Name: _____ Adm No.: _____

Candidate's Signature: _____

Date: _____

565/1
BUSINESS STUDIES
Paper 1
JUNE 2019
Time: 2 hours

KASSU JOINT EXAMINATION

Kenya Certificate of Secondary Education
565/1
Paper 1
BUSINESS STUDIES
2 HOURS

Instructions

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

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

16	17	18	19	20	21	22	23	24	25

TOTAL

4. State the discipline given to each of the following statements. (4mks)

STATEMENT	DISCIPLINE
a) Study of activities that are carried out in an office	
b)study of trade and aids to trade	
c)study of how human beings strive to satisfy their unlimited wants using the limited resources	
d)study of the process of identifying business opportunity and acquiring resources to start and run a business	

5. Identify any four roles of intermediaries in the chain of distribution. (4mks)

i).....

ii).....

iii).....

iv).....

6. Advertising primarily aims at promoting a particular line of a product. Suggest four ways in which advertising can be beneficial to the consumer. (4mks)

i).....

ii).....

iii).....

iv).....

7. Agency banking is becoming increasingly popular among commercial banks in Kenya. Highlight four benefits of this development to bank account holders. (4mks)

i).....

ii).....

iii).....

iv).....

8. Outline four circumstances under which a business person may find air transport more appropriate than water transport. (4mks)

i).....

ii).....

iii).....

iv).....

9. Outline four problems encountered in measuring national income using output approach. (4mks)

i).....

ii).....

iii).....

iv).....

10. Mrs Atieno is the human resource manager to the ABC Holdings. Advise her on four ways that can help improve the performance of the entire work force. (4mks)

i).....

ii).....

iii).....

iv).....

11.On 1st January 2005, Kamau started a furniture shop with capital of Ksh120,000. During the year he took Kshs12,000 for his sons birthday party. He also brought into the business private furniture worth Ksh20,000. At the end of the period he had made a profit worth Ksh35,000. Determine Kamau's capital at the end of the period. (4mks)

12. State four fiscal policies that can be used to control inflation. (4mks)

i).....

ii).....

iii).....

iv).....

13. Highlight four reasons why a business may find it necessary to adopt a landscape office layout. (4mks)

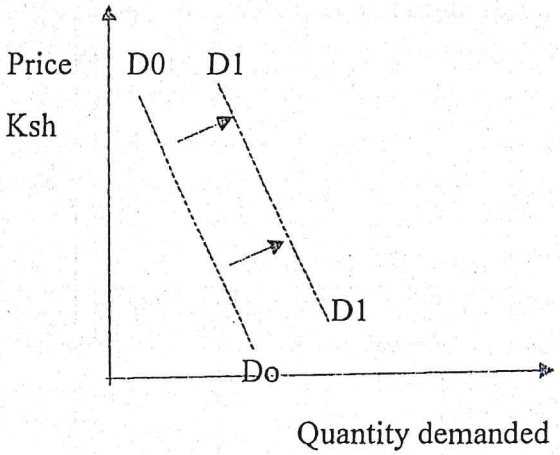
i).....

ii).....

iii).....

iv).....

14. The diagram below shows a demand curve D_0D_0 and D_1D_1



Highlight four factors that account for the above phenomena. (4mks)

i).....

ii).....

iii).....

iv).....

15. State four functions of a proforma invoice as used in Home trade. (4mks)

i).....

ii).....

iii).....

iv).....

16. In the table below, state the journal whose source document is given. (4mks)

Source document	Journal
Invoice issued	
Payment voucher	

Incoming invoice	
Receipt issued	
Credit note issued	

17. Outline four importance of pooling or risks to an insurance company. (4mks)

i).....

ii).....

iii).....

iv).....

18. Mention four benefits of establishing several firms in an industry. (4mks)

i).....

ii).....

iii).....

iv).....

19. In an oligopoly market structure, all firms face a kinked demand curve. Draw a kinked demand curve and briefly outline the concept of price rigidity. (4mks)

20. Differentiate between reproductive debt and dead-weight debt as used in public finance.

(4mks)

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21. Outline four challenges that a young population poses to a country. (4mks)

i).....

ii).....

iii).....

iv).....

22. Highlight four 2030 development goals that the Kenya government aim to achieve. (4mks)

i).....

ii).....

iii).....

iv).....

23. The following is a list of ledger accounts. Name the ledger book, in which they are maintained. (4mks)

Account	Ledger book
a)drawings	

b) Kamiritu (Customer)	
c)Sales	
d)Machinery	

24. Define the following terms as used in International Trade. (3mks)

a) Terms of trade

.....

.....

b) Balance of trade

.....

.....

c) Balance of payment

.....

.....

25. The following balance sheet belongs to Dowling enterprises.

Dowling Enterprises

Balance sheet

As at 31/12/2015

Fixed Assets			Capital		
Land	450,000		Capital		543,000
Vehicles	250,000				
Fittings	7,500		Long term liabilities		
		707,500	Loan from KIE	100,000	
Current assets			Loan from ICDC	75,000	
Stock	20,000				175,000
Debtors	12,500		Current liabilities		
Bank	8,000		Creditors	25,000	
Cash	5,000		Salaries owing	10,000	
		45,500			35,000
		753,000			753,000

Required: Calculate ; (4mks)

a) Capital owned

b) Borrowed capital

c) Working capital

d) Capital employed

Name.....ADM NO.....Class.....

565/2

BUSINESS STUDIES

Paper 2

June 2019

KASSUJET EXAMINATIONS

Kenya Certificate of Secondary Education

BUSINESS STUDIES

2 Hours 30 Minutes.

Instructions to candidates

a) This paper consists of **six** questions

b) Answer any **five** questions

c) Write your answers in the answer booklet

d) All questions carry equal marks

QUESTION	1	2	3	4	5	6	TOTAL
MARKS SCORE							

1. a) State and explain any five factors to consider when choosing an appropriate means of communication. (10 marks)

b) Discuss five negative effects of inflation in the economy. (10 marks)

2 a) Illustrate using a diagram a circular flow of income and give four assumptions.

(10 marks)

b) Explain five challenges faced by a county government in service provision.

(10 marks)

3 a) Discuss any five problems associated with Barter system of exchanging goods.

b) On 1st June 2018, Ndovu Traders had cash in hand of Sh. 25,000 and Sh. 56,200 at bank. During the month, the following transactions took place:

2018

June 2	Cash sales, Sh. 42,000.
June 5	received a cheque of Sh. 70,500 from Abdala Traders after deducting a 6% cash discount.
June 7	Paid salaries Sh. 24,000 in cash.
June 9	Tenai settled his account of Sh.45,000 in cash and was allowed Sh. 1,800 cash discount.
June 12	Cash sales Sh. 46,500.
June 18	Paid Thuita's debt of Sh 100,000 by cheque after deducting 5% cash discount.
June 24	Withdrew Sh.26,000 from the bank for office use.
June 30	Banked all the cash except Sh. 25,000.

Prepare a 3-column cashbook and balance it off on 30th June, 2018. (10marks)

4 a) Explain five ways in which the activities in a bonded warehouse are beneficial to the government (10marks)

b) Explain any five methods that a county may put in place to prevent free movement of goods and services from other countries. (10 marks)

5 a) Unemployment is one of the major economic problems facing this country. Describe any five measures that the Kenyan government may undertake to solve unemployment.

b) Explain **five** principles that serve as a guide to a good public expenditure system in a country. (10marks)

6 a) Big Sam intend to start a hardware business. Explain **five** characteristics he should possess in order to be a successful entrepreneur (10marks)

b) The following information relates to Harun's enterprises;

Details	**shs**
Stock on 1st Jan 2012	430,000
Purchases	930,000
Sales	1,155,000
Carriage outwards	25,000
Carriage inwards	10,000
Returns outwards	20,000
Returns inwards	30,000
General expenses	100,000
Insurance	25,000
Stock on 31st Dec 2012	470,000

Required;

a) Prepare trading, profit and loss account (6 marks)

b) Calculate

i) Rate of Stock Turnover (2 mark)

ii) mark-up. (2 marks)

iii) Margin. (2 mark)

312/2
GEOGRAPHY
Paper 2
JUNE, 2019
Time: 2¾ hours

KASSU JOINT EXAMINATION

Kenya Certificate of Secondary Education

312/2

Paper 2

GEOGRAPHY

INSTRUCTIONS TO STUDENTS

- *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.*

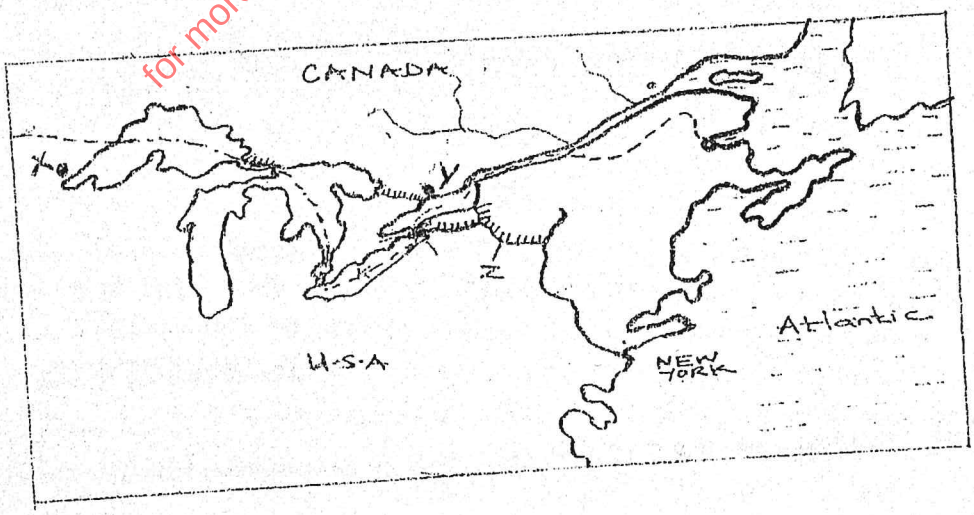
SECTION A

Answer ALL the questions in section A

1. (a) Give **three** reasons why we study Geography. **(3 marks)**

   (b) Explain the relationship between Geography and Economics **(2 marks)**

2. (a) Study the map of the Great Lakes and the St. Lawrence seaway



(i) Name the ports marked X, Y. **(2 marks)**

(ii) Name the canal marked **Z**. **(1 mark)**

(iii) State **two** problems experienced along the Great Lakes and St. Lawrence River before construction of the sea way. **(2 marks)**

