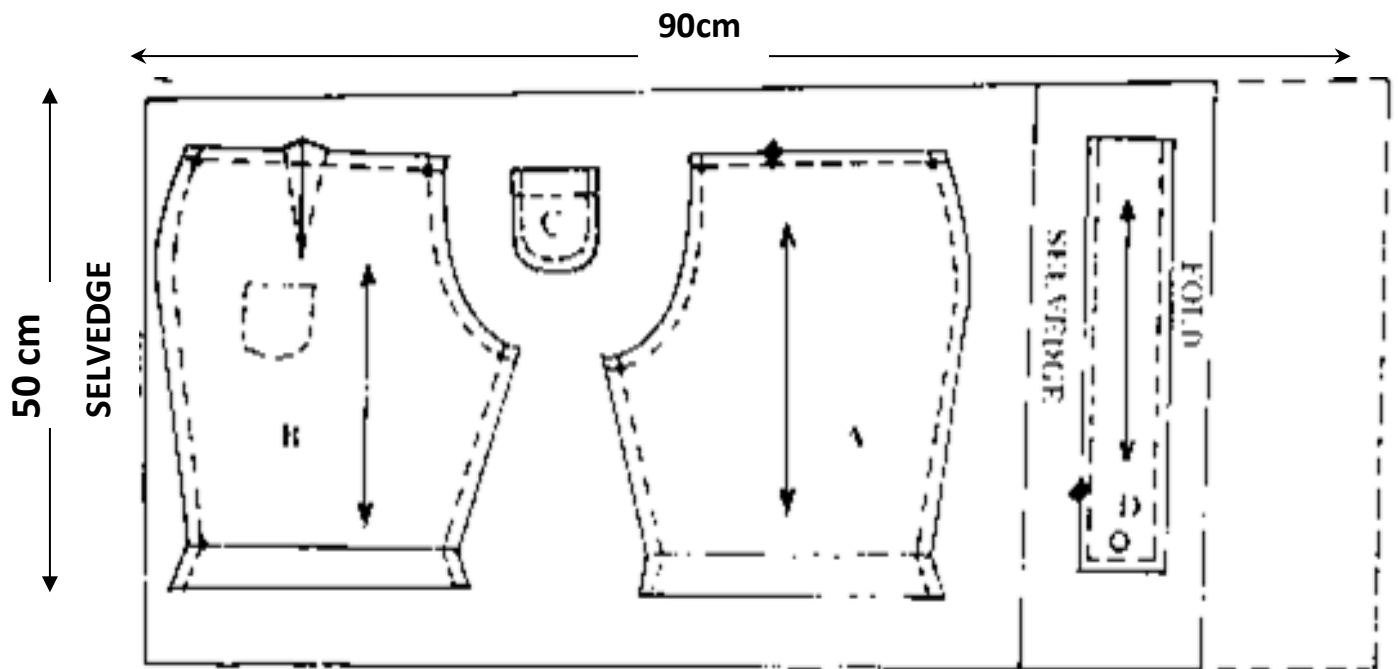
90cm

50 cm

SELVEDGE

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

Name …………………………………..…………….…   **Index No**……………..………………..……….

School …………………………………………….…   **Candidates Signature** …………………

                                                            Date: ……………….………………

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2020 TOP EXAMINERS' MOCK SERIES

441/ 3

HOMESCIENCE

Paper 3 (Practical)

July / August 2020

Time: ¾ Hours

PLANNING SESSION: 30 MINUTES

PRACTICAL TEST SESSION: 1¼ HRS

INSTRUCTIONS; TO CANDIDATES

   a) Read the test carefully
   b) Write your Name and Index number on every sheet of paper used.
   c) Textbooks and recipes may be used during the planning session as reference materials.
   d) You will be expected to keep to your order of work during the practical session.
   e) You are only **allowed** to take away your reference materials at the end of the planning
       session.
   f) You are not allowed to bring **additional notes** to the practical session.

This paper consists of 2 printed pages.

Candidates should check to ensure that all pages are printed as indicated and no questions are missing

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

THE TEST

Your friend is visiting you at lunch time. Using the ingredients listed below, prepare, cook and present a one course lunch for the two of you. Include a refreshing drink.

INGREDIENTS

- Rice/green bananas/Irish potatoes
- Onions
- Minced meat/legumes/poultry
- Tomatoes
- Seasoning
- Sugar
- Carrots
- Cooking oil/fat
- Fruits in season
- Salt
- Kales/spinach

PLANNING SESSION-30 MINUTES

Use separate sheets of paper for each task listed below and a carbon-paper to make duplicate copies.

Then proceed as follows:-

1) Identify the dishes and write down their recipes.
2) Write down your order of work.
3) Make a list of the food stuffs, materials and equipment you will require.

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JINA: ....   NAMBA YAKO: ....

SHULE: …………………………………………………..   TAREHE: ....

102/1

KISWAHILI

KARATASI YA 1

INSHA

MUDA: SAA 1¾

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2020 TOP EXAMINERS' MOCK SERIES 2

MAAGIZO

(i)   Andika Insha mbili. Insha ya kwanza ni **lazima.**

(ii)   Kisha chagua insha nyingine moja kutoka hizo zilizobakia.

(iii)   Kila insha isipungue maneno mia nne (400).

(iv)   Kila insha ina alama 20.

Karatasi hii ina kurasa mbili. Watahiniwa ni lazima waangalie kama kurasa zote za karatasi hii zimepigwa chapa sawasawa na kwa maswali yote yamo.

1. Swala la ufisadi limekuwa tatizo sugu katika jamii ya Kenya. Andika mahojiano kati ya mwenyeketi wa tume ya kupambana na ufisadi nchini na mwandishi wa habari juu ya mbinu za kupambana na ufisadi.

2. Eleza jinsi vijana katika kijiji chako wanavyojihusisha katika ujenzi wa taifa.

3. Maji ukiyavulia nguo huna budi kuyaoga.

4. Japo wenzangu waliniita mwanaharamu, nilikuwa na hakika kama mauti kuwa siku moja ningeipa buriani hali hii………….. endeleza insha hii.

JINA: ....

NAMBA YAKO: ....SHULE …………………………………………………………………

TAREHE: ....

102/2

KISWAHILI

KARATASI YA PILI

LUGHA

MUDA: SAA 2½

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2020 TOP EXAMINERS' MOCK SERIES 2

MAAGIZO

Jibu maswali yote.

Kwa matumizi ya Mtahini pekee

SWALI	UPEO	ALAMA
1	15	
2	15	
3	40	
4	10	
JUMLA	**80**	

karatasi hii ina kurasa 10 watahiniwa ni lazima waangalie kama kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

1. SEHEMU A: UFAHAMU   (Alama 15)

Soma taarifa ifuatayo kisha ujibu maswali yote

Mgomo uliingia siku ya tano.

Asubuhi hii ilikuwa mbaya. Watu mbalimbali walikwisha kamatwa mjini na shamba, wakiwemo wote waliohudhuria kikao maalumu kibandani mwa Fumu.

Siku ya pili ya mgomo, Makame aliuawa upenuni pa kibanda chake.Alipatikana amechomwa visu vitano vya mbavu. Mauaji ya kikatili lakini hayakuwa ya siri. Boga, yule kijana aliyehudhuria kikao cha pamoja na Fumu, ambaye toka mwanzo hadi mwisho wa kikao hakusema lolote, saa sita za usiku, aliingia kibandani na kumchopeka Makane visu mbele ya mkewe na wanawe, kisha aliikokota maiti na kuitupa upenuni. Asubuhi, Boga alikuwa mtu wa kwanza katika mkumbo mzima. Yeye alikamatwa kwa uuaji, makosa makubwa zaidi kuliko wenzake.

Kukamatwa kwa watu hakukusaidia kitu - mgomo uliendelea. Kule shamba, vilio vya wanawake walioachwa pweke vilisikika.

'Maskini mume wangu ….maskini, bora, bora ungaliwapeleka hao ng'ombe wakapigwa sindano; kufa kwa ng'ombe si kufa kwa nafsi yako,' alilia bibi mmoja.

'Ee, kufa kwa wengi arusi ndugu yangu we. Mimi nimelia we, hata macho yamenivimba kwa mume wangu; ati kakataa kupeleka mazao mjini na kuwajibu askari ufidhuli, lakini halafu nimeona haina maana kulia. Bora tufunge vibwebwe na sisi tuwasaidie kucheza ngoma - wafugaji mia wamekamatwa, wakulima mia mbili na hamsini, na bado wanaendelea kukamata, mji umebaki na wanawake tu; lakini watu wenyewe wana vioja, wanapochukuliwa utawaona wanacheka, sisi tulie nini?'

Mjini kulikuwa na vilio vyake.

'Mwanangu wamemchukua , wanasema watamfunga au watamwua, kafanyaje?

Daima kawatumikia , kapoteza nguvu zake juu yao na sasa…'Alimnung'unikia bibi mmoja.

'Nini bibi we, wachukuzi na <u>makuli</u> watapata haki zao, na wale wanaozurura iko siku wataajiriwa na watakuta mambo mazuri, na wafanyikazi viwandani watachoka kufukuzwa ovyo ; hivyo ndivyo alivyonambia mwanangu alipokuwa akitoka, pingu mikononi. Nililia bibi, uchungu wa mwana unaujua bibi yangu, lakini baadaye nilipofikiri, nikachanganyisha na yale aliyokuwa akaniambia Ali mwanangu, kila siku; niliuhisi uzito wa maneno yake, nikafuta chozi babu.'

Wasaliti walikuwepo, lakini nafasi ya kusaliti haikupatikana. Kwenye lango la bandarini makuli na wachukuzi walisimama imara na marungu na mapanga tayari kuwang'ariba wahaini wowote. Ng'ambo, vikundi vilitawanyika na kufanya kazi; Wengine walitembea mipini mikononi, tayari kumtia adabu yeyote aliyetokwa na imani ya mgomo. Kikundi kingine kiliwekwa sokoni. Hakuna kitu kilichoingia wala kilichotoka.

Magari hayakuwa na safari za shamba wala mjini. Askari walitembea ovyo na kumkamata waliyetaka kumkamata, lakini hakukutokea ghasia wala kupigwa mtu.

Mgomo uliendelea, ukimuathiri kila mtu, lakini wale waliodai haki zao hawakuvunja kani.

(Dunia Mti Mkavu-Saidi Ahmed Mohamed)

MASWALI

1. Toa anwani mwafaka kwa makala haya. (alama 1)

……

……………………………………………………………………….

2. Thibitisha kuwa asubuhi hiyo ilikuwa mbaya. (alama 1)

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3. Mauaji ya Makame yalikuwa ya kikatili. Eleza. (alama 4)

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4. 'Kufa kwa wengi arusi'. Thibitisha ukweli wa methali hii kwa kurejelea taarifa uliyosoma.(alama 4)

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5. Watu walikamatwa kwa nini? (alama 2**)**

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6. Kwa nini wasaliti hawakupata nafasi yao kusaliti ?   (alama 2)

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7. Eleza maana ya   (alama 2)

  i)   makuli

....

....

  ii)   Ukimuathiri

....

....

2.   SEHEMU B: UFUPISHO   (Alama 15)

Vipindi mbalimbali vya historia vimeshuhudia kuibuka kwa magonjwa ya ajabu. Magonjwa hayo yamewahangaisha watu na kuzishughulisha bongo za wanasayansi na madaktari katika kutafuta tiba. Magonjwa kama vile tauni, kifua kikuu, homa ya matumbo na ndui ni baadhi ya yale yaliyotisha sana nyakati fulani za historia ya binadamu. Magonjwa haya yaliwaua maelfu ya watu na kuibua mifumo na taratibu za maisha ya watu.

Hata hivyo , magonjwa hayo yaliweza kuchunguzwa na kutafutiwa tiba kabla ya kumaliza kabisa kizazi cha binadamu. Lakini hii ni baada ya kuwasukuma maelfu ya watu kaburini. Ulimwengu wa sasa unashuhudia janga jingine la maradhi sugu ya ukimwi. Neno 'UKIMWI' lilitolewa kutokana na athari za ugonjwa huo mwilini. Neno "UKIMWI" humaanisha ukosefu wa kinga mwilini, ambapo herufi za kwanza za maneno matatu ziliunganishwa pamoja na kuunda neno hilo.

Ugonjwa huu ambao tayari umewaua mamilioni ya watu kote ulimwenguni unazidi kuenea kwa kasi, mfano wa moto katika kicheka. Kutokana na kasi yake ya kuua watu, ugonjwa wa UKIMWI umepewa majina kama vile "umeme" na pia "ugonjwa wa vijana". Watu wengi wanaoambukizwa virusi vya UKIMWI ni wale walio na miaka kati ya 15 hadi 49. Kundi hili kwa kweli ndilo linalohesabiwa kuwa na nguvu za kutunza jamii kwa njia nyingi. Iwapo wengi katika kundi hili watakumbwa na maradhi haya, watasalia wakongwe na watoto wachanga wasioweza kujimudu.

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Nchini Kenya, UKIMWI uligunduliwa kwa mara ya kwanza mnamo mwaka wa 1984. Kufikia mwezi wa Juni 1996, inakisiwa kuwa ugonjwa huu ulikuwa umewaua watu wapatao 65,647 nchini. Hivi sasa, inasemekana kuwa takribani watu zaidi ya 500 hufa kila siku nchini Kenya kutokana na janga hili. Aidha, imedhibitishwa kwamba takriban watu milioni mbili unusu tayari watapoteza maisha yao kutokana na kuaambukizwa virusi vya ugonjwa huu humu nchini. Maradhi haya sasa yamekuwa janga la kitaifa.

Kutokana na kuongezeka kwa visa vya UKIMWI, hospitali na zahanati nyingi kote nchini zinashindwa kukidhi mahitaji ya wagonjwa. Kwa hivyo, makundi ya kujitolea na mashirika mbalimbali yameundwa ili kuwahudumia wagonjwa wa UKIMWI. Baadhi ya makundi hayo hutoa tiba ya kisaikolojia pamoja na kuwapa ushauri wa hima ya kuishi, badala ya kukata tamaa. Wagonjwa wengi pia huishia kutibiwa nyumbani kwao.

Ugonjwa huu umeathiri jamii kwa njia nyingi. Hali ya maisha na woga, ukosefu wa matumaini, ongezeko la mayatima na kuzorota kwa uchumi kutokana na kutoweka kwa kizazi chenye nguvu za kutoa huduma kwa jamii, na baadhi ya athari za maradhi haya.

Lakini jambo la kuzingatia ni hili, tujifunze kutokana na historia.Tuwe na matumaini kwamba siku moja, tiba ya ugonjwa huu itapatikana. Hii ni kwa sababu tumethibitishwa haya kutoka katika historia yetu wenyewe. Ikiwa magonjwa yaliyosababisha vifo vya wengi kutokana na ukosefu wa tiba yalitokomezwa kupitia juhudi za kimatibabu, sembuse huu ugonjwa tulio nao sasa? Huku tukijikinga kutokana na maradhi haya, tusife moyo bali tuwe na matumaini kwani subira hufuta heri.

a) Kwa kutumia maneno yako mwenyewe na bila kupoteza maana, fupisha aya nne za mwanzo (maneno 90 - 100)   (alama 3 kwa mtiririko) (alama 12)

Nakala chafu/maadalizi

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Jibu

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b) Eleza mambo yanayoleta matumaini kwa wagonjwa wa ukimwi kulingana na aya tatu za mwisho (maneno 40- 45) (alama 1 kwa mtiririko)

Nakala chafu

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Nakala Safi

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3. **SEHEMU C: MATUMIZI YA LUGHA**   **(Alama 40)**

a) Eleza matumizi ya kiambishi 'ka' katika sentensi hizi   (alama 3)

   (i) Juma alikuja akachukua kitabu akaondoka

        ……
        ………

   (ii) Mti ulikatika ukaanguka

        ……
        ………

   (iii) "Nyanya anashona nguo".Hamisi akasema

        ……
        ………

b) Changanua sentensi ifuatayo kwa njia ya jedwali   (alama 4)

   Watoto wale wanafanya kazi lakini wazazi wao wanazungumza nyumbani.

   ……
   ……
   ……
   ……

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………

c) Unda nomino kutokana na vitenzi hivi (alama 2)

(i) Onea

……

………..

(ii) Umia

……

………..

d) Akifisha sentensi ifuatayo (alama 2)

Tulifika tukaagana na mjomba hamisi aishiye mombasa

………

………

………

e) Kwa kutoa mifano mwafaka, eleza tofauti baina ya dhana zifuatazo (alama 4)

Sauti ghuna na sauti sighuna

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f) Onyesha kiima, yambwa, na yambiwa, katika sentensi hii (alama 3)

Mwanafunzi alimfutia mwalimu ubao

………

………

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g) Andika sentensi hii kwa usemi wa taarifa   (alama 2)

   "Lo! Kube wazuri hawajazaliwa," Omari alisema baada ya kumwona kisura huyo.

   ....

   ....

   ....

h) Tunga sentensi moja moja kudhihirisha matumizi ya   (alama 2)

   i. Posa

      ....

      ....

   ii. Poza

      ....

      ....

i) Andika sentensi zifuatazo katika hali zilizo kwenye mabano   (alama 4)

   i. Kijikombe chake kilivunjika baada ya kuangukia kijiwe   (ukubwa)

      ....

      ....

   ii. Mtu yule haachi kuandamana na mbwa wake aliyedhoofika kisiha (udogo)

      ....

      ....

j) Eleza maana mbili zinazotokana na sentensi ifuatayo   (alama 4)

   Mtoto alitimua mbio, kuona nyoka

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k) Andika sentensi ifuatayo katika kauli ya kutendesha   (alama 2)

Nguo zote zimekaushwa na jua

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....

l) Tunga sentensi kudhibitisha mwingiliano wa maneno yafuatayo   (alama 2)

Nomino kuwa kivumishi

....

....

m) Andika kwa wingi (alama 2)

Kuwepo kwa mshauri wake kulimfurahisha waziri

....

....

n) Geuza sentensi ifuatayo katika hali ya mazoea huku ukiondoa -amba   (alama 2)

Mtoto ambaye alikula ndiye ambaye alilia

....

....

o) Kamilisha methali ifuatayo   (alama 1)

Asiye na nadhari…

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....

....

p) Eleza maana ya msemo huu   (alama 1)

   Kwenda mbago…

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....

....

4. **SEHEMU D: ISIMU JAMII**   **(Alama 10)**

   a) Eleza majukumu manne yanayotekelezwa na lugha katika jamii   (alama 4)

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   b) Lugha huchangia vipi kuleta

      (i) Utengano katika jamii   (alama 3)

....

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....

      (ii) Utangamano katika jamii   (alama 3)

....

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JINA _____DARASA _____

102/3 KISWAHILI YA 3.

FASIHI.

MUDA : SAA 2 ½

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<u>**MAAGIZO**</u>

- **Jibu maswali manne pekee**

- **Swali la kwanza ni la lazima**

- **Maswali hayo mengine yachaguliwe kutoka sehemu nne zilizobaki yaani : Hadithi fupi, tamthilia na fasihi simulizi.**

- **Usijibu maswali mawili kutoka sehemu moja**

SEHEMU A : RIWAYA – LAZIMA

1. Fafanua ufaafu wa anwani 'Chozi la Heri' (al. 20)

SEHEMU B TAMTHILIA YA KIGOGO

2. Uliona nini kwa huyo zebe wako ? Eti mapenzi!

i) Eleza muktadha wa dondoo. (al. 4)

ii) Andika mbinu za lugha zinazojitokeza kwenye dondoo hili (al. 4)

iii) Taja hulka za mnenaji unajitokeza katika dondoo. (al. 2)

iv) Mwanamke ni kiumbe wa kukandamizwa. Thibitisha kauli hii ukirekjelea tamthilia. (al. 10)

Au

3. Ni bayana kwamba viongozi wengi nchi zinazoendelea wamejawa na tama na ubinafsi.
Thibitisha kaul hi ukirejelea tamthilia Kigogo (al. 20)

4.

SEHEMU C: TUMBO LISILOSHIBA NA HADITHI ZINGINE

SHIBE INATUMALIZA

5. "Ndugu yangu kula kunatumaliza"
"Kunatumaliza au tunakumaliza"

a) Eleza muktadha wa dondoo hili (al. 4)

b) Fafanua maana kitamathali katika kauli 'Kula tunakumaliza'   (al. 10)

c) Kwa mujibu wa hadithi hii, kwa namna gani wasemaji wanadai kula kunawamaliza? (al.6)

Au

a) 'MAME BAKARI'

Kwa mujibu wa hadithi hii, ubahaimu anaotendewa mwanamke unakuwa na athari mbaya kwake, onyesha kwa mifano mwafaka.   (al. 10)

b) 'MASHARTI YA KISASA'

"............... mapenzi ni mateso, ni utumwa, ni ukandamizaji, ni ushabiki usio na maana."

Thibitisha ukweli wa kauli hii kama unavyojitokeza kwenye hadithi.   (al. 10)

SEHEMU D : USHAIRI A

6. MWANA

    1. Kwani mamangu u ng'ombe, au u punda wa dobi ?

        Nakuuliza usambe, nayavunja madhehebi

        Nalia chozi kikombe, uchungu wanisibabi

        Hebu nambie

        Kweli jaza ya kiumbe, ni madhila na mapigo ?

     MAMA

    2. Nang'ona mwana nang'ona, sitafute angamiyo

        Sinipe kuja sonona, kwa uchungu na kiliyo

        Babayo mkali sana, kubwa pigo la babayo

        Kwani kelele kunena, huyataki maishayo ?

        Hilo nakwambia.

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MWANA

3. Sitasakamwa. Kauli, nikaumiza umiyo
Nikabeba idhilali, nikautweza na moyo
Siuvuwati ukweli, hazidisha gugumiyo
Baba hafanyi halali, huachi vumiliyo
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Nambie ipi sababu, ya pweke kwenda kondeni
Nini yako matulubu, kulima hadi jioni ?
Na jembe ukudhurubu, ukilitua guguni
Yu wapi wako muhibu, Baba kwani simuoni?
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Baba kwani simuoni, kuelekea shambani?
Kutwa akaa nyumbani, na gumzo mitaani.
Hajali hakudhamini, wala haoni huzuni.
Mwisho wa haya ni nini ? ewew mama wa imani ?
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Na kule kondeni kwako, ukate kuni kwa shoka
Ufunge mzigo wako, utosini kujitwika
Kwa haraka uje zako, chakula upate pika
Ukichelewa vituko, baba anakutandika
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Chakula kilicho ndani, ni jasho lako hakika

Kiishapo u mbioni, wapiti kupokapoka

Urudi nje mekoni, uanze kushughulika

Ukikosa kisirani, moto nyumbani wawaka

Hebu nambie.

Kweli jaza ya kiumbe, ni madhila na mapigo ?

MAMA

Wanitonesha kidonda, cha miaka na miaka

Usidhani nayapenda, madhila pia mashaka

Nakerwa na yake inda, na sasa nimeshachoka

Ninaanza kijipanga, kwa mapambano hakika

Hilo nakwambia

MASWALI

a) Mtunzi wa shairi hili alikuwa na dhaimira gani katika kutunga shairi hili   (al. 2)

b) Shairi hili ni la aina gani. Toa ithibati   (al. 2)

c) Yataje mambo yoyote matano anayolalamikia mwana (al. 5)

d) Eleza kanuni zilizotumika kasarifu ubeti wa tatu   (al.5)

e) Andika ubeti wa saba kwa lugha tutumbi   (al. 4)

f) Eleza maana haya yaliyotumika katika shairi hili
   i)   Jaza   (al. 1)
   ii)   Muhibu   (al. 1)

7. **SHAIRI B**

Soma shairi hili kisaha ujibu maswali

1. Punda kalibebe gari, gari limebeba punda.
   Mwalimu ana pakari, muashi vyuma adunda
   Jaji gonga msumari, sonara osha vidonda
   Kinyume mbele.

2. Saramala ahubiti, muhunzi tiba apenda
   Mganga anabiri, baharini anakwenda
   Hata fundi wa magari, anatomea vibanda
   Kinyume mbele

3. Wakili anahiyari, biashara kuitenda
   Mtazame askari, akazakaza kitanda,
   Mkulima mashuhuri, jembe limemshinda
   Kinyume mbele

4. Apakasa daktari, ukili anaupinda
   Seveya kawa jabari, mawe anafundafunda,
   Hazini wa utajiri, mali yote aiponda,
   Kinyume mbele

5. Msemi huwa hasemi, wa inda hafanyi inda
   Fahali hawasimami, wanene walishakonda
   Walojitia utemi, maisha yamewavunda
   Kinyume mbele

6. Kiwapi cha kukadiri, twavuna shinda kwa shinda
   Tele haitakadiri, huvia tulivyopanda

Mipango nmehajiri, la kunyooka hupinda

Kinyume mbele

MASWALI

a) Mtunzi aliuwa na malengo gani alipotunga shairi hili?   (al. 3)

b) Licha ya tarbia, eleza bahari nyingine zinazojitokeza katika shairi hili. (al. 4)

c) Eleza namna mtunzi alivyotumia uhuru wake.   (al. 5)

d) Ni mbinu gani inayotawala shairi hili?   (al. 2)

e) Uandike ubeti wa nne katika lugha nathari   (al. 4)

f) Eleza toni ya shairi hili   (al. 2)

SEHEMU E

7. FASIHI SIMULIZI

1. Eleza vigozi vinne vya kuandika methali   (al. 4)

2. Eleza fani zinazozijenga vitendawili vifuatavyo (al. 4)

   i)   Ajenga ingawa hana mikono

   ii)   Jani la mgomba laniambi habari zinazotoka ulimwenguni kotew

3. Nini tofauti kati ya misimu na lakabu ?   (al. 2)

4. I) Miviga ni nini ?   (al. 2)

   ii) Fafanua hasara zozote tano za miviga (al. 5)

5. I) Tambua kipera cha maka yafuatayo   (al. 2)

   " Wewe ni mbumbumbu kiasi kwamba ukiona picha yako kwenye kioo unashangaa ulimwona wapi mtu huyo".

   i)   Ngomezi ni nini?   (al. 1)

Name...

Index No ....   School..