3. (a) Name **two** exotic breeds of dairy cows reared in Kenya. **(2 marks)**

(b) State **three** physical factors that have favoured dairy farming in the Kenya Highlands. **(3 marks)**

4. (a) State **three** causes of flooding in the Lake Basin. **(3 marks)**

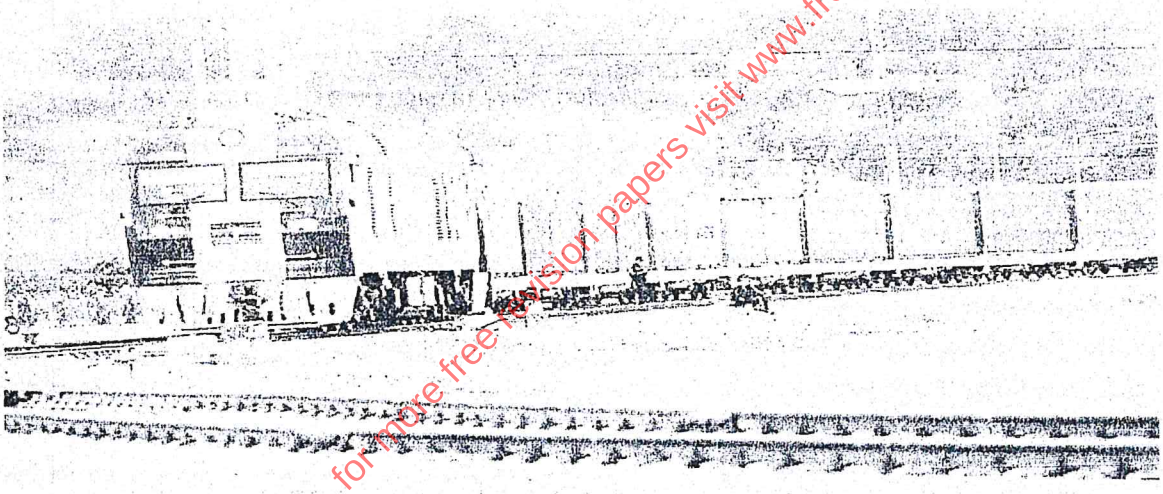
(b) Give **two** effects of drought. **(2marks)**

5. Describe drifting as a method of fishing. **(5 marks)**

SECTION B

Answer question 6 and any other TWO questions from this section.

6. Study the photograph below and use it to answer questions (a)(i) and (ii).



(a) (i) Identify the type of photograph shown above. **(1 mark)**

(ii) Draw a rectangle measuring 15cm by 10cm. On it sketch and label **five** features shown on the photograph. **(5 marks)**

(b) Apart from transporting bulky goods, state **three** advantages of transporting goods by railway. **(3 marks)**

(c) (i) Explain **three** reasons why there is limited use of river transport in Africa. **(6marks)**

(ii) State the efforts being taken by the government to improve road transport in Kenya. **(4marks)**

(d) Explain the role of transport in economic development of Africa. **(6marks)**

7. (a) (i) State **three** physical conditions that favour cocoa farming in Ghana. **(3marks)**

(ii) Describe the stages involved in the processing of cocoa from harvesting to marketing. **(7marks)**

(b) State **four** characteristics of shifting cultivation. **(4marks)**

(c) (i) Explain problems facing maize farmers in Kenya. **(8marks)**

(ii) State **three** measures being taken by the government to promote Maize farming in Kenya. **(3marks)**

8. (a) (i) What is Wildlife? **(2 marks)**

(ii) Differentiate between a National Park and a Game Reserve **(2 marks)**

(iii) State **four** reasons for establishment of National Parks in Kenya. **(4 marks)**

(b) (i) Explain **three** problems facing the Kenya Government in the effort to conserve wildlife. **(6 marks)**

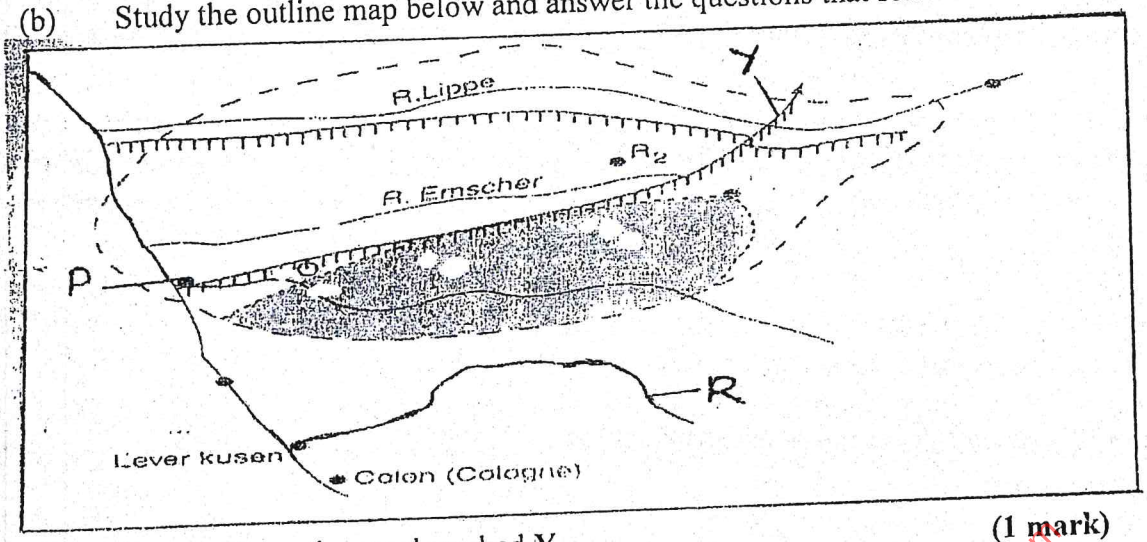
(ii) Give **three** economic benefits of Tourism to Kenya. **(3 marks)**

(c) Explain **four** factors that make Switzerland receive more tourists than Kenya. **(8 marks)**

9. (a) (i) Name **three** agricultural non-food manufacturing industries in Kenya. **(3 marks)**

(ii) State **four** reasons for establishing industries in Kenya. **(4 marks)**

(b) Study the outline map below and answer the questions that follow.



(i) Name the canal marked **Y** **(1 mark)**

(ii) Name the river marked **R** **(1 mark)**

(iii) Name the port marked **P** **(1 mark)**

(c) Give **four** measures taken by the County Government to promote Jua Kali Industries in Kenya. **(4 marks)**

(d) (i) State **three** reasons why paper milling industries are located near water sources. **(3 marks)**

(ii) Explain **four** factors that have favoured car manufacturing in Japan. **(8 marks)**

10. (a) (i) What is energy conservation? **(2 marks)**

(ii) Identify **three** non-renewable sources of energy. **(3 marks)**

(iii) State **three** advantages of Hydroelectric Power as a source of energy. **(3 marks)**

(b) (i) What are the causes of energy crisis. **(4 marks)**

(ii) Explain **four** measures being taken by the government to conserve energy. **(8 marks)**

(c) Students from your school carried out a field study at Olkaria Geothermal Power Generation station.

(i) What preparations did they take before going out for the field study? **(3 marks)**

(ii) State the follow up activities that they undertook after the study. **(2 marks)**

Name: ..... **Index no** .....

School: ..... **Candidate's sign** .....

Class..... **Adm No**.....

AGRICULTURE

PAPER 1 443/1

JUNE 2019

TIME: 2 HOURS

FORM FOUR KASSU MOCK

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

Agriculture

Paper 1

INSTRUCTIONS TO CANDIDATES:

- *Write your **name, index number, school, class** and **admission number** in the spaces provided.*
- *Sign and write the date in the spaces provided above.*
- *Answer **all** the questions in section A and B*
- *Answer any **two** questions in section C.*
- *Answers should be written in the spaces provided in this booklet.*

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1-18	30	
B	19-22	20	
C		20	
		20	
	TOTAL	**90**	

This paper consists of 13 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (30MARKS)

1. State **four** activities that make agriculture scientific. (2mks)

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2. State **four** ways in which wind positively influences agriculture. (2mks)

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3. State **four** importances of sub-soiling during land preparation. (2mks)

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4. What is **capping** in coffee production. (1mk)

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5. State **two** reasons as to why thinning is carried out in a crop of maize. (1mk)

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.....

6. State **two** ways in which crop rotation controls crop diseases. (1mk)

.....

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.....

.....

7. What do you understand by the following terms?

a) Land tenure. (1mk)

.....

.....

.....

b) Land fragmentation. (1mk)

.....

.....

.....

8. Give **four** importances of earthing up in crops. (2mks)

.....

.....

.....

.....

9. State the functions of the following chemicals used in water treatment.

a) Chlorine. $(\frac{1}{2}mk)$

.....

.....

b) Aluminium Sulphate. $(\frac{1}{2}mk)$

.....

.....

10. Give **two** practices a farmer can carry out to ensure maximum use of nitrogenous fertilizer in a crop of maize. (1mk)

.....

.....

.....

11. Name the **two** types of labour records. (1mk)

.....

.....

12. Give **four** reasons for carrying out seed selection in crop production. (2 mks)

.....

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.....

.....

13. State **four** factors that influence the quality of hay. (2mks)

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14. Outline **four** roles of trees in soil and water conservation. (2mks)

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15. Give **four** cultural methods of crop disease control. (2mks)

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16. State **four** methods of acquiring land. (2mks)

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17. Sate **four** advantages of transacting business through a bank. (2mks)

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18. State **four** challenges a farmer encounter in marketing vegetables. (2mks)

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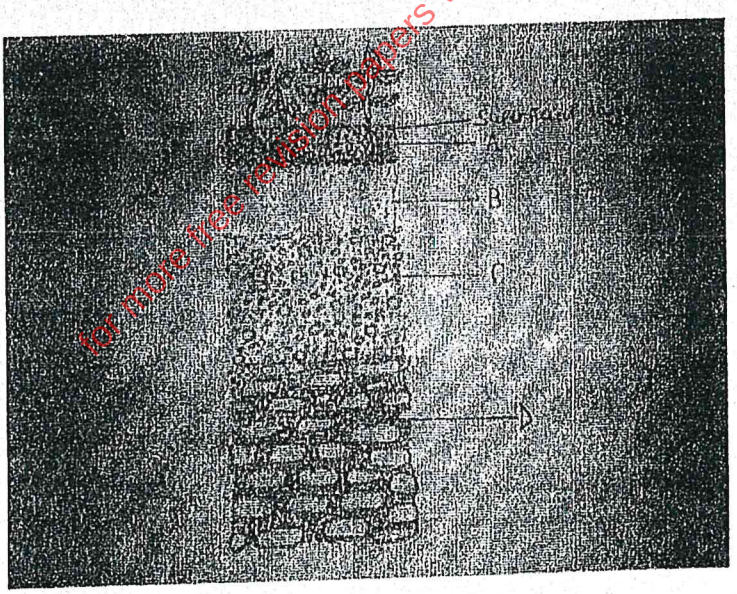
SECTION B (20MARKS)

19. The diagram below illustrates a feature observed after digging the soil several metres deep.Study the diagram carefully and answer the questions that follow.



a) Identify the feature that the diagram above represents in the study of soil. (1mk)

.....

b) State **two** characteristic properties of the part labelled A. (2mks)

.....