Candidates Signature…………………   Date……………………….………

121/1 MATHEMATICS

Paper 1

July / August 2020 2 ½ Hours

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INSTRUCTIONS TO CANDIDATES

(a) Write your name and index number in the spaces provided above.
(b) Write the date of examination in the spaces provided above.
(c) This paper consists of **TWO** sections. Section I and Section II .
(d) Answer **ALL** the questions in section I and only **five** questions from Section II
(e) All answers and working must be written on the question paper in the spaces provided below each question.
(f) Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.
(g) Marks may be given for correct working even if the answer is wrong.
(h) Non- programmable silent calculators and KNEC mathematical tables may be used except where stated otherwise.
(i) This paper consists 16 printed papers
(j) Candidates should check the question paper to ascertain that all the papers are printed as indicated and that no questions are missing.

FOR EXAMINERS ONLY

SECTION 1

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	**TOTAL**

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SECTION 1 (50 MARKS)

1. Evaluate;

$$\frac{18 \div 3 \; of \; (-2) \times 8 \div 24}{-4 \div 6 \times 2}$$

(3mks)

2. Solve for x in the equation.

$27^{x-1} \times 3^{x+1} = 243$

(3mks)

3. Solve the following quadratic equation by completing the square.

   $2x^2 = 1.5 - 7x$ (3mks)

4. Mutua had a tank which had two taps A and B. Tap A takes $5\frac{1}{3}$ minutes to fill the tank and tap B takes 10 minutes to empty the tank. Starting with a tank ¾ full, how long will it take to fill the tank if both taps are opened at the same time?   (4mks)

5. Use reciprocal tables to work out the following correct to 4s.f. (3mk)

$$\frac{16}{2.674} + \frac{24}{0.1396}$$

6. Solve the simultaneous equation below. (2mks)

$$2a + 3b = \begin{pmatrix} 4 \\ 11 \end{pmatrix}$$

$$b - a = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$$

7. An open rectangular box measures externally 32cm long, 27cm wide and 15cm deep. If the box is made of wood 1cm thick, what volume of wood is used? (3mks)

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8. A security guard observes that the angle of elevation to the top of an observation tower is 36º, if he walks 65m towards the base of the tower, the angle becomes 57.5º. What is the height of the tower? (3mks)

9. Find the length BC of the following triangle if AC = 3.7cm, AB = 4cm and <ABC = 63º.

(4mks)

A

4cm

3.7cm

63º

B

C

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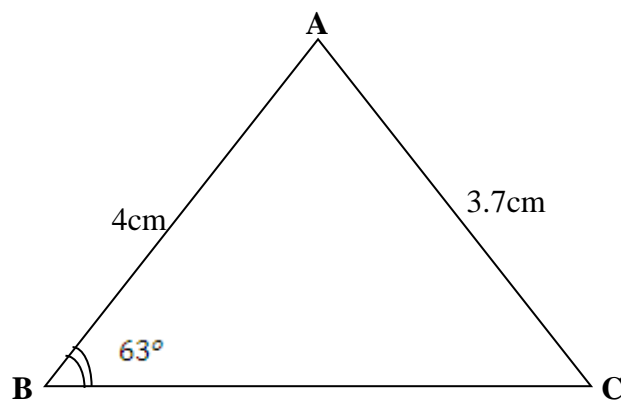
10. Find the perimeter of the figure below. Give your answer correct to four significant figures.
(3mk)

A
B
169⁰
4.2 cm
O
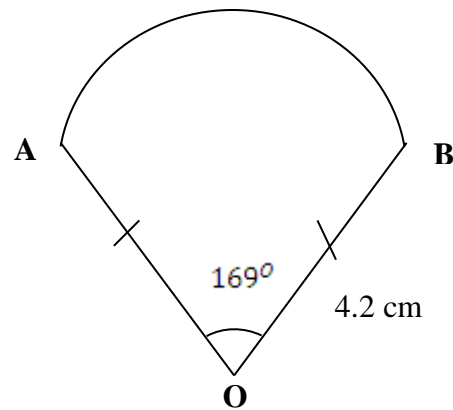
11. A shirt whose marked price is sh.800 is sold to a customer after allowing him a discount of 13%. If the trader makes a profit of 20%. Find how much the trader paid for the shirt.
(3mks)

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12. A transformation whose matrix is $\begin{pmatrix} 2x-1 & -3 \\ 2 & x \end{pmatrix}$ maps a triangle with an area of 4cm^2 onto another triangle with area of 36cm^2. Calculate the value of x. (3mks)

13. Find an estimate of the area enclosed by the curve of $y = 3x^3 - 5$, the x-axis and the lines x = 4 and x = 6 using the mid-ordinate rule with 4 rectangles. (3mks)

14. Solve for θ in the equation $\sin(3\theta + 120°) = \dfrac{\sqrt{3}}{2}$ in the range $0 \le \theta \le 180°$ (4mks)

15. Solve for P given that,   (3mks)
$$\log_2(2p + 3) - 2 = \log_2(p - 2)$$

16. Two similar cylinders have the ratio of the areas as 9 : 25. Given that the bigger cylinder has a volume of 750cm^3, calculate the volume of the smaller cylinder.   (3mks)

SECTION II

17. a) Using a ruler and a pair of compasses only construct a rhombus A B C D such that AB = 6cm and <ABC = 135º. (4mks)

b) Drop a perpendicular from C to AB extended to meet AB at N. measure BN and CN. (3mks)

c) Bisect <ABC and <DAB, let the two bisectors meet at M. Measure MA. (1mk)

d) Determine the area o f triangle ABM. (2mks)

18. a) Mr. Mulei operates two passenger service vehicles along the Nyeri-Nairobi route. One is a 16-seater matatu and the other a 8 – seater Peugeot 504. Each vehicle makes one route trip per day, and the charges are ksh.250 and ksh.300 per passenger respectively (one way). The matatu uses diesel which cost ksh.48 per litre and the Peugeot 504 uses regular petrol which costs ksh.52 per litre. The fuel consumption of the two vehicles is in the ratio 4 : 3 respectively.
   a) If the matatu uses 80litres for the round trip, determine the fuel consumption of the Peugeot 504 for the round trip. (2mks)

   b) Calculate the daily collection for each vehicle. (2mks)

   c) Determine which vehicle is more profitable (on a daily basis) and by how much. (other factors being constant). (3mks)

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d) If the prices of both types of fuel go up by 20%, determine the percentage change in the daily collection. (3mks)

19. Four towns K, L, M and N are such that L is 94km directly to the North of K and M is on a bearing of 295° from K at a distance of 60km. N is on a bearing of 310° from M and at a distance of 42km, using a scale 1 : 1000000.
   a) Make an accurate scale drawing to show the relative scale positions of the towns. (4mk)
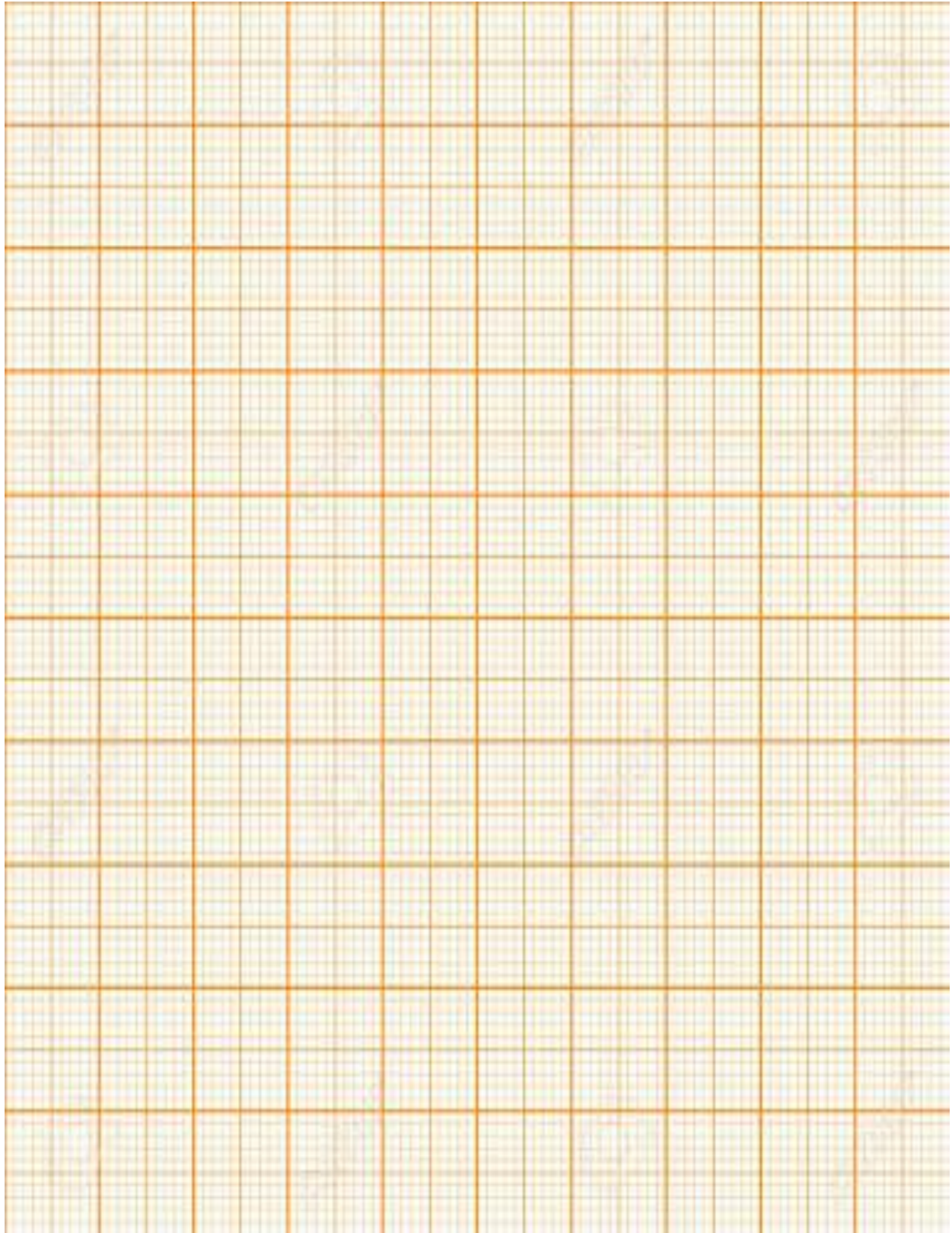
Find;
b) The distance and the bearing of L from M.   (2mks)

c) The distance and bearing of N from L.   (2mks)

d) The distance and bearing of K from N.   (2mks)

20. The co-ordinates of the vertices of rectangle P Q R S are P(1,1) Q(6,1) R(6,4) and S(1,4)
    a) i) Find the co-ordinates of the vertices of its image $P^1Q^1R^1S^1$ under the transformation
        defined by $\begin{pmatrix} 1 & -2 \\ 0 & 1 \end{pmatrix}$ (2mks)

        ii) Draw the object and its image on the graph paper.   (3mks)

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iii) On the same grid draw the image $P^{11}Q^{11}R^{11}S^{11}$ of $P^1Q^1R^1S^1$ under the matrix given by

$$\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$$ (3mks)

b) Find a single matrix which will map P Q R S to $P^{11}Q^{11}R^{11}S^{11}$ (2mks)

21. Aspire stands directly across the street from a building. The angle of depression of the top of the building from the top of the spire is 25.8^o and the angle of elevation of the top of the spire from the foot of the building is 43.5^o. Given that the distance between the spire and the building is 40m, calculate to2dp.

a) The height of the spire (2mks)

b) The difference in height between the spire and the building (3mks)

c) The height of the building (2mks)

d) The angle of elevation of the top of the building from the foot of the spire (3mks)

22. A Nissan matatu left nakuru at 9.10am at an average speed of 56km/h towards eldoret. A bus left Eldoret towards Nakuru at 10:10am travelling at an average speed of 70km/h. Given that the distance between Eldoret and Nakuru is 148km.
   a) The time at which the matatu will meet the bus. (3mks)

b) The distance from Eldoret to the meeting point (3mks)

c) Another saloon car left Eldoret at 10.30am on the same day travelling towards Nakuru. If the car travelled at an average speed of 90km/hr. How long did it take the car to catch up with the bus? (4mks)

23. The figure shown below is a circumscribed circle with the chord AB = 6cm and chord AC = 5.5 cm. angle BAC = 52° and O is the centre of the circle.
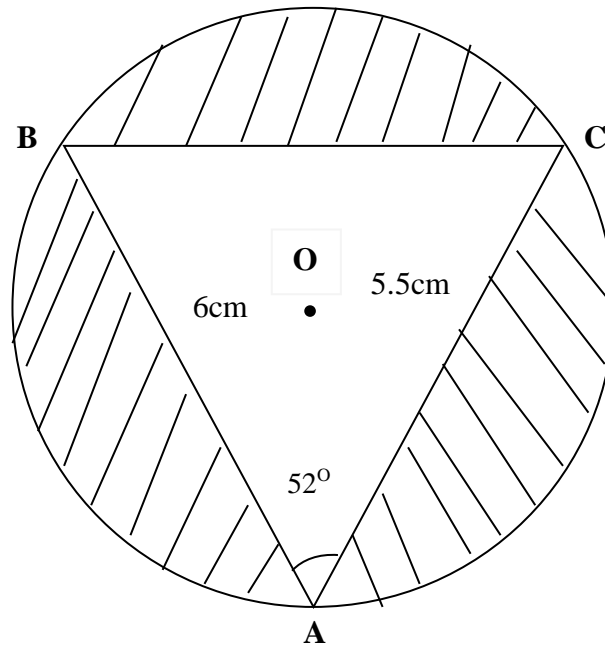
Calculate;

a) The length of the chord BC.   (3mk)

b) The radius of the circle centre O.   (3mk)

c) The area of the shaded region. (4mks)