.....

.....

.....

.....

c) Identify the following parts on the diagram.

i. Layer of accumulation and root penetration. $(\frac{1}{2}mk)$

.....

ii. Source of minerals in the soil. $(\frac{1}{2}mk)$

.....

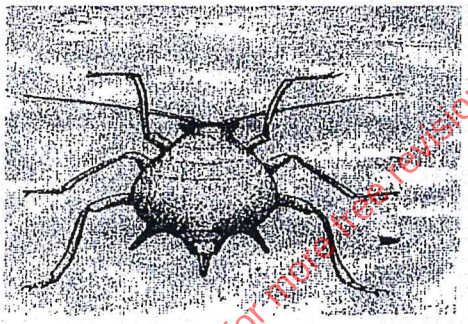
d) What is a transitional zone? (1mk)

.....

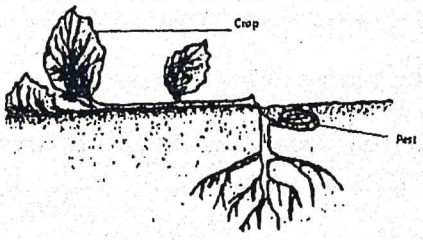
.....

.....

20. The diagrams below A and B illustrates some field pests. Study them carefully and answer the questions that follow.



A



B

a) Identify pests A and B. (2mks)

A.....

B.....

b) Name **two** crops attacked by by pest A. (2mks)

.....

.....

.....

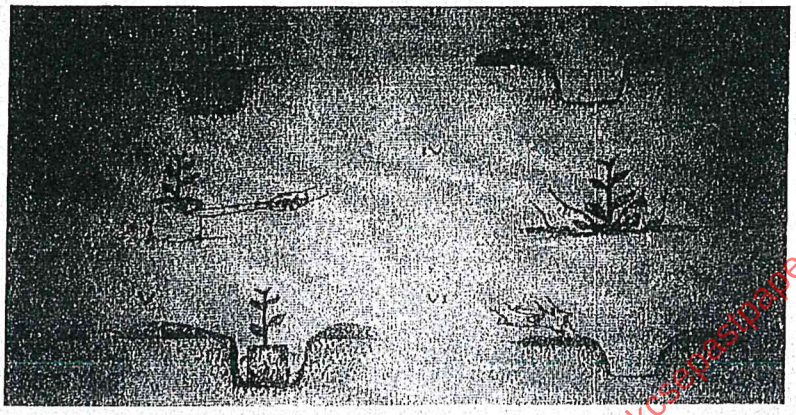
c) Give **two** cultural practices carried out to control pest B. (2mks)

.....

.....

.....

21. Study the diagrams below and answer the questions that follow.



a) Identify the operation shown in the diagrams above. (1mk)

.....

b) Arrange the activities shown in the order in which they occur. (1mk)

.....

c) State the timing of this operation. (1mk)

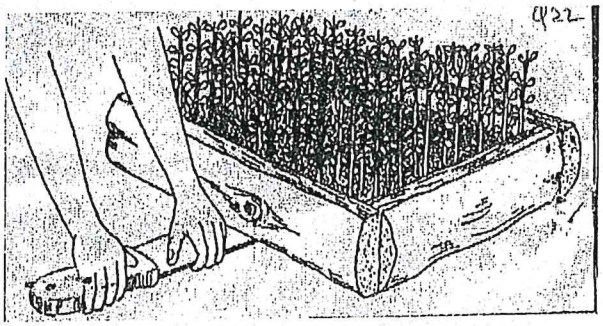
.....

d) What precaution is done when activity **v** above is done? (1mk)

.....

.....

22. The diagram below shows a nursery management practice carried out on a tree seedling. Study it and answer the questions that follow.



a) Identify the management practice. (1mk)

.....

b) Give **two** reasons for carrying out the practice you have named in 22 a) above. (2mks)

.....

.....

.....

c) State **two** reasons for grafting old trees as a management practice. (2mks)

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SECTION C (40MARKS)

23. a) Describe the production of tomatoes under the following sub-headings.

i. Varieties (2mks)

ii. Nursery establishment and management. (4mks)

iii. Transplanting. (4mks)

b) Describe the harvesting of sugarcane. (4mks)

c) Explain **six** characteristics of a fertile soil. (6mks)

24. a) What is a ribarian land? (1mk)

b) Describe riverbank erosion under.

i. Effects. (3mks)

ii. Control measures. (4mks)

c) State and explain **six** factors influencing crop rotation. (12mks)

25. a) The following is a list of financial and position of Mr. Ndama's farm in 2018. Study the information carefully and then answer the questions that follow:-

ITEMS	VALUE
Sale of dairy Cattle	28,000.00
Closing valuation	25,000.00
Purchase of fertilizer	6,000.00
Interest payable	2,000.00
Milk sale	3,000.00
Veterinary bills	900.00
Wages	1,600.00
Opening valuation	4,800.00
Sale of pigs	8,000.00
Purchase of tools	3,560.00
Depreciation of machines	720.00
Repair of pigsty	370.00

i) Prepare a profit and loss account for Mr. Ndama's farm. (8mks)

ii) Calculate the percentage profit or loss of Mr. Ndama's farm. (2mks)

b) Explain the factors influencing supply of a commodity. (10mks)

Name.....Adm No.....Class.....

443/2

AGRICULTURE

PAPER 2

2 hours

KASSU EXAMINATION 2019

Kenya Certificate of Secondary Education

443/2

AGRICULTURE

Instructions;

- *Write your name and index number in the spaces provided above.*
- *This paper consists of three sections A,B and C. Answer all questions in sections A and B and any TWO questions from sections C.*
- *All answers should be written in the spaces provided. Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.*

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 19	30	
B	20 - 23	20	
C	24 – 26	20	
	Total Score	20	
		90	

SECTION A (30 Marks)

Answer all questions in the spaces provided.

1. Name the dairy cattle;

   (i) with the highest butter fat content. (½ mk)

   .....

   (ii) lowest butter fat content. (½ mk)

   .....

2. State two characteristics that make goats adaptable to the arid areas in Kenya. (1mk)

   .....

   .....

3. Why is it necessary to allow freshly cut sorgum (colombus grass) to wilt before feeding it to livestock. (1mk)

   .....

4. (a) State one use of each of the following tools

   (i) Spade (½ mk)

   .....

   (ii) Shovel (½ mk)

   .....

   (b) Give two reasons for proper maintenance of farm tools. (1mk)

   .....

   .....

5. State four non – chemical methods of controlling ticks in cattle. (2mks)

   .....

   .....

   .....

   .....

6. (a) Define the term " production ration" as used in livestock nutrition. (1mk)

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.....

(b) Give four factors that are considered when formulating a livestock ration. (2mks)

.....

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.....

.....

7. Give two deficiency symptoms of **vit. E** in cattle. (1mk)

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.....

8. (a) Define the term '***heterosis***' as used in livestock breeding. (1mk)

.....

(b) Outline four features considered when selecting a heifer for milk production. (2mks)

.....

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.....

9. Give three signs shown by rabbits when on heat. (1 ½ mks)

.....

.....

.....

10. State three qualities of creep feed that makes it suitable for piglets. (1 ½ mks)

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.....

11. (a) Differentiate between 'cropping' and 'harvesting' as used in fish production. (1mk)

.....

.....

(b) Outline four management practices carried out on a fish pond to ensure maximum production.

(2mks)

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12. Give three reasons for 'flushing' in sheep production. (1 ½ mks)

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13. State two reasons for feeding bees. (1mk)

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14. Outline four factors that make bees to abscond. (2mks)

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15. State four reasons for dehorning in cattle production. (2mks)

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16. (a) Give two methods used to restraint animals in the farm. (1mk)

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.....

17. Give two reasons why calves are housed singly in a calf pen. (1mk)

.....

18. Give two disadvantages of using a barbed wire in paddocking pasture field. (1mk)

.....

.....

19. Outline four reasons for seasoning timber. (2mks)

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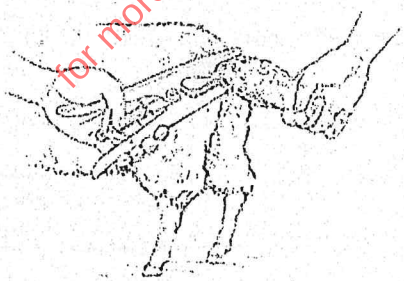
SECTION B (20 Marks)

Answer all questions in this section in the spaces provided.

20. Study the illustration below and answer questions that follow



(a) Identify the practice shown above. (1mk)

.....

(b) Apart from the tool shown above name two other tools used to carry out the above practice. (1mk)

.....

.....

(c) Outline two reasons for carrying out the above practice in sheep production. (2mks)

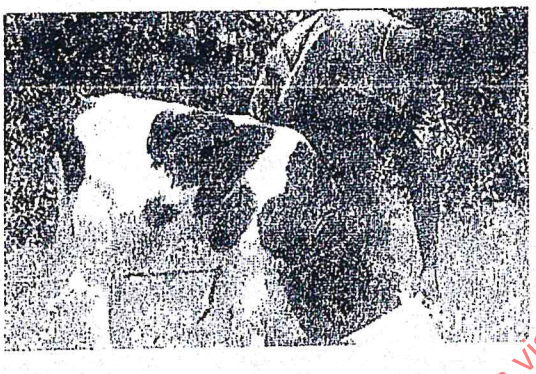
.....

.....