24. The diagram, which is not drawn to scale, shows an isosceles triangle ABC in which AB = AC. The co-ordinates of A and B are (5, 6) and 0,-4) respectively.
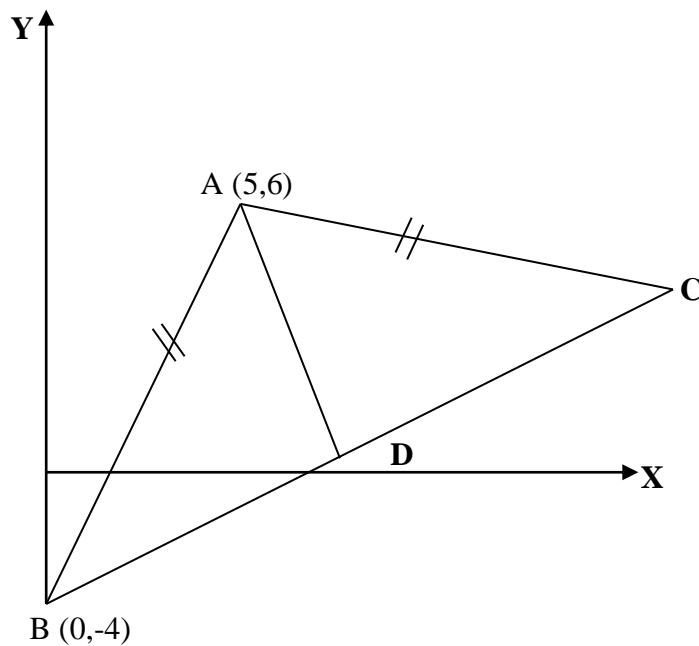
Given that the equation of line BC is y = ¾ x – 4 and that the perpendicular from A to BC meet BC at D, find;

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i)   The equation of AD   (2mk)

ii)   The co-ordinate of D   (2mks)

iii)   The co-ordinate of C   (2mks)

iv)   The area of the triangle ABC   (4mks)

Name...

Index No.. School..

Candidates Signature………………..… Date: …………………….…..……….

121/2 MATHEMATICS
Paper 2
July/August 2020
2 ½ Hours

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

(a) Write your name and index number in the spaces provided above.

 (b) This paper consists of **TWO** sections. Section **I** and Section **II.**

(c) Answer **ALL** the questions in section I and only **FIVE** questions from Section II

(d)   All answers and working must be written on the question paper in the spaces provided below each   question.

(e)   Show all the steps in your calculations, giving your answers at each stage in the spaces below each   question.

(f) Marks may be given for correct working even if the answer is wrong.

(g) Non- programmable silent calculators and KNEC mathematical tables may be used except where stated otherwise.

(h) This paper consists 16 printed papers

(i) Candidates should check the question paper to ascertain that all the papers are printed as indicated and   that   no

questions are missing.

FOR EXAMINERS ONLY

SECTION 1

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	**TOTAL**	**GRAND**	
									TOTAL	

SECTION I

Answer all questions in this section

1. By use of logarithms evaluate;

$$\sqrt[3]{\frac{0.01369 \times 396.5}{64.11 - 0.001912}}$$

(4 Marks)

2. a) Write down the first five terms of the expansion of $\left(1 - \frac{x}{3}\right)^5$. (2 Marks)

   b) Using the first three terms of the expansion. Find the values of $(1.01)^5$ to 4dp. (2 Marks)

3. Write in the simplest form using a rational denominator. (2 Marks)

$$\frac{2\sqrt{3}}{\sqrt{3}+\sqrt{2}}$$

4. The data below shows marks scored by 8 form four students in Ikutha district mathematics content

44, 32, 67, 52, 28, 39, 46, 64. Calculate the mean absolute deviation. (4 Marks)

5. Make P the subject of the formula given,

$$d = \sqrt[3]{\frac{P}{Q-P}}$$ (3 Marks)

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6. The equation of a circle is $x^2 + y^2 + 6x - 10y - 2 = 0$. Determine the co-ordinates of the centre of the circle and its radius. (3 Marks)

7. Find the equation of the tangent at point $(3,1)$ to the curve $y = x^2 - 4x + 4$. (3 Marks)

8. Kitheka deposited ksh.50,000 in a financial institution in which interest is compounded quarterly. If at the end of second year he received a total amount of ksh79,692.40. Calculate the rate of interest p.a (3 Marks)

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9. A contractor employs 40 men to do a piece of work in 60 days each man working 9 hours a day. He is then requested to do the job in 48days. How many more men working 10hours a day does he need to employ. (3 Marks)

10. $3cm^3$ of water is added to $2cm^3$ of a certain medicine which cost sh.12 per cm^3. The chemist sells the diluted medicine at sh.4.50 per cm^3. Calculate the percentage profit. (3 Marks)

11. A(50^oS 20^oE) and B(50^oS 160^oW) are two points on the earth's surface. Calculate the distance between A and B in kilometer along the great circle. (take radius of the earth to be 6370km). (4 Marks)

12. Evaluate $\int_{-1}^{2} \frac{(1-x^2)}{x+1}\, dx.$ (3 Marks)

13. Chords AB and CD in the figure below intersect externally at Q. if AB = 5cm BQ = 6cm and DQ = 4cm, calculate the length of chord CD.   (3 Marks)
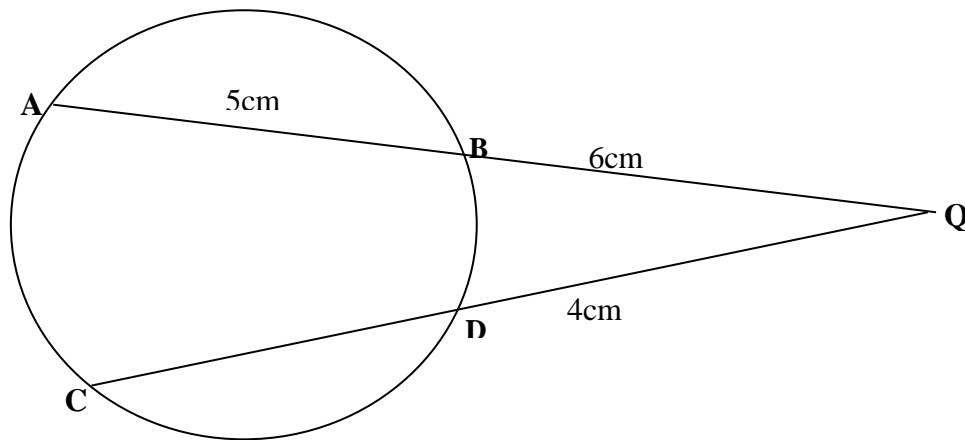
14. Find the sum of the following GP.

2 + 10 + 50 …….1250   (3 Marks)

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15. Given that a = 7.6cm, b=2.4cm and c = 4.0cm find the maximum value of;

$$\frac{1}{ab-bc}$$

(3 Marks)

16. Two bags A and B each contain a mixture of red and blue balls. Bag A contains 9 red balls and 11 blue balls while bag B contains 15 red balls while and 10 blue balls.
    A bag is selected at random and a ball is picked at random from it
    a) Draw a probability tree diagram to illustrate this information. (1 Mark)

    b) Find the probability that the ball picked is blue. (2 Marks)

17. a)Income tax is charged on an annual income at the following rate

Taxable income k£ pa	Rates Ksh per pound
1 – 2100	2
2101 – 4200	3
4201 – 6300	5
6301 – 8400	7
8401 and above	9

Mrs Mwangi earns a basic salary of ksh.24000 per month. She is housed and pays a nominal rent of ksh800 per month pays insurance premium of ksh.800 per month for which she gets a tax relief of 10% on the total premium paid and her family relief is k£ 320 per year.
Calculate her;
a) Total taxable pay per year (ksh).   (2 Marks)

b) Total relief per year (ksh).   (2 Marks)

c) Tax deduction per month (ksh).   (4 Marks)

d) Net salary per month.   (2 Marks)

18. The table below shows some values of the function
    $y = x^3 - 2x^2 - 2x + 2$ for $-2 \le x \le 3$

x	-2	-1	0	1	2	3
x^3	-8		0			
$-2x^2$	-8		0			
$-2x$	4		0			
2	2		2			
y	-10		2			

a) Complete the table.   (2 Marks)
b) Use the completed table to draw the graph of the function
    $y = x^3 - 2x^2 - 2x + 2$ (3 Marks)

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c) Use integration method to find the area bounded by the curve.   (5 Marks)

19. A pyramid with a vertex O and edge OA, OB, OC and OD each of 17cm long stands on a
     square base ABCD of side 8cm as shown below.

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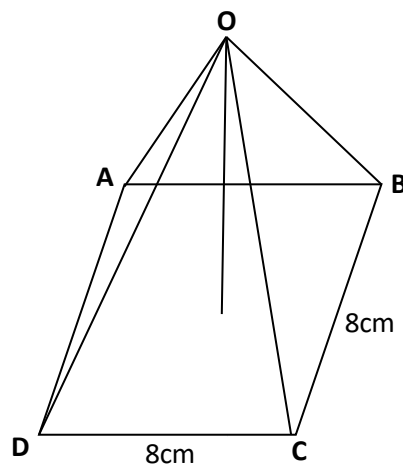
Calculate;

a) The height OP of the pyramid. (3 Marks)

b) The angle between an edge and the base. (3 Marks)

c) The angle between a sloping face and the base. (4 Marks)

20. A particle moves along a straight line such that its displacement S metres from a given point is
$S = t^3 - 5t^2 + 3t + 4$. Where t is time in seconds find;

a) The displacement of the particle at t = 5. (2 Marks)

b) The velocity of the particle when t = 5. (2 Marks)

c) The values of t when the particle is momentarily at rest. (3 Marks)

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d) The acceleration of the particle when t = 2. (3 Marks)

21. A baker bakes two types of cookies, a marmalade cake and sweat loaves of bread. Each day he bakes x cakes and y sweat loaves of bread. The conditions of the cookies are subject to the following conditions.

$x \geq 20$

$y > 10$

$4x + 3y \leq 240$

$5x + 9y \geq 450$

He makes a profit of ksh 5 on each cake and ksh 6 on each loaf of bread.

a) Draw a graph to represent the above information. (6 Marks)

b) From the graph, determine how many cookies of each type he should bake to maximize his daily profit.
   (2 Marks)

c) Calculate the maximum profit.   (2 Marks)

22. Three quantities P Q and R are such that P varies directly as the square of Q and inversely as the square root of R.
   a) Given that P=20 when Q=5 and R=9, find P when Q=7 and R=25.   (4 Marks)

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b) If Q increased by 20% and R decreases by 36%, find the percentage change in P.

(6 Marks)

23. Complete the table below by filling in the blank spaces.

a)   (3 Marks)

x	0	30	60	90	120	150	180	210
$Y_1 = 3Sinx° - 1$	-1	0.5						
$Y_2 = Cos\ x$	1	0.87	0.5			-0.87		

b) On the same axis draw the graph of $y = 3\sin x° - 1$ and $y = Cos\ x°$ for $0° \leq x \leq 210°$.   (4 Marks)