(d) At what age should the practice be carried out? (1mk)

.....

21. Study the diagram below showing calf being trained to drink milk. Study it and answer questions that follow.



(a) Identify the method of feeding the calf shown above. (1mk)

.....

(b) Dsecribe the process of training the calf to take milk from the bucket. (3mks)

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(c) Give two disadvantages of the method of calf rearing shown above. (1mk)

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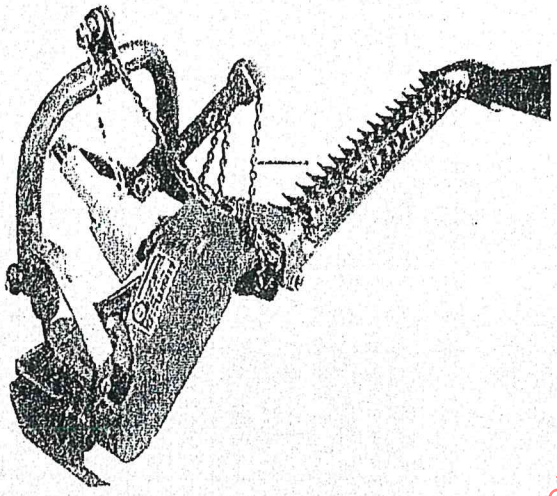
22. Study the illustration showing a farm implement and answer questions that follow.



(a) Identify the implement shown above. (1mk)

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(b) Give two uses of the implement shown above. (2mks)

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(c) State two maintenance practices acrried out on the implement above. (2mks)

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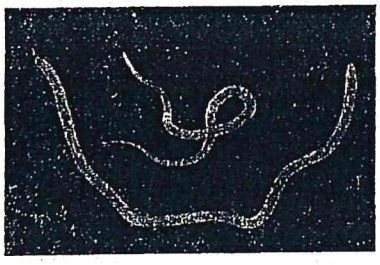
23. The diagram below shows an internal livestock parasite. Study it and answer questions that follow.



(a) Identify the parasite. (1mk)

.....

(b) Name two types of animals affected by the parasite shown above. (1mk)

.....

(c) Outline three control measures of the parasite above. (3mks)

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SECTION C (40 Marks)

Answer any two questions from this section in the spaces provided.

24. (a) Describe fowl pox disease under the following sub-headings.

(i) Causal organism. (1mk)

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(ii) Animal affected. (1mk)

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(iii) Symptoms of the disease. (5mks)

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(iv) Control measures. (3mks)

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(b) Describe the procedute of constructing a barbed wire fence. (6mks)

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(c) Outline four precautions taken while using workshop tools in the work shop. (4mks)

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25. (a) Explain eigth advantages of battery cage system of rearing poultry. (8mks)

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(b) Explain six factors consisdered when controlling endoparasites in livestock. (6mks)

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(c) State six care and maitenance practices out on a tractor battery. (6mks)

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26. (a) State and explain five factors that influence milk composition. (10mks)

(b) Describe the rearing of layers from a day old to eigth weeks old. (6mks)

(c) Outline four requirements of an artificial brooder. (4mks)

NAME:.....ADM NO: .....CLASS:.....

INDEX NO.....SIGN.....

313/1
CHRISTIAN RELIGIOUS EDUCATION
PAPER 1
JUNE 2019
TIME: 2½HOURS

KASSU-JET 2019 EXAMINATION

Kenya Certificate of Secondary Education

313/1
CHRISTIAN RELIGIOUS EDUCATION
PAPER 1

INSTRUCTIONS TO CANDIDATES

- *Answer any five questions in this paper in the answer booklet provided*

Questions	1	2	3	4	5	6	Total
Score							

1. a) Explain the translation of the Bible from original language to the present African Local languages. (8 marks)
   b) Outline **seven** steps taken by God towards healing the damaged relationship with Mankind after the fall of man. (7 marks)
   c) Give ways in which the church deals with evil in the society today. (5 marks)

2. a) Explain **seven** characteristics of God's covenant with Abraham. (7 marks)
   b) Describe the making of the Sinai covenant Exodus 24: 1-8 (7 marks)
   c) Show how the church leaders are put into test today. (6 marks)

3 a) State **six** reasons why the Israelites demanded for a King. (6 marks)
   b) Identify **seven** ways in which King Saul turned away from the Covenant way of life. (7 marks)
   c) Give reasons why church leaders face opposition in their work today. (7 marks)

4. a) Explain **four** differences between prophets in the Old Testament and Traditional African communities. (8 marks)
   b) Outline the teaching of prophet Amos on Israel's election. (6 marks)
   (c) State **six** ways in which the church is carrying out its prophetic role in the society today. (6 marks).

5. a) Outline the causes of judgment and punishment to the Israelites according to prophet Jeremiah. (7 marks)
   b) Identify and explain four symbolic acts of God's judgment and punishment to the Israelites (8 marks)
   c) Identify **five** reasons that can make Christians be punished by God. (5 marks)

6. a) Identify **seven** reasons why initiation rites were important in Traditional African Communities. (7 marks)
   b) Give **six** showing how initiates were prepared for adult life in traditional African Communities. (6 marks)
   c) State **seven** factors affecting the practice of initiation in Kenya today. (7 marks)

Name: ..... Class: ..... Adm. No.: .....

School: ..... Index No. .....

Date: ..... Sign:.....

313/2
C.R.E
Paper 2
June, 2019
Time: 2½ Hours

KASSU JOINT EXAMINATION

Kenya Certificate of Secondary Education
313/2
Christian Religious Education
Paper 2
June, 2019
Time: 2½ Hours

Instructions to Candidates

- *Answer **ANY FIVE** questions in the answer sheets provided.*
- *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

Question	1	2	3	4	5	6	Candidate's Total Score
Candidate's Score							

1. (a) Outline Jeremiah's prophecy about the messiah Jeremiah 23:5-6. **(7 marks)**

(b) Identify the events that took place when Jesus was born. **(7 marks)**

(c) What lessons do Christians learn from the annunciation of the birth of Jesus? **(6 marks)**

2. (a) Outline the incident in which Jesus forgave the Sinful Woman. Luke 7:3- 5. **(7 marks)**

(b) Identify **seven** reasons why Jesus healed the sick. **(7 marks)**

(c) Give **six** reasons why Christians should ask for forgiveness. **(6 marks)**

3. (a) Describe the incident when Jesus was asked about paying taxes to Caesar. Luke 20:20-26. **(7 marks)**

(b) Outline **seven** events that took place on Mount Olives before the arrest of Jesus. **(7 marks)**

(c) Outline ***six*** lessons Christians learn from the action of Pilate during the trial of Jesus **(6 marks)**

4. (a) Give ***Seven*** teachings about Jesus from Peters' speech on the day of Pentecost **(7 marks)**

(b) Explain what the teaching of Jesus about the Vine and the Branches in John 15:1-10 reveal about the unity of believers. **(7 marks)**

(c) Outline ***six*** contributions of women in the church in Kenya today. **(6 marks)**

5. (a) State **seven** Christian teachings on family. **(7 marks)**

(b) Give **six** ways in which marriage partners are chosen in traditional African communities. **(6 marks)**

(c) Identify **seven** reasons why families in Kenya find it difficult to live in harmony. **(7 marks)**

6. (a) Identify **seven** sources of wealth in traditional African society. **(7 marks)**

(b) State the reasons why there is need for cooperation between the government and the church in Kenya today. **(7 marks)**

(c) What role should Christians play in trying to control pollution of the environment? **(6 marks)**

312/1
GEOGRAPHY
Paper 1
June, 2019
Time 2¾ Hours

KASSU JOINT EXAMINATION

Kenya Certificate of Secondary Education

312/1

Paper 1

GEOGRAPHY

INSTRUCTIONS TO STUDENTS

- *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.*

SECTION A:

Answer all the questions in this section.

1. (a) List **three** components of the solar system. **(3 marks)**

   (b) State **three** characteristics of the planet Jupiter. **(3 marks)**

2. (a) What is land breeze? **(2 marks)**

   (b) State **three** factors that influence atmospheric pressure on the earth's surface. **(3 marks)**

3. (a) Draw a well labeled diagram of a simple fold. **(3 marks)**

   (b) Distinguish between Volcanicity and Vulcanicity. **(2 marks)**

4. (a) Name **two** types of desert surfaces. **(2 marks)**

   (b) State **two** factors that influence wind deposition in deserts. **(2 marks)**

5. (a) Identify **three** factors that influence coastal erosion. **(3 marks)**

   (b) Differentiate between a barrier reef and a fringing reef. **(2 marks)**

SECTION B

Answer question 6 and any other TWO questions from this section.

6. Study the map of Taita hills, ***1:50,000*** (sheet ***189/4***) provided and answer the following questions.

(a) (i) Identify **two** types of scales used in the map. **(2 marks)**

(ii) Convert the map scale into statement scale. **(2 marks)**

(iii) Name **three** types of relief features shown on the map. **(3 marks)**

(iv) Calculate the area covered by the Ronge fort. **(2 marks)**

(b) (i) Describe the distribution of settlement in the area covered by the map. **(6 marks)**

(ii) Citing evidence from the map, identify **three** economic activities taking place in the area covered by the map. **(3 marks)**

(c) Using a vertical scale of 1cm represents 40 m, draw a cross-section along Easting 42 from Northing 14 to 20. **(5 marks)**

(i) On it, Mark and name the following: **(1 mark)**

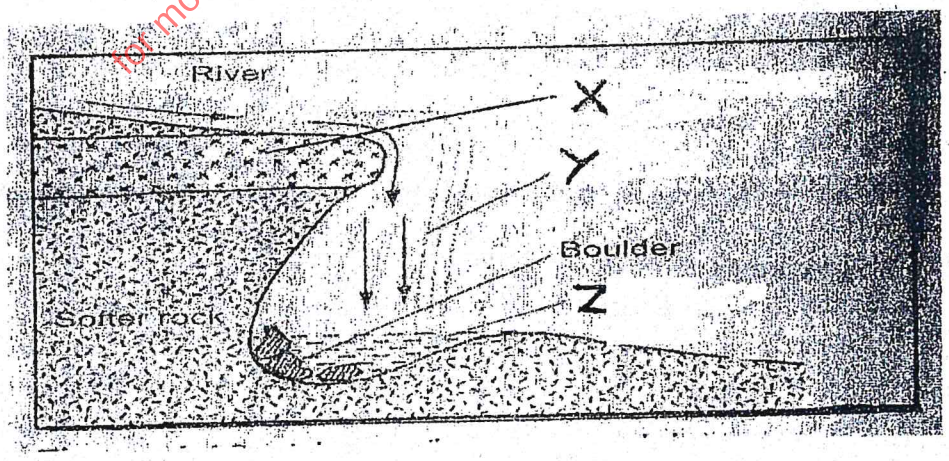
- A railway line
- River Voi. **(1 mark)**

7. (a) (i) State **three** factors which influence how a river transport its load. **(3marks)**

(ii) Describe the following processes of river transportation.