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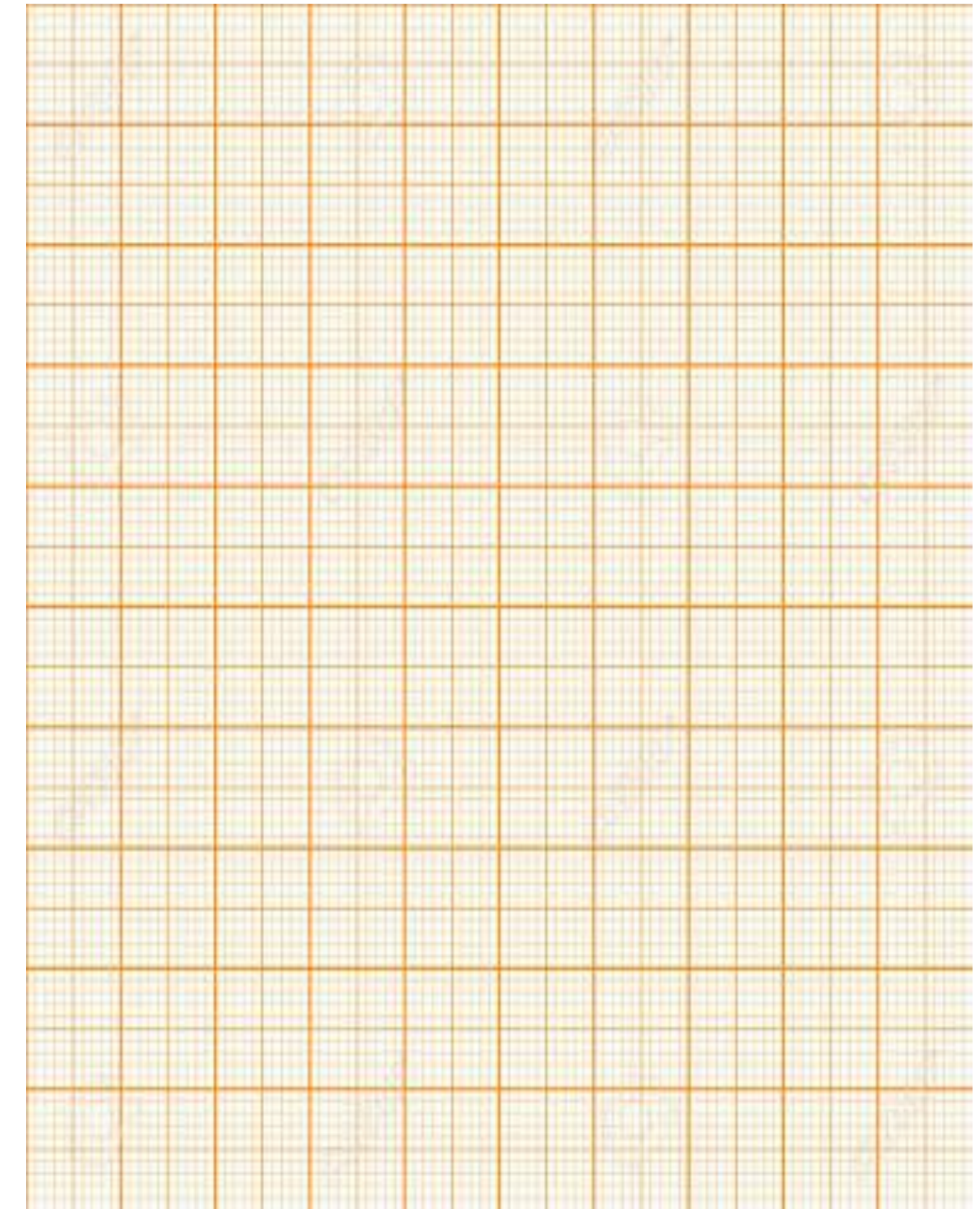
c) Use the graph to solve the equation $3 \sin x° – \cos x = 1$ (3 Marks)

24. In the triangle PQR below L and M are points on PQ and QR respectively such that PL : LQ = 1:3 and QM:MR = 1:2. PM and RL intersect at X. Given that PQ = b and PR =c.
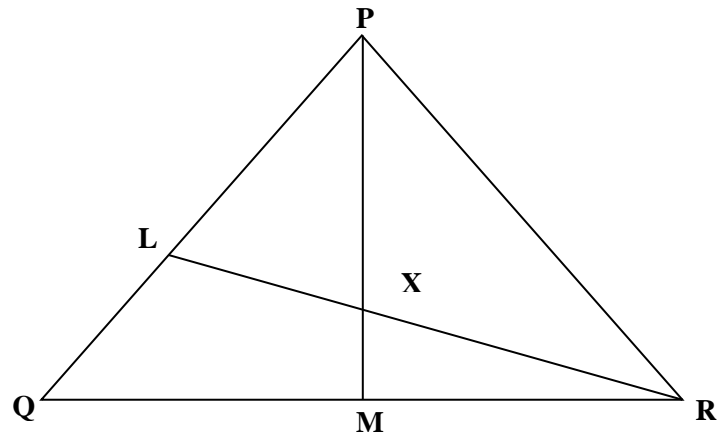
a) Express the following vectors in terms of b and c.
   i)   QR   (1 Mark)

   ii)   PM   (1 Mark)

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iii)   RL   (1 Mark)

b) By taking Px = hPm and Rx = kRl where h and k are constants find two expressions of Px in terms of h , k, b and c. Hence determine the values of the constant h and k. (6 Marks)

c) Determine the ratio Lx : XR   (1 Mark)

NAME: ……………………………………….   INDEX NO: …...…………………….

SCHOOL: ……………………………………   Candidate's signature: ……………..

Date: …………………………………

232/1

PHYSICS

PAPER 1

JULY/AUGUST 2020

TIME: 2 HOURS

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS
1. The paper consists of two sections, Section **A** and **B**.
2. Answer **ALL** the questions in section A and B in the spaces provided.
3. **ALL** answers and working **MUST** be clearly shown.
4. Mathematical tables and electronic calculators **may be** used.

Take acceleration due to gravity $g = 10ms^{-2}$

FOR EXAMINER'S USE:

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1-14	25	
B	15	13	
	16	10	
	17	12	
	18	10	
	19	10	
	TOTAL	**80**	

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

Prefer Calling Sir Obiero Amos @ 0706 851 439 for the Marking Schemes

SECTION A (25 MARKS)

1. i) Determine the reading of the vernier callipers shown in figure 1 below.
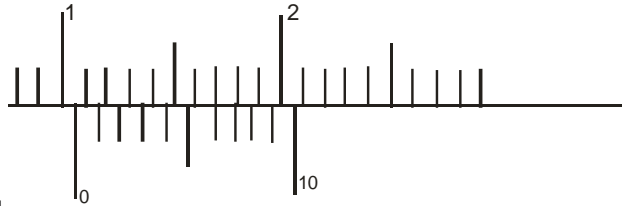
Figure 1

Reading (1Mark)

ii) If the instrument above has zero error of -0.02cm, determine the actual; reading of the vernier callipers. (1 Mark)

2. Highlight **two** facts which shows that heat from the sun does not reach the earth surface by convection. (2 Marks)

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3. Water tanks in houses are erected as high as possible. Explain. (1 Mark)

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4. Two burettes A and B were arranged as shown below.

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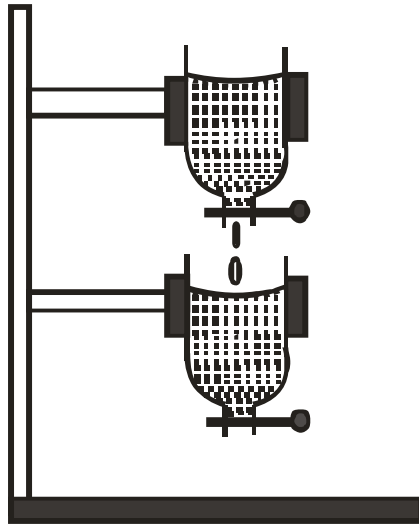
Figure 2

Burette A leaked into burette B at a rate of 10 drops per minute. If the initial reading on both burettes was 25ml, what would be their readings at the end of one hour if B does not leak and the average volume of one drop of water is $2.0 \times 10^{-8} m^3$? (3 Marks)

5. Highlight **one** problem caused by capillarity. (1 Mark)

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6. The figure below shows spherical balls placed at different positions on a surface.
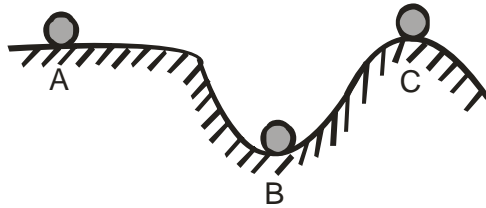
Figure 3

Describe the state of equilibrium of the ball in each position. (3 Marks)

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7. State any **two** differences between boiling and evaporation. (2 Marks)

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8. Figure 4 shows a uniform wooden bar 50cm long whose weight is 5N. Determine the distance X and Y if the bar is balanced.

(3 Marks)

Fig 4

8N

12N

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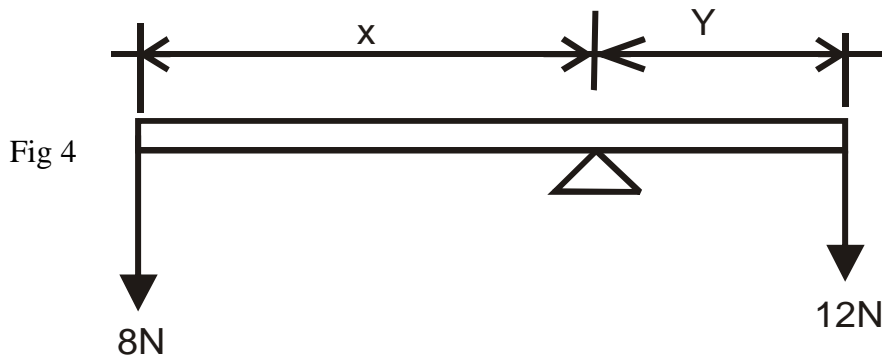
9. When a body is partially immersed in a liquid, it appears lighter than it actually is. Explain.
   (1 Mark)

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10. Figures 5 below shows capillary tubes, one immersed in water and another immersed in mercury.
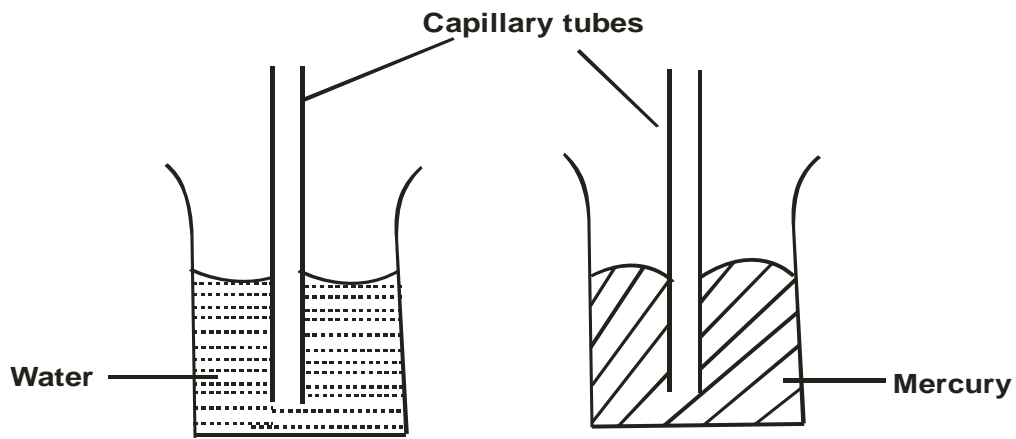
Figure 5

Complete the diagrams above to show the levels of water and mercury in the capillary tubes.

   (2 Marks)

11. State the property of Freon that makes it useful as a refrigerant liquid.   (1 Mark)

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12. Figure 6 below shows two glasses of different thickness.
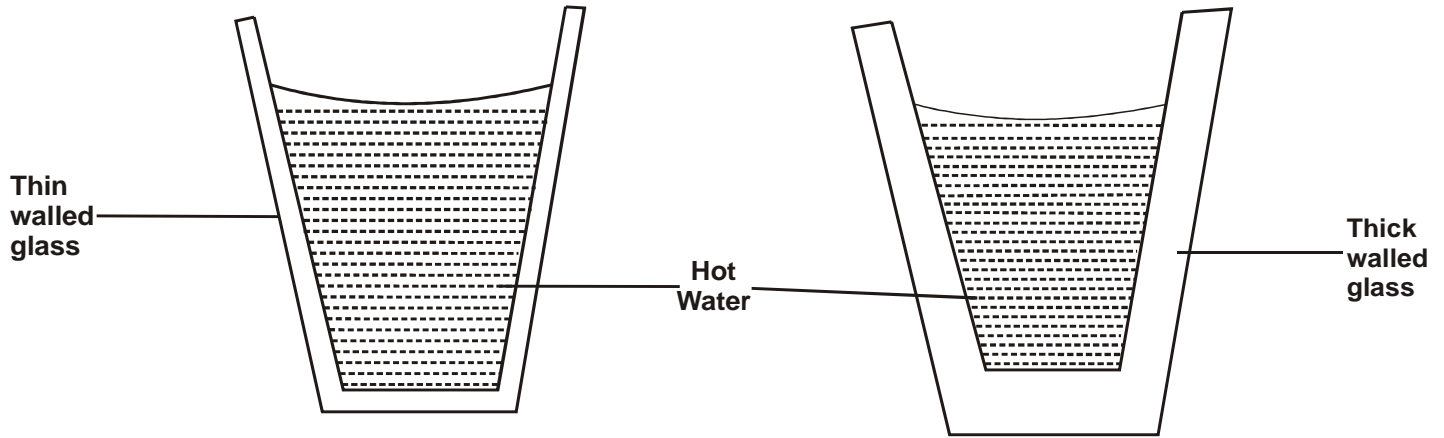
Figure 6

Hot water was poured in both glasses. What is likely to be observed and why?   (2 Marks)

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13. Define the term banking as used in uniform circular motion.   (1 Mark)

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14. State **one** factor which make gases compressible.   (1 Mark)

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SECTION B (55 MARKS)

15. a) State Boyle's law. (1 Mark)

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b) A group of students carried out an experiment in a laboratory to verify Boyle's law and recorded their results in the table below.

Pressure $(N/m^2) \times 10^3$	400	320	160	80
Volume (mm^3)	2.0	2.5	5.0	10.0
$\frac{1}{volume}$ (mm^3)	0.5			

i) Complete the table. (1 Mark)

ii) On the grid provided, plot a graph of pressure (y-axis) against $\frac{1}{volume}$. (5 Marks)

iii) From your graph, determine the volume when the pressure was 240K N/m^2. (2 Marks)

iv) State **one** physical property of the gas which was kept constant during the experiment. (1 Mark)

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c)

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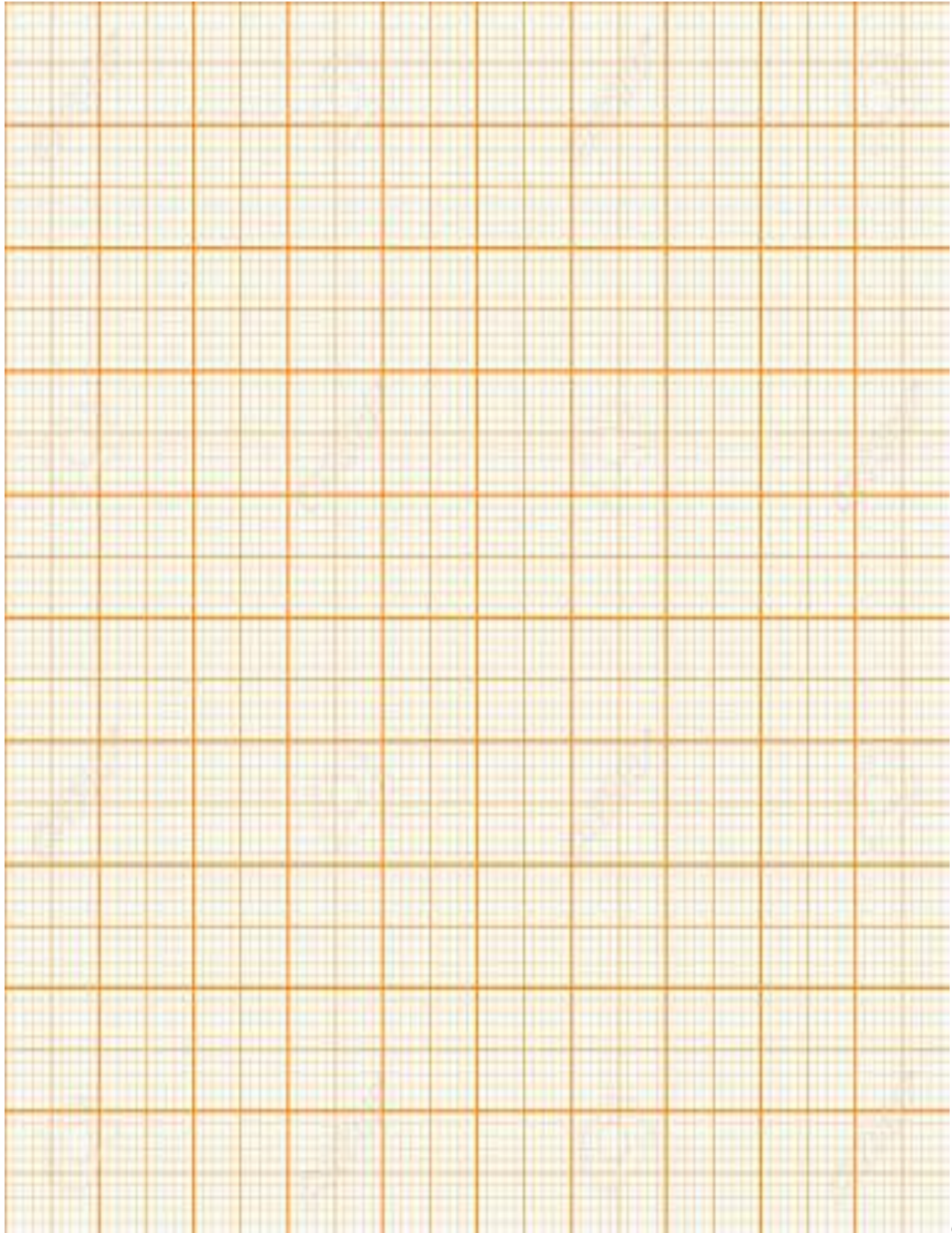
A mass of oxygen gas occupies a volume of $1200cm^3$ at $27^{\circ}c$ and a pressure of 1.2 atmospheres. It is compressed until its volume is $600cm^3$ and its pressure is 3.0 atmospheres. What is the temperature of the gas after compression? (3 Marks)

16. a) A machine is a device that enables work to be done more easily and conveniently. State any two ways in which a machine makes work easier. (2 Marks)

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b) Figure 7 shows a wheel and axle being used to raise a load W by applying an effort E. The radius of the wheel is R and of the axle is r.
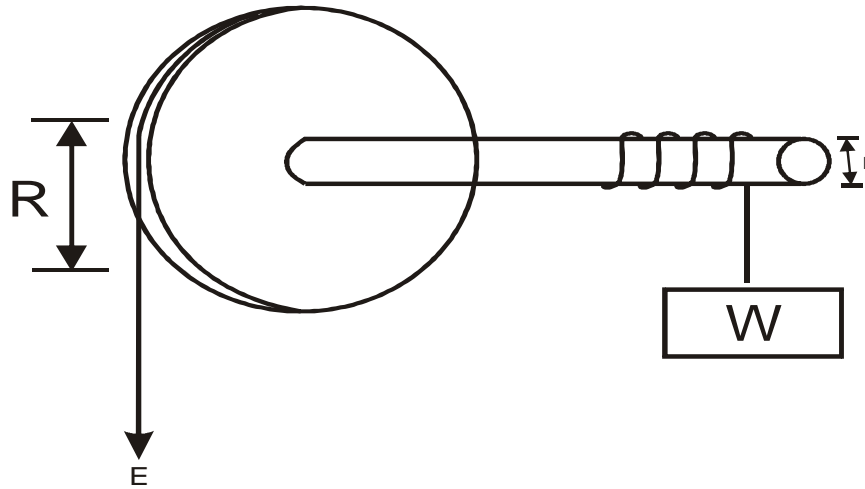
Figure 7

i) Show that the velocity ratio (V.R) of this machine is given by $\frac{R}{r}$.　　　　　(3 Marks)

ii) Given that r = 5cm, R = 50cm, determine the effort required to raise a load of 200N if the efficiency (   ) of the machine is 90%.　　　　　(4 Marks)

iii) It is observed that, the efficiency of the machine increases when it is used to lift large loads. Give a reason for this. (1 Mark)

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17. a) State the law of flotation. (1 Mark)

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b) A rectangular block of cross section area $0.08m^2$ is immersed in a liquid of density 1200kgm^{-3}. The top and the lower surfaces are 20cm and 80cm below the surface of the liquid respectively

i) What is the downward force on the top of the block? (2 Marks)

ii) Calculate the upthrust on the block. (3 Marks)

c) A block of glass of mass 0.25kg floats in mercury of density $1.36 \times 10^4 kgm^{-3}$. What volume of the glass lies under the surface of mercury? (3 Marks)

d) The weight of a cube in air is 0.5N. When immersed in water, it weighs 0.44N and in oil weighs 0.46N. Calculate the relative density of the oil. (3 Marks)

18. a) i) State any necessary assumption made in the study of the fluid flow. (1 Mark)

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ii)   Highlight any **two** conditions under which the flow of the fluid becomes turbulent.

(2 Marks)

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b) Figure 8 below shows the cross section of an aeroplane wing, with the aeroplane moving in the direction shown by the arrow.
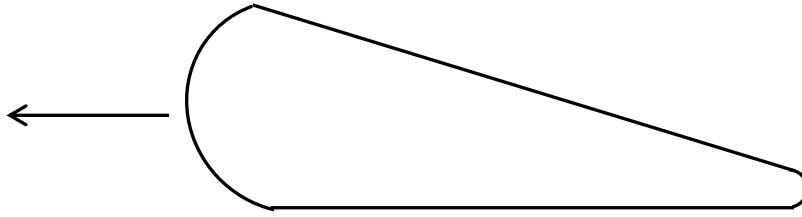
Figure 8

i) Sketch the streamlines to show how air flows past the wing as the aeroplane moves

(1 Mark)

ii) Explain how dynamic lift of the aeroplane is caused by the wing. (3 Marks)

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c) A water pipe of diameter 5.2cm is connected to another pipe of diameter 1.3cm. The speed of water in the smaller pipe is $3ms^{-1}$. Calculate,

i) The speed of water in the larger pipe. (2 Marks)

ii) The mass flux if the density of water is $1g/cm^3$. (1 Mark)

19. The tape in figure 9 below was obtained from an experiment using a ticker timer of frequency 50Hz. The tape was pulled by a trolley.
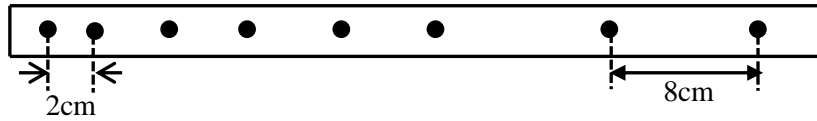
Figure 9

If the trolley that was pulling the tape was accelerating,

  i) Show on the diagram, the direction of acceleration of the trolley.   (1 Mark)

  ii) Calculate the acceleration of the trolley.   (3 Marks)

b) A stone is allowed to fall freely from the top of a tower 60 metres high. At the same time, a second stone is thrown vertically upwards with a velocity of 20m/s from the ground. Find;

  i) The time taken by the two stones before they meet.   (4 Marks)

  ii) The height at which the two stones meet.   (2 Marks)

NAME: ………………………………………. INDEX NO: ..…..…………………….

SCHOOL: …………………………………… Candidate's signature: ……………...

Date: ……………………………………

232/2

PHYSICS

PAPER 2

JULY/AUGUST 2020

TIME: 2 HOURS

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2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS
1. This paper consists of two sections, Section **A** and **B**.
2. Answer **ALL** the questions in section A and B in the spaces provided.
3. **ALL** answers and working **MUST** be clearly shown.
4. Mathematical tables and electronic calculators may be used.

Take acceleration due to gravity $g = 10ms^{-2}$

FOR EXAMINER'S USE:

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1-14	25	
B	15	11	
	16	12	
	17	13	
	18	10	
	19	09	
	TOTAL	**80**	

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

SECTION A (25 MARKS)

1. Give a reason why it is not advisable to smoke a cigarette near a charging battery. (1Mark)

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2. Figure 1 below shows a cross section of an electric mortor. On the diagram, show the direction of the force on to the two conductors. (2 Marks)
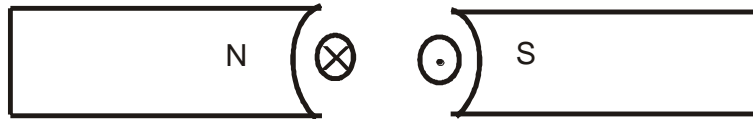
   Figure 1

3. Figure 2 below shows a ray of light incident on a mirror at an angle of 45°. Another mirror is placed at an angle of 60° to the first one as shown.
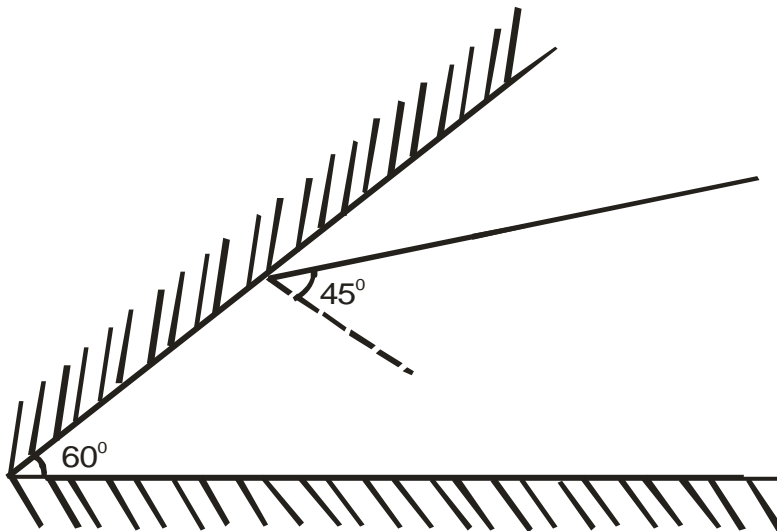
   Figure 2

   i) Sketch the path of the ray until it emerges, indicating all the angles. (2 Marks)

   ii) Calculate the number of images formed when an object is placed between the two mirrors. (1Mark)

4. State the functions of the following features of a lighting arnestor.

   i) Sharp spikes   (1 Mark)

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   ii) Thick copper rod   (1 Mark)

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5. An electric immersion heater is rated 240V, 3kW and is to be connected to a main supply, using 10A fuse. Showing your working, state whether the fuse is suitable or not.   (2 Marks)

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6. State the Snell's law.   (1 Mark)

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7. State any **two** differences between electromagnetic waves and mechanical waves. (2 Marks)

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8. State with a reason the effect on X-rays produced in an X-ray tube, when the accelerating potential difference across the tube is increased.   (2 Marks)

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9. State the function of the control grid of the cathode ray oscilloscope and state how it is achieved. (2 Marks)

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10. a) Define the term "radioactivity." (1 Mark)

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b) Uranium $^{238}_{92}U$ emits an alpha particle to become another element X^{92}, as shown in the equation below.

$$^{238}_{92}U \longrightarrow \ ^{A}_{Z}X + \text{alpha particle}$$
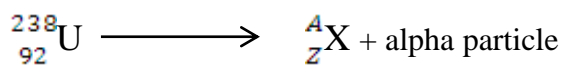
Give the values of A and Z. (1 Mark)

11. The ammeter in the circuit in figure 3 has a negligible resistance. When the switch S is closed, the ammeter reads 0.1. Calculate the internal resistance of the battery. (2 Marks)