- Solution **(2 marks)**
- Suspension **(2 marks)**

(b) Study the diagram below and use it to answer the questions that follow.



(i) Name the feature marked **X**, **Y** and **Z**. **(3 marks)**

(ii) State **three** ways in which waterfalls may be formed. **(3 marks)**

(c) (i) Describe the characteristics of a flood plain. **(3 marks)**

(ii) Identify **three** features found in the middle stage of a river`s course. **(3 marks)**

(iii) Explain **three** positive effects of river on human activities. **(6 marks)**

8. (a) (i) What is weathering? **(2 marks)**

(ii) State **three** agents of weathering. **(3 marks)**

(b) Describe how block disintegration occurs. **(5 marks)**

(c) Explain how the following factors influence weathering.

- Time **(2 marks)**
- Nature of the rock **(4 marks)**
- Action of plants **(3 marks)**

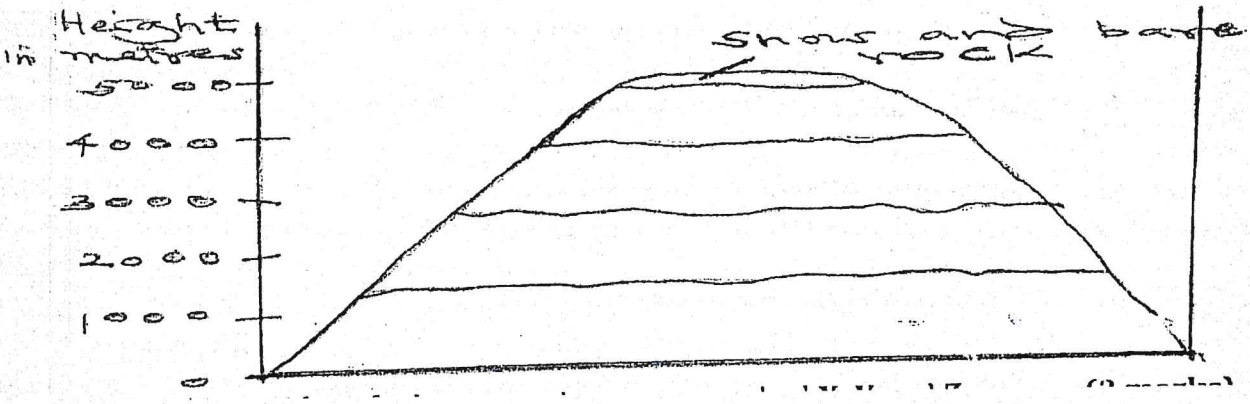
(d) Your class carried out a field study on the effects of weathering around your school compound.

(i) State **two** objectives of your study. **(2 marks)**

(ii) Give **two** methods you would use to collect data. **(2 marks)**

(iv) State **two** effects of weathering on the physical environment you are likely to identify. **(2 marks)**

9. (a) Study the diagram below and use it to answer the following questions.



(i) Identify the vegetation zones marked **X, Y** and **Z.** **(3 marks)**

(ii) Describe the characteristics of Tropical Rain Forest. **(5 marks)**

(b) Explain how the following factors influence the distribution of vegetation.

- Climate **(4 marks)**
- Soils **(2 marks)**

(c) Name the countries where the following grasslands are found

- Downs **(1 mark)**
- Steppes **(1 mark)**
- Pampas **(1 mark)**
- Veldt **(1 mark)**

(d) Your class carried out field study on vegetation around the school compound.

(i) State **two** sampling techniques you are likely to use during the study. **(2 marks)**

(ii) Give **two** aspects of vegetation you are likely to study. **(2 marks)**

(iii) Identify **three** problems you are likely to encounter during the study. **(3 marks)**

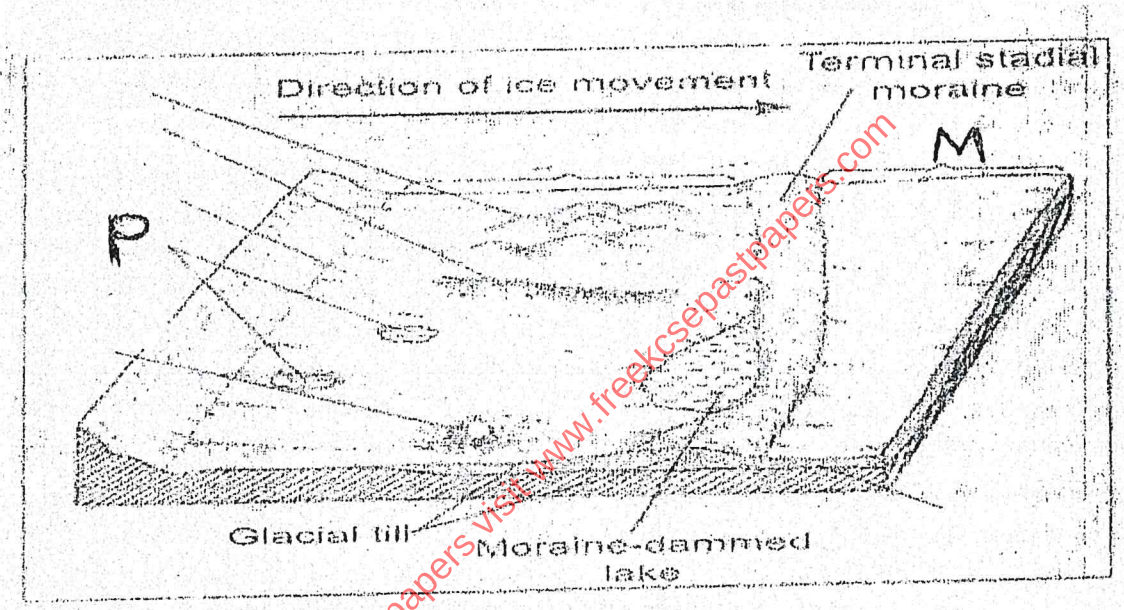
10. (a) (i) Differentiate between an ice sheet and an ice berg. **(2 marks)**

(ii) Describe how ice is formed on a high mountain slope. **(3 marks)**

(b) (i) Give **two** ways in which ice moves. **(2 marks)**

(ii) Describe how an Arete is formed. **(6 marks)**

(c) Use the diagram below to answer the questions that follow.



(i) Name the features marked **M** and **P** **(2 marks)**

(ii) State **two** characteristics of feature marked **M** **(2 marks)**

(d) Explain **four** positive effects of glaciations to human activities **(8 marks)**

311/1

HISTORY AND GOVERNMENT

PAPER 1

MAY/JUNE 2019

TIME: 2½ hours

NAME: _____

CLASS: _____ ADM. NO: _____

INDEX. NO: _____

FOR EXAMINERS USE

SECTION	QN	MAX	SCORE
A (25 Marks)	1-17	25	
B (45 Marks)	18	15	
	19	15	
	20	15	
	21	15	
C (30 Marks)	22	15	
	23	15	
	24	15	
GRAND TOTAL		100%	

FORM FOUR KASSU-JET EXAMINATION

Kenya Certificate of Secondary Education

HISTORY AND GOVERNMENT

Paper 1

Instructions to Candidates

*(a) This paper consists of **three** sections **A, B** and **C.***

*(b) Answer **all** questions in section **A, three** from Section **B** and **two** from Section **C.***

(c) Answers to all the questions must be written legibly in the answer booklet provided.

(d) This paper consists of three printed pages

(e) Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

(f) Candidates should answer the questions in English

Section A (25 marks)

Answer all questions in this section

1. What is a manuscript as a written source of information on History and Government? (1 mark)
2. Identify the largest linguistic group in Kenya. (1 mark)
3. Which community in Kenya played a leading role in the long distance trade? (1 mark)
4. State **two** ways in which Seyyid Said promoted international trade. (2 marks)
5. Identify **two** ways in which one can become a Kenyan citizen. (2 marks)
6. Give **two** symbols of national unity. (2 marks)
7. Outline the **major** change brought by the constitutional amendment of 1982. (1 mark)
8. What two situations can make a registered vote in Kenya be denied the right to vote (2 marks)
9. Name **two** officers who worked in the Provincial Administration in colonial Kenya (2 marks)
10. State the document that stopped the call for self-government by the Whites in Kenya. (1 mark)
11. Identify **two** methods used by trade unionists to demand for their rights during the colonial period. (1 mark)
12. Give **two** reasons that can make the parliament of Kenya be dissolved. (2 marks)
13. Name the first Prime Minister in independent Kenya. (1 mark)
14. Identify the **main** reason why the government of Kenya introduced Constituency Development Fund (CDF). (1 mark)
15. State the **two** levels of education provided by the County government. (2 marks)
16. Name the body that is charged with tax collection in Kenya. (1 mark)
17. Identify **two** roles of the Controller of Budget. (2 marks)

Section B (45 marks)

Answer any three questions from this section

18. (a) Give **five** reasons why the Luo migrated from their original homeland. (5 marks)

(b) Describe the political organization of the Agikuyu during the pre-colonial period. (10 marks)

19. (a) State **five** economic reasons why the British were interested in establishing their rule in Kenya. (5 marks)

(b) Explain **five** effects of urbanization in Kenya during the colonial period (10 marks)

20. (a) State **five** features of African Socialism in Kenya. (5 marks)

(b) Explain **five** roles of Harambee in economic development in Kenya. (10 marks)

21. (a) State **five** challenges hindering government efforts to eradicate illiteracy in Kenya. (5 marks)

(b) Explain **five** challenges facing multi-party democracy in Kenya. (10 marks)

Section C (30 marks)

Answer any two questions from this section

22. (a) Identify **five** social factors that can hinder national unity in Kenya. (5 marks)

(b) Explain **five** importance of national integration in Kenya. (10 marks)

23. (a) Identify **five** groups that monitor human rights in Kenya. (5 marks)

(b) Explain **five** merits of democracy. (10 marks)

24. (a) State **five** functions of the County Governor in Kenya. (5 marks)

(b) Explain **five** ways in which the County government spends revenue annually. (10 marks)

311/2

HISTORY AND GOVERNMENT

PAPER 2

MAY/JUNE 2019

TIME: 2½ hours

NAME: _____

CLASS: _____ ADM. NO: _____

INDEX. NO: _____

FOR EXAMINERS USE

SECTION	QN	MAX	SCORE
A (25 Marks)	1-17	25	
B (45 Marks)	18	15	
	19	15	
	20	15	
	21	15	
C (30 Marks)	22	15	
	23	15	
	24	15	
GRAND TOTAL		100%	

FORM FOUR KASSU-JET EXAMINATION

Kenya Certificate of Secondary Education

HISTORY AND GOVERNMENT

Paper 2

Instructions to Candidates

*(a) This paper consists of **three** sections **A**, **B** and **C**.*

*(b) Answer **all** questions in section **A**, **three** from Section **B** and **two** from Section **C**.*

(c) Answers to all the questions must be written legibly in the answer booklet provided.