Figure 3

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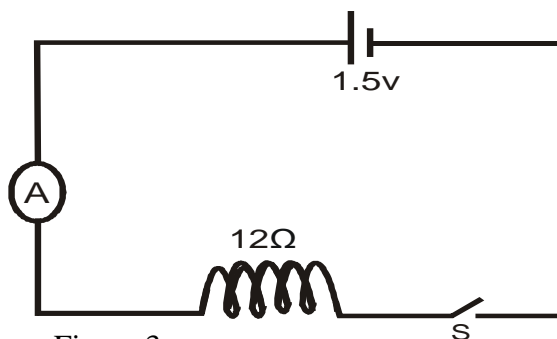
12. Figure 4 shows an object in front of a concane mirror. Complete the diagram to locate the position of the image formed. (2 Marks)
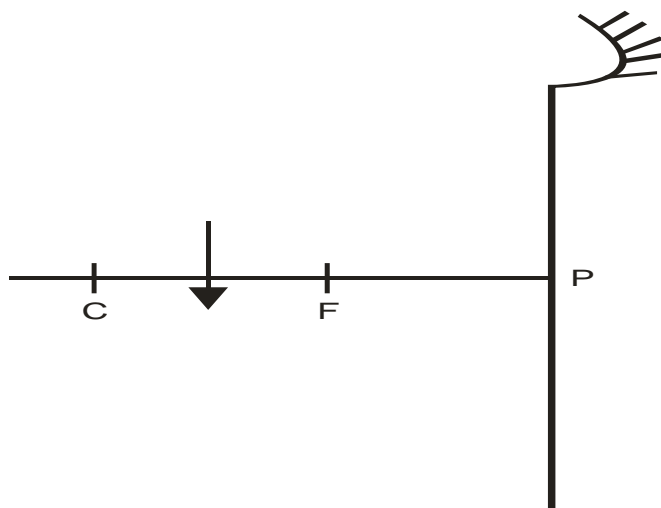
Figure 4

13. Explain why in a transformer, it is alternating current which is fed to the primary coil and not the direct current. (1 Mark)

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14. A lens has a focal length f of 12.5cm. Determine its power. (1 Mark)

SECTION B (55 MARKS)

15. a) State the **two** conditions necessary for electromagnetic induction to take place. (2 Marks)

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b) Figure 5 shows two coils P and Q placed close to each other.
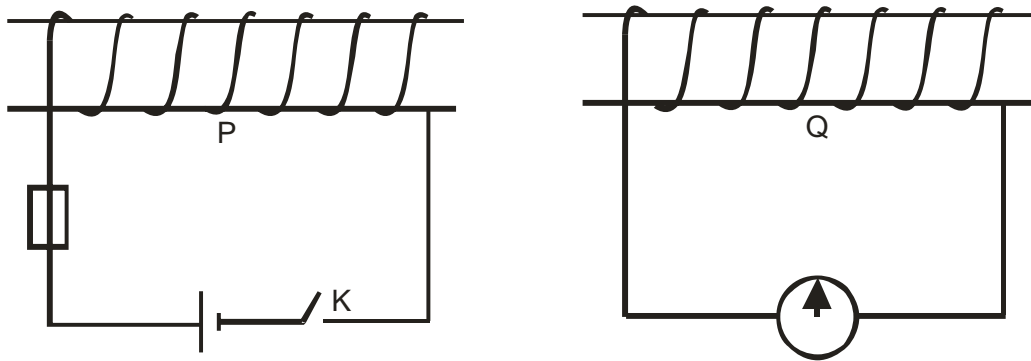
Figure 5

When the switch k is closed, an e.m.f is induced in coil Q. Similarly, an e.m.f is induced in coil Q when the switch K is opened.

i) Explain why the induced current in coil Q is higher when the switch K in coil P is opened than   when it is closed.

    (2 Marks)

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ii) With the help of diagrams, show the direction of the induced current in coil Q when the switch k   is closed and when it is opened.

    (2 Marks)

iii) Which phenomenon is being demonstrated in this set up? (1 Mark)

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iv) Suggest a way in which the induced e.m.f in the secondary coil Q can be increased.(1 Mark)

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c) A transfomerr uses 240v a.c supply to deliver 9.0A at 80V to a heating coil. If 10 percent of the energy   taken from the supply is lost in the transformer itself, determine the current in the primary winding. (3 Marks)

16. Figure 6 shows the essential components of an x-ray tube.
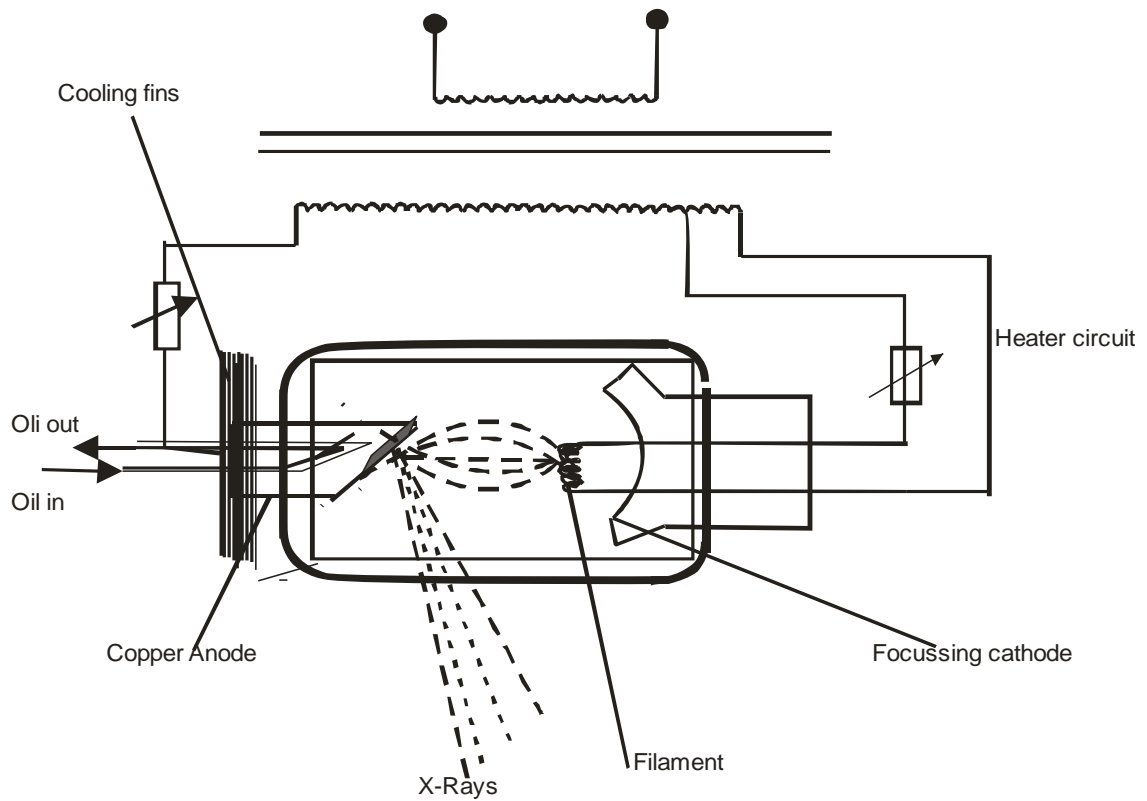
Figure 6

a) i) Explain how electrons are produced by the cathode. (2 Marks)

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ii) State a reason why the cathode is concane shaped. (1 Mark)

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iii) State **two** ways in which cooling is achieved in this X-ray machine. (2 Marks)

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b) Explain why:

   i) It would be necessary for the target to rotate during operation of this machine.   (1 Mark)

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   ii) The machine should be surrounded by a lead shield.   (1 Mark)

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c) If the accelerating potential difference is 100kV, calculate;

   i) The kinetic energy of the electrons arriving at the target ($e = 1.6 \times 10^{-19}$c).   (2 Marks)

   ii) The minimum wavelength of the emitted x-rays if 0.5% of the electron energy is converted into   x-rays ($h = 6.63 \times 10^{-34}$Js, $c = 3.0 \times 10^{8}$m/s).   (3 Marks)

17. a) What is the meant by the term work function? (1 Mark)

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b) When the frequency of the illuminating radiation is just equal to the threshold frequency of the surface, no photoelectric effect is observed. Explain why. (1 Mark)

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c) In a photoelectric effect experiment, a certain surface was illuminated with radiation of different frequencies and stopping potential determined for each frequency. The results were then recorded as shown below.

Stopping potential V_s(v)	1.83	1.42	1.10	0.6	0.2
Frequency f(Hz) x 10^{14}	8.0	7.0	6.0	5.0	4.0

i) Plot a graph of stopping potential (y –axis) against frequency. (4 Marks)

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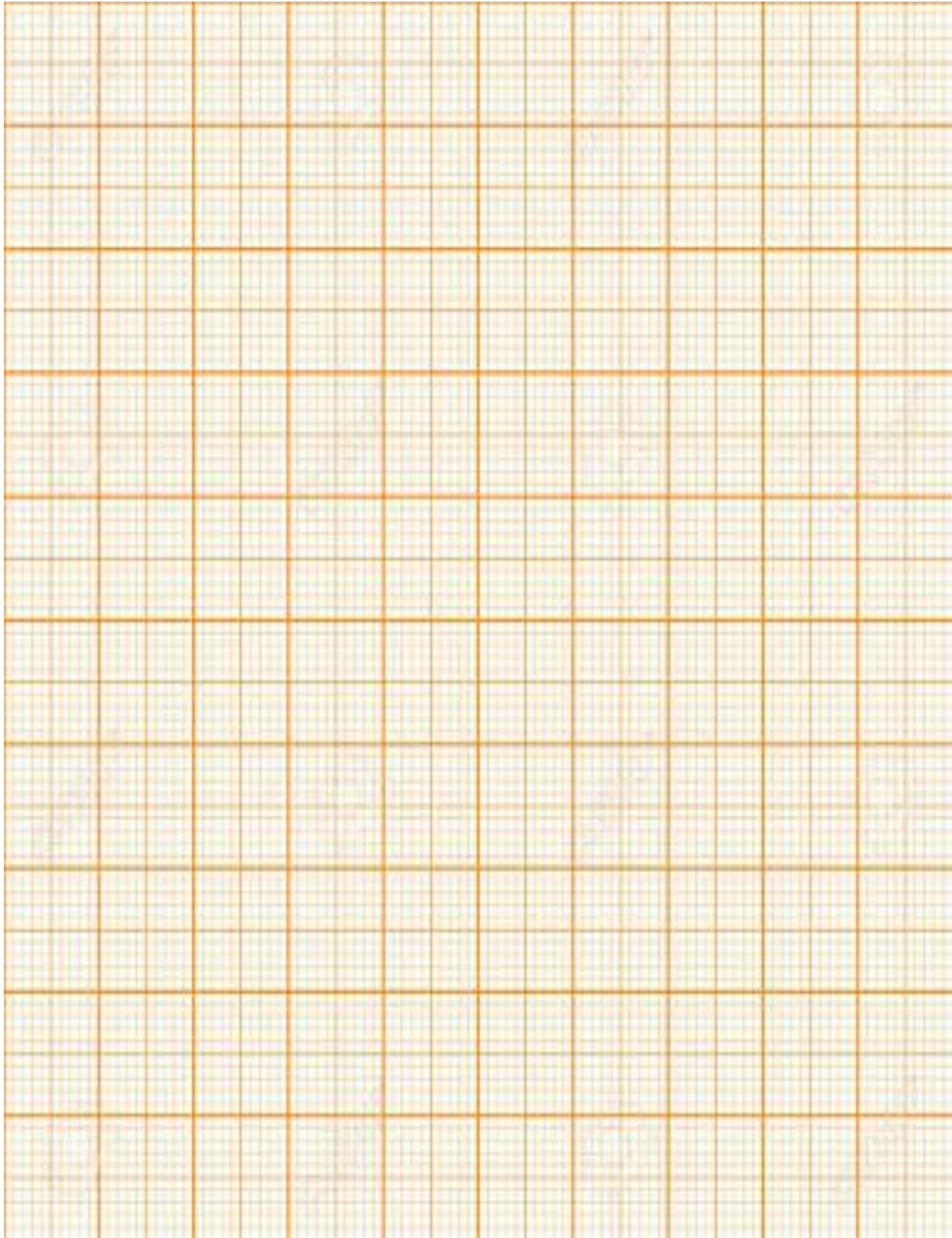
ii)   From the graph, determine the Planck's constant, h and the work function of the surface given that $eV_s = hf - hf_o$ (e = 1.6 x 10^{-19}c). (4 Marks)

d) A surface whose work function θ is 2.46eV is illuminated by light of frequency 3.0 x 10^{15} Hz.   Calculate the maximum kinetic energy of the ejected photoelectrons. (h=6.63 x 10^{-34}js). (3 Marks)

18. a) Highlight **one** distinguishing factor between convex and concave lenses.   (1 Mark)

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b) There are **two** cases under which a converging lens can produce magnified images.

   i) With the aid of ray diagram(s), show the position of the object and the image in each case.