(d) This paper consists of three printed pages

(e) Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

(f) Candidates should answer the questions in English

Section A (25 marks)

Answer all questions in this section

1. Give **one** contribution of archaeology to the study of history. (1 mark)
2. Name **two** species of Australopithecus. (2 marks)
3. State **one** way in which agrarian revolution contributed to rural-urban migration in Europe. (1 mark)
4. Give **two** results of the invention of the wheel in Mesopotamia. (2 marks)
5. Give **two** means of water transport used during the ancient times. (2 marks)
6. Name **two** nationalist parties that fought for independence in Mozambique. (2 marks)
7. Name the person who invented the telephone. (1 mark)
8. Give the **main** political function of London. (1 mark)
9. Name **one** official who assisted Kabaka of Buganda to administer the kingdom. (1 mark)
10. State **one** way in which the United Nations has promoted the rights of women in the society. (1 mark)
11. Identify **one** country in Africa where the British used direct rule. (1 mark)
12. List **two** reasons why the United States of America joined the Second World War. (2 marks)
13. Give **two** reasons why the location of Samori Toure's second empire contributed to his defeat by the French. (2 marks)
14. Identify **two** financial institutions of the African Union (AU). (2 marks)
15. Identify **one** problem faced by nationalists in Ghana. (1 mark)
16. Mention **one** house of parliament in the United States of America. (1 mark)
17. List **two** conditions required for one to qualify as a candidate to the House of Commons in Britain. (2 marks)

Section B (45 marks)

Answer any three questions from this section

18. (a) Identify **five** ways which the Homo Erectus attempted to improve his way of life (5 marks)

(b) Describe the way of life of man during the New Stone Age. (10 marks)

19. (a) Identify **five** factors that led to industrial revolution in Continental Europe. (5 marks)

(b) Explain **five** reasons why third world countries are lagging behind in industrialization. (10 marks)

20. (a) State **five** achievements of the Pan-African Movement. (5 marks)

(b) Explain **five** challenges facing Economic Co-operation for West African States (10 marks)

21. (a) Identify **five** reforms introduced by Mobutu Sese Seko after taking over leadership of Congo in 1965. (5 marks)

(b) Explain **five** social developments that have taken place in Tanzania since Independence. (10 marks)

Section C (30 marks)

Answer any two questions from this section

22. (a) State **five** factors for the growth of Asante Kingdom during the pre-colonial period. (5 marks)

(b) Describe the social organization of Buganda kingdom during the pre-colonial period. (10 marks)

23. (a) State **five** causes of the First World War (1914-1918). (5 marks)

(b) Explain **five** reasons why the central powers were defeated in the First World War. (10 marks)

24. (a) State **five** functions of the Prime Minister in Britain. (5 marks)

(b) Explain **five** functions of the House of Lords in Britain. (10 marks)

Name.....Adm.No.....

Index No...../..... Class.....

Candidate's Signature.....

KASSU JET

(The Kenya Certificate of Secondary Education)

233/1

CHEMISTRY

Paper 1

(Theory)

June 2019

Time 2 Hours

Instructions to Candidates:

1. Write your name and index number in the spaces provided above.2.

Answer all the questions in the spaces provided.

3. All working must be clearly shown.

4. Non-programmable silent electronic calculators and KNEC mathematical tables may be used.

For Examiner's Use only

Questions	Maximum score	Candidates score
1 – 31	80	

This paper consists of 14 printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

1. State two reasons why we use the non-luminous flame for heating in a laboratory instead of using the luminous flame. (1mk)

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.....

2. Chlorine has two isotopes with atomic mass **35** and **X** occurring in the ratio **3:1** respectively. The relative atomic mass (R.A.M) of chlorine is **35.5**. Determine the value of **X**. (3mks)

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3. During an experiment sulphur (IV) oxide gas was formed to diffuse through a certain pore at a rate of $25cm^3$ per minute. When the experiment was repeated under the same conditions with another gas G, gas G was found to diffuse through the same pore at a rate of $26.26cm^3$ per minute. Work out the molecular mass of Gas G. (O=16, S=32) (3mks)

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4. Calculate the volume of 0.6M sulphuric (VI) acid solution needed to neutralize $30cm^3$ of 0.2M potassium hydroxide. (2mks)

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5. A state of equilibrium between dichromate (vi) and chromate ions is established as shown below

$$Cr_2O_7^{2-}(aq) + 2OH^-(aq) \rightleftharpoons 2CrO_4^{2-}(aq) + H_2O(l)$$

Orange (Yellow)

a. What is meant by dynamic equilibrium? (1mk)

.....

.....

.....

b. State and explain observation made, when a few pellets of Potassium Hydroxide are added to equilibrium mixture (2mks)

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.....

.....

6. Study the standard reduction potentials below and answer the questions that follow;The letters are not actual symbols of the elements

Half cell	E volts
$P^{2+}_{(aq)} + 2e \rightarrow P_{(s)}$	**- 0.76**
$R^{2+}_{(aq)} + 2e \rightarrow R_{(s)}$	**- 2.37**
$S^{+}_{(aq)} + 1e \rightarrow S_{(s)}$	**+ 0.80**
$T^{2+}_{(aq)} + 2e \rightarrow T_{(s)}$	**- 0.14**

i) Select the element which is the strongest reducing agent. Give a reason. (1mk)

.....

ii) Select two half cells when combined would produce the largest e.m.f (1mk)

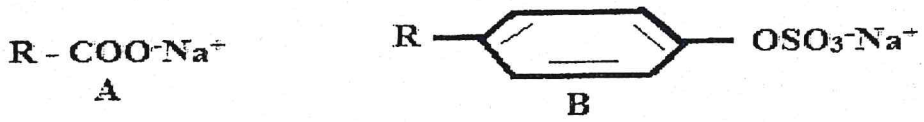
.....

iii) Calculate the e.m.f of the electrochemical cell formed when the two half cells in (ii) above are combined. (1mk)

.....

.....

7. The structure below represents two cleansing agents A and B.



a) Name the cleansing agents

A ..... (1mk)

B ..... .(1mk)

b) State a cleansing agent that would be suitable for washing in water containing calcium chloride. Give a reason. (1mk)

.....

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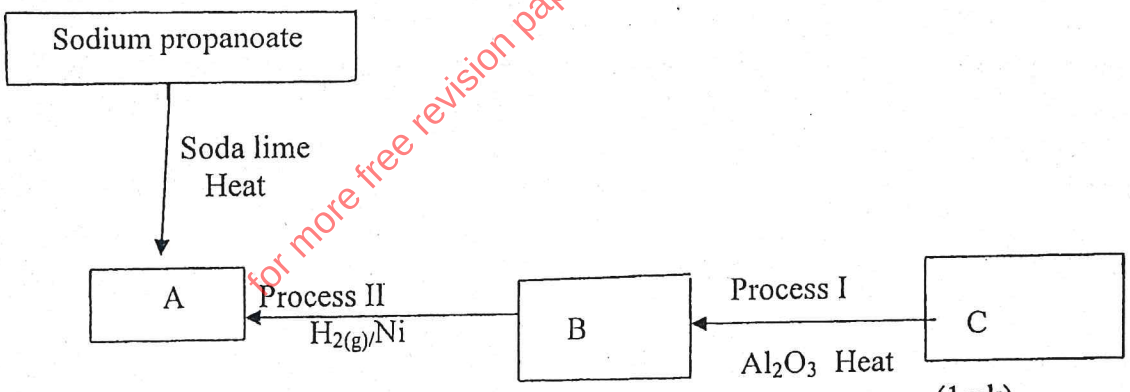
.....

8. Study the reaction scheme below and answer the questions that follow.



(1mk)

a) Identify substances

A.....

C.....

b) Another substance D combines with one mole of hydrogen gas to form substance B. Give the structural formula of D . (1mk)

.....

.....

c) Explain how you would distinguish between C_2H_6O and $C_2H_4O_2$ (1mk)

.....

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.....

9. Name the following processes;

a) When anhydrous calcium chloride is left in an open beaker overnight a solution was formed. (1mk)

.....

.....

b) When sodium carbonate decahydrate crystals are left in an open beaker for some days it turned into a powder. (1mk)

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10. The standard enthalpies of combustion of ethyne (C_2H_2), carbon (C) and hydrogen (H_2) are -**1300** kJ/mol,-**394** kJ/mol and -**286** kJ/mol respectively. Calculate the enthalpy of formation of ethyne. (3mks)

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11. The following data gives the PH values of solutions A, B, C.

SOLUTION	PH
A	13.9
B	7.0
C	1.5

a) i) Which solution gives a pink colour after adding a few drops of phenolphthalein indicator? (1mk)

.....

.....

ii) Give the possible identity of that solution. (1mk)

.....

.....

b) Which solution would produce Carbon(IV)Oxide when reacted with Copper(II) Carbonate. (1mk)

.....

.....

12. Explain the following;

a) Oxide ion (O^{2-}) has a larger radius than oxygen atom (O). (1mk)

.....

.....

.....

b) Calcium is a weaker conductor of electricity compared to aluminium. (1mk)

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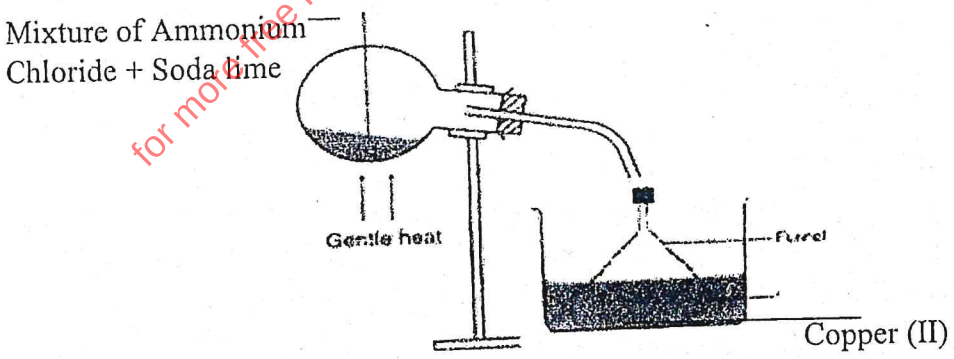
.....

13. A student prepared ammonia gas and bubbled it into a solution of Copper (II) Sulphate as shown below.



a) State one observation made in the beaker and one made in the round bottomed flask. (1mk)

i) A short while

.....

.....

ii) A long while (1mk)

.....

.....

b) Write the formula of the ion formed in the beaker for (ii) above. (1mk)

.....

.....

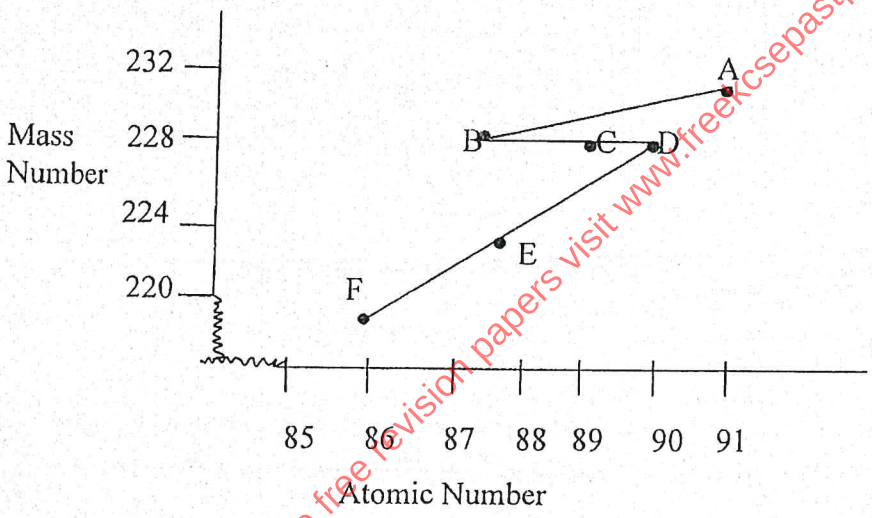
14. a) Define the term half life (1mk)

.....

.....

.....

b) The graph below represents a radio active decay series for Isotope A. Study it and answer the questions that follow;



b) Name the type of radiation involved when;

(i) A changes to B (1mk)

.....

(ii) B changes to C (1mk)

.....

15. a) One of the uses of sulphur is in vulcanization of rubber. Define vulcanization. (1mk)

.....

.....

b. State one properties that vulcanized rubber possesses. (1mk)

.....

.....

.....

.....

16. The table below shows the standard electrode potential of four elements.

Element	V	W	X	Y	
E°	-0.55	0.00	+0.20	+0.35	

a) Arrange the elements in order of reactivity starting with the most reactive. (1mk)

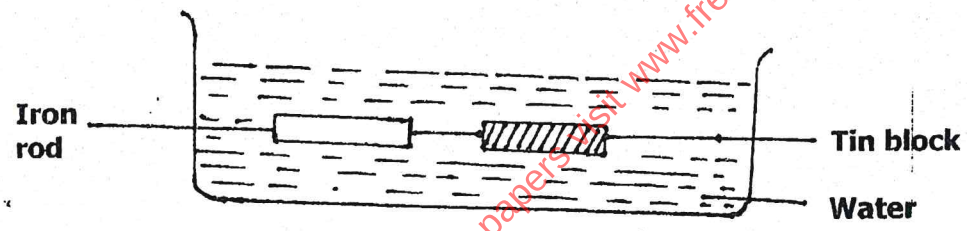
.....

.....

b) Identify element W. Give a reason for your answer. (2mks)

.....

17. The set – up below was used by a student to try to prevent the rusting of an Iron rod.



(a) Did the student succeed in preventing the rusting of Iron using the set – up above? (1mk)

.....

.....

.....

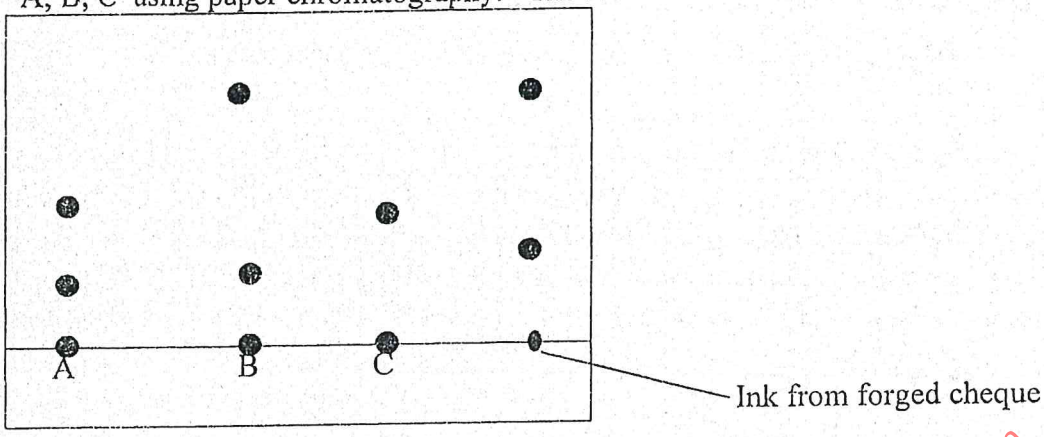
.....

b) Which method of rust prevention was the student investigating. (1mk)

.....

.....

18. Ink from a signature that forged a cheque was compared with ink from pens of three suspects A, B, C using paper chromatography. The results were as follows;



a) Describe how the ink was taken from the forged cheque. (2mks)

.....

.....

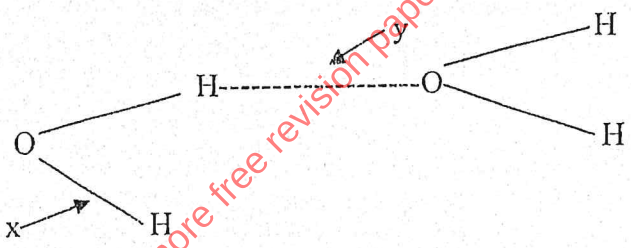
.....

.....

b) Which suspect was not guilty? (1mk)

.....

19. The diagram below shows the structure of the molecules of water.



a) Name the types of bonds labelled x and y. (1mk)

.....

.....

b) Explain why water has a higher melting point than Hydrogen Sulphide. (1mk)

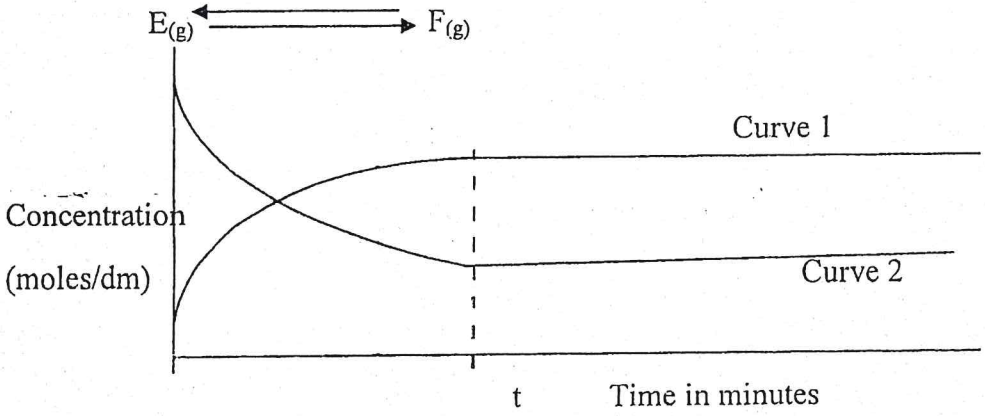
.....

.....

.....

20. The curves below represents the changes in the concentrations of substances E and F with time in the reaction.

$E_{(g)} \rightleftharpoons F_{(g)}$



a) Which curve represents the changes in the concentration of substance F? Give a reason. (2mks)

.....

.....

b) Give a reason for the shapes of the curves after time (t) minutes. (1mk)

.....

.....

21. Potassium salt gave white precipitate with Barium Nitrate solution. An addition of dilute Hydrochloric Acid, the white precipitate disappear and a colourless gas that turns acidified potassium dichromate (VI) green was evolved.

a) Write the formula of the compound which formed the white precipitate. (1mk)

.....

b) Write the equation for the reaction between dilute hydrochloric acid and the compound whose formula is written in(a) above. (1mk)

.....

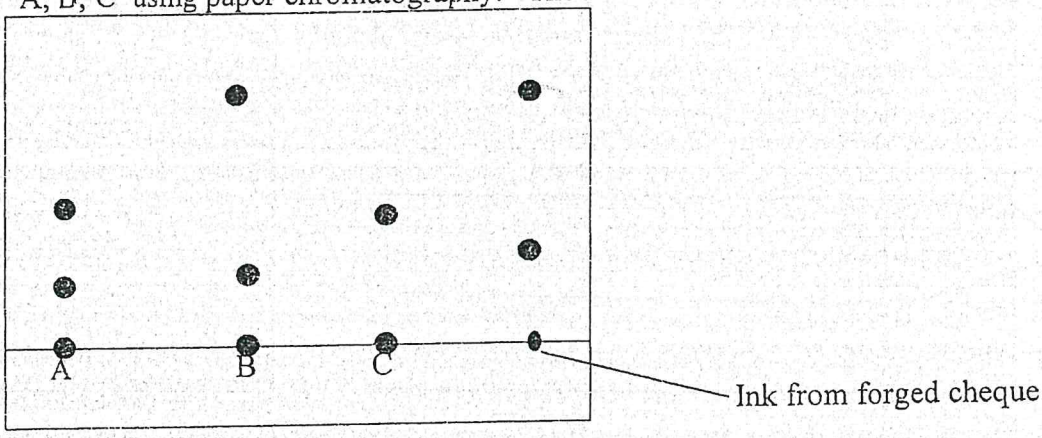
22. NO_2 and N_2O_4 gases exists in equilibrium as shown below.

$$2NO_2(g) \rightleftharpoons N_2O_4(g)$$

(Brown) (Pale yellow)

a) State LeChartliers principle (1mk)

18. Ink from a signature that forged a cheque was compared with ink from pens of three suspects A, B, C using paper chromatography. The results were as follows;



a) Describe how the ink was taken from the forged cheque. (2mks)

.....