                                                      (4 Marks)

iii)   State any **two** differences between the images in the two cases.   (2 Marks)

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c) A convex lens forms an image five times the size of the object on a screen. If the distance between the object and the screen is 120cm, determine the focal length of the lens. (3 Marks)

19. a) i) State the difference between progressive and stationary waves.   (1 Mark)

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ii) Give **two** distinctions between the way sound waves and electromagnetic waves are transmitted. (2 Marks)

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b) A student stands between two walls and 400m from the nearest wall. The walls are x metres apart. Every time the student claps, two echoes are heard by the student, such that the first echo comes after 2.5seconds while the second echo follows 2 seconds later. Use this information to calculate;

i) The speed of sound in air. (2 Marks)

ii) The separation distance x between the two walls. (3 Marks)

c) State **two** factors affecting the speed of sound in gases. (2 Marks)

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NAME: ....

INDEX NO: ....   SCHOOL: ....

Candidate's signature: ....   Date: ....

232 / 3

PHYSICS PAPER 3

JULY / AUGUST 2020

(PRACTICAL)

2 ½ HOURS

AMOBI SOFT COPY PUBLISHERS

2020 TOP EXAMINERS' MOCK SERIES 2

INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index number in the spaces provided above.
- ❖ Answer **ALL** the questions in the spaces provided in the question paper.
- ❖ You are supposed to spend the first 15 minutes of the 2 ½ hours allowed for this paper reading the whole paper carefully before commencing your work.
- ❖ Marks are given for a clear record of the observations actually made, for their suitability and accuracy and the use made of them.
- ❖ Candidates are advised to record their observations as soon as they are made.
- ❖ Mathematical table and electronic calculators **may be** used.

FOR EXAMINER'S USE ONLY

Question	Maximum Score	Candidates Score
1	20	
2	20	
Total	**40**	

This paper consists of 6 printed pages. Candidates should check the question paper to ensure that all pages are

printed as indicated and no questions are missing.

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1. You are provided with the following apparatus.

   - Two metre rules (one metre rule and half metre rule)

   - Two stands and clamps

   - Two bosses

   - Three pieces of threads (at least 1m, 30cm, 30cm)

   - A spring

   - A piece of cellotape or a plasticine

   - One mass 100g

   - A stop watch

   - Optical pin

Proceed as follows

i) Set the apparatus as shown in the figure below. Attach the optical pin (to act as the pointer) at one end of the metre rule using a cellotape.

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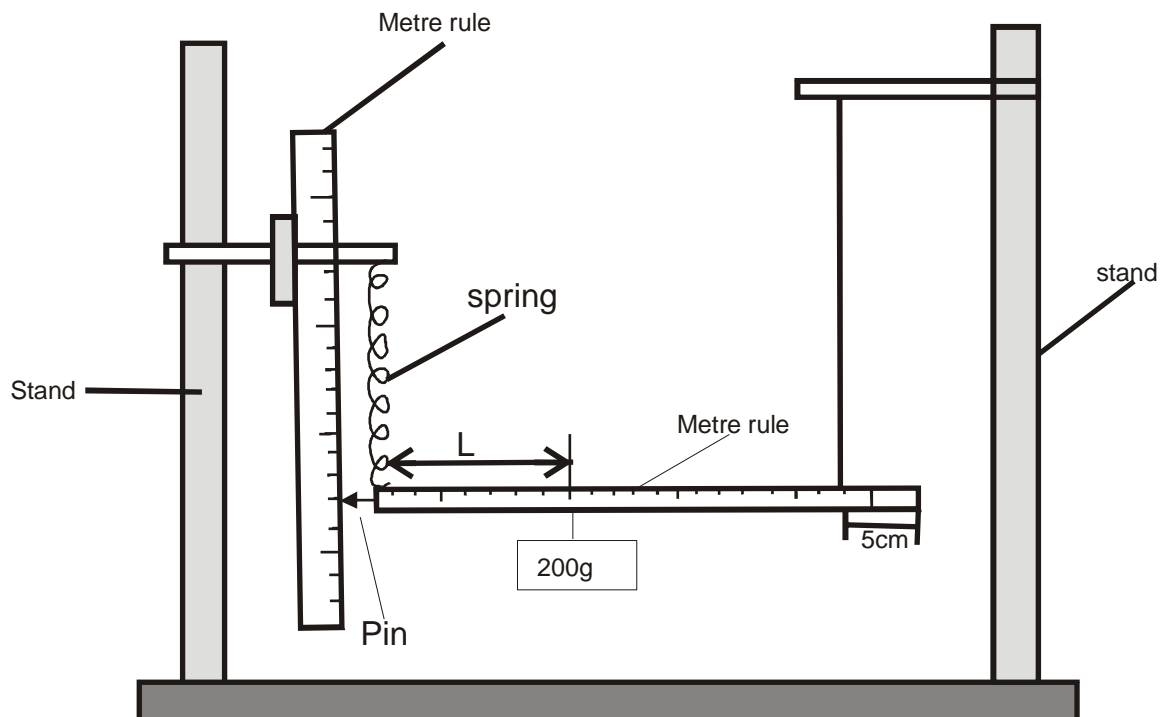
Figure 1

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

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

iv) Hold the other ruler 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, L_0= …………………..cm   (1 Mark)

vi) Hang on the horizontal metre rule, the 100g mass at a length, L=10cm from the spring. Record the extension, e, of the spring 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 for other position of L, of the mass.

NB: Before taking the reading, ensure the oscillation is steady.

Complete the table below.

(8Marks)

Length, (cm)		10	20	30	40	50
Extension	(cm)					
	(m)					
Time t(s), for 20 oscillations						
Period time T(s)						
$T^2(s^2)$						

ix)   Plot a graph of extension e(m) against $T^2(s^2)$ (5 Marks)

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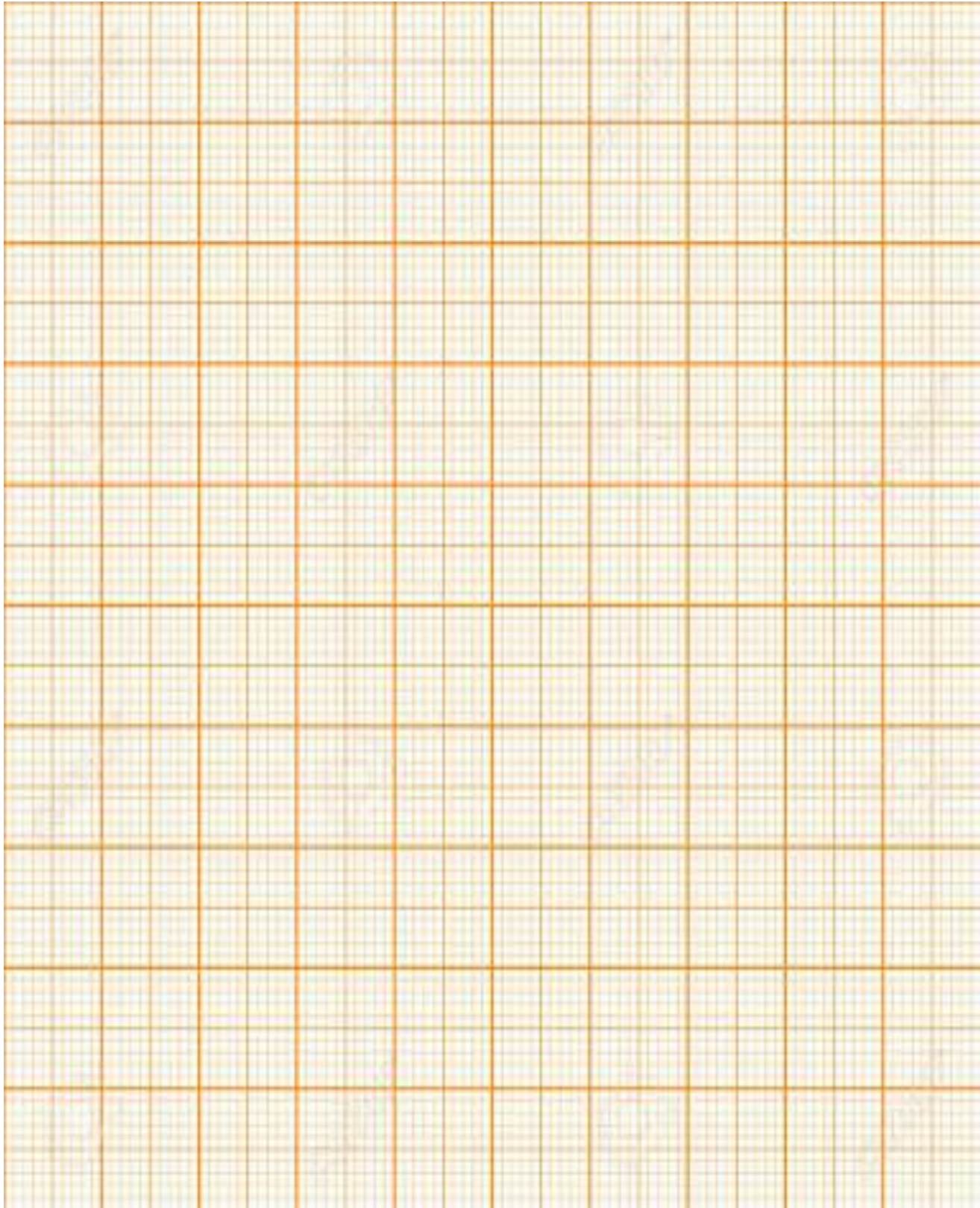
x)   Calculate the slope of the graph.   (3 Marks)

xi)   Given that $e = \dfrac{RT^2}{4\pi^2} + C$, determine the value of R.   (3 Marks)

2. You ate provided with the following apparatus.
    -   Cell holder
    -   Micrometer screw gauge (to be shared)
    -   2 dry cells
    -   A voltmeter (range Ov – 5v)
    -   A torch bulb 3.0V
    -   An ammeter
    -   Mounted wire on a meter rule (Swg 30); 100cm
    -   7 connecting wires (One with a clip)
    Proceed as follows.
a) i) Set the circuit as shown in the figure 4 below.

Fig 4

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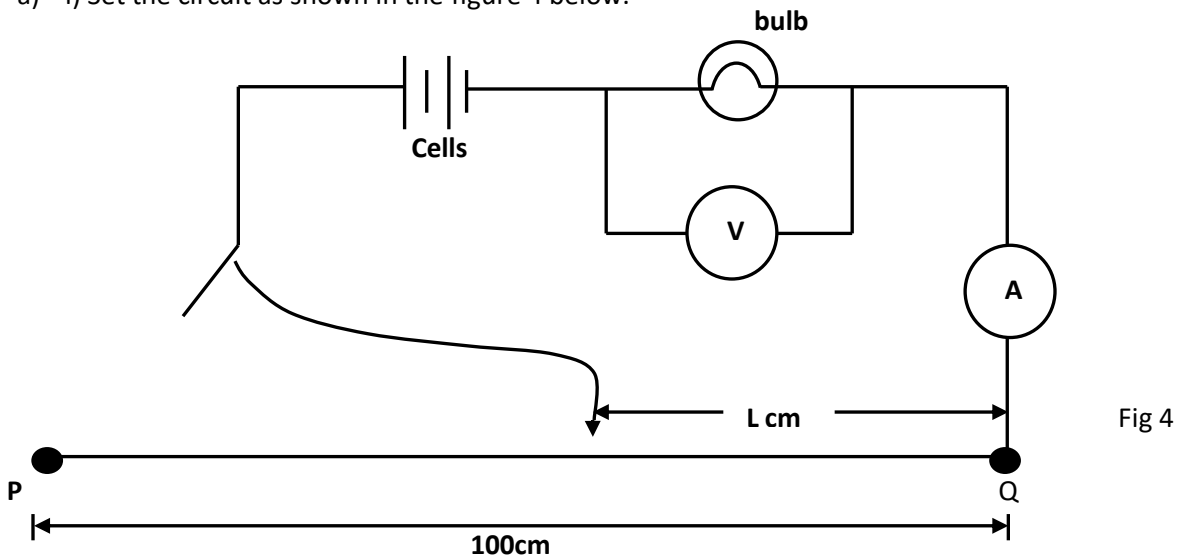
ii) With the crocodile clip at P (L = 100cm), take the voltmeter reading and ammeter reading (switch closed). (1 Mark)

iii) Repeat the readings for L = 80cm, 60cm, 40cm, 20cm and 0cm. Record your readings in the table below.

Length L(cm)	100	80	60	40	20	0
Voltmeter reading (V)						
Ammeter reading (I)						

iv) What changes do you observe on the bulb as L decreases from P? (1 Mark)

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v) On the grid provided below, plot a graph of voltmeter reading (Y-axis) against the ammeter reading.

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vi) What physical quantity is represented by the slope of the graph at any given point?   (1Mark)

vii) Use your graph to describe how the physical quantity in (vi) is affected as the current increases. Explain why?   (2Marks)

b)   i) Given the apparatus in a(i) above, draw a diagram of a circuit you would use to determine the current through the resistance wire and potential difference across it.   (2Marks)

ii) Set up the circuit you have drawn and record the voltmeter reading, V and the ammeter reading, I when L = 100cm.

   V =   (1 Mark)

   I =   (1 Mark)

iii) Measure the diameter, d, of the wire and note the total length L, of the wire.

   L =   (½ Mark)

   D =   (½ Mark)

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iv) Calculate the quantity P Given that P = $\underline{0.785Vd^2}$ and give its SI unit.   (2 Marks)

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