.....

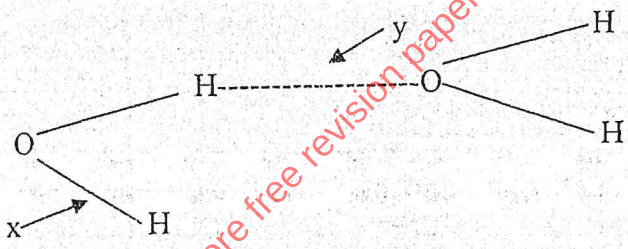
.....

.....

b) Which suspect was not guilty? (1mk)

.....

19. The diagram below shows the structure of the molecules of water.



a) Name the types of bonds labelled x and y. (1mk)

.....

.....

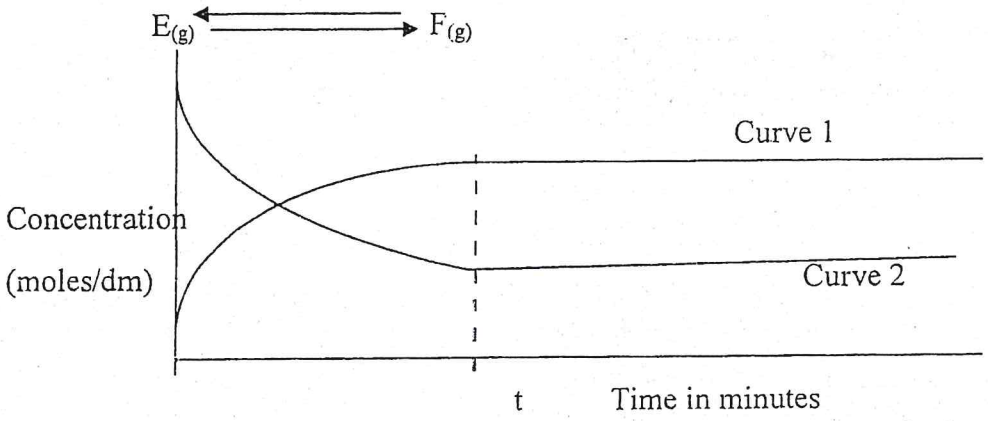
b) Explain why water has a higher melting point than Hydrogen Sulphide. (1mk)

.....

.....

.....

20. The curves below represents the changes in the concentrations of substances E and F with time in the reaction.



a) Which curve represents the changes in the concentration of substance F? Give a reason. (2mks)

.....

.....

b) Give a reason for the shapes of the curves after time (t) minutes. (1mk)

.....

.....

21. Potassium salt gave white precipitate with Barium Nitrate solution. An addition of dilute Hydrochloric Acid, the white precipitate disappear and a colourless gas that turns acidified potassium dichromate (VI) green was evolved.

a) Write the formula of the compound which formed the white precipitate. (1mk)

.....

b) Write the equation for the reaction between dilute hydrochloric acid and the compound whose formula is written in(a) above. (1mk)

.....

22. NO_2 and N_2O_4 gases exists in equilibrium as shown below.

$$2NO_2(g) \rightleftharpoons N_2O_4(g)$$

(Brown) (Pale yellow)

a) State LeChartliers principle (1mk)

.....

.....

.....

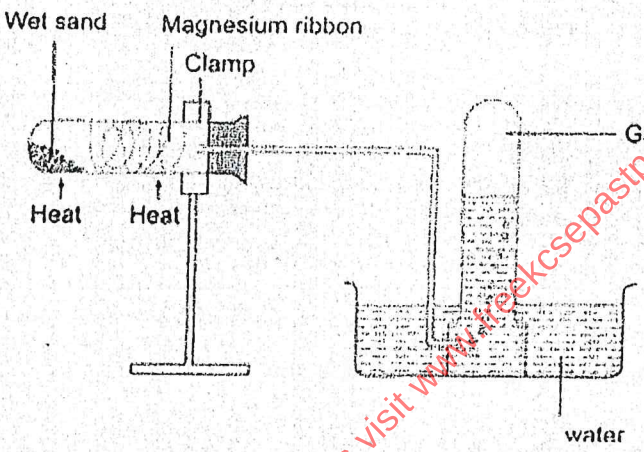
b) State and explain the effect of increased pressure on the equilibrium . (1mk)

.....

.....

.....

23. A student set up the experiment below to collect gas Q.



a) Name the gas Q. (1mk)

.....

b) Write the equation for the reaction in the boiling tube if magnesium was replaced with iron . (1mk)

.....

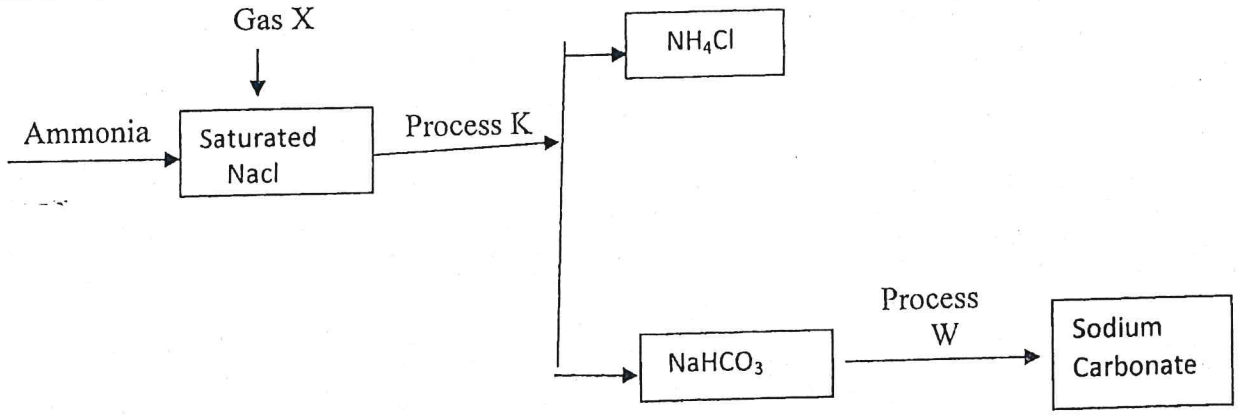
.....

c) State two uses of gas Q (1mk)

.....

.....

24. The Schematic diagram is part of the Solvay process used for the manufacture of sodium carbonate.



i) Name gas x (1mk)

.....

ii) Identify process K (1mk)

.....

iii) Write the equation for the reaction in process W (1mk)

.....

25. The solubility of potassium nitrate is 85g/100g of water at 50°c and 32g/100g of water at 25°c.

a) Define the term solubility. (1mark)

.....

.....

b) Calculate the mass of the crystals formed if a saturated solution of potassium nitrate in 50g of water at 50°c is cooled to 25°c. (2 marks)

.....

.....

.....

26. Chlorine gas was bubbled through water and observation made after 24 hours (2 marks)

a) Draw a diagram to show the observation made after 24 hours.

b) Write an equation for the reaction that occurs when chlorine gas is bubbled into hot concentrated sodium hydroxide (1mk)

.....

c) One of the products in (b) above is used as an antiseptic. State its other use (1mk)

.....

27. Aluminium is extracted from its ore by the process of electrolysis . (1mk)

(i) Name the ore of aluminium that is normally used.

.....

.....

(ii) Aluminium ore in (i) above has very high melting point (2015°C) though it is electrolysed at a lower temperature of a bout 900°C. Explain how the low temperature is achieved. (1mk)

.....

.....

(iii) In the above process graphite electrodes are used. What is the disadvantage of using this kind of electrode. (1mk)

.....

28. Study the reaction below and answer the questions that follow

$$NH_{3\,(g)} + H_2O_{(l)} \rightleftharpoons NH_4^{+}{}_{(aq)} + OH^{-}{}_{(aq)}$$

(a) Give the Bronstad-Lowry definition of acid (1mk)

.....

.....

(b) Identify an acid in the backward reaction (1 mark)

.....

29. When 34. 8g of hydrated sodium carbonate $Na_2\,Co_3.nH_2O$ were heated to a constant mass. 15.9g of anhydrous sodium carbonate were obtained. Find the value of "**n**" in hydrated carbonate (Na= 23), (O = 16), (C= 12), (H = 1.0) (3mks)

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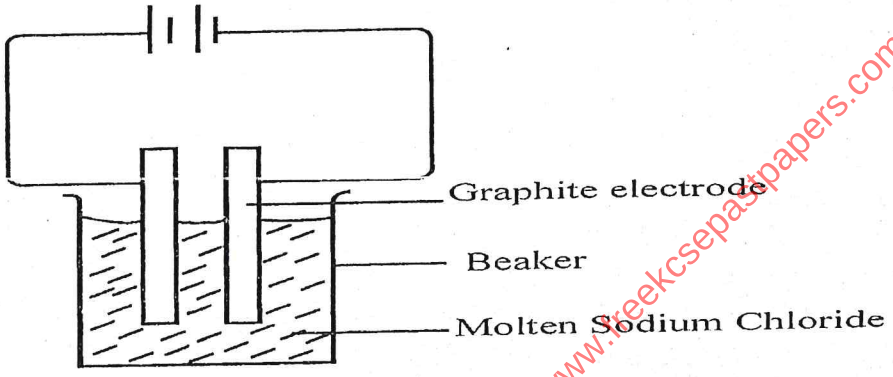
30. The diagram below represents an experiment which was carried out by a student, to investigate the effect of passing an electric current on molten sodium chloride.



a. Molten sodium chloride is a binary electrolyte. State the meaning of the term binary electrolyte. (1mk)

.....

b. State two observations made at the anode (1mk)

.....

.....

c. Write an equation to show what happens at the cathode. (1mk)

.....

31. Starting with Copper metal, describe how a solid sample of Copper (II) nitrate can be prepared. (3mks)

.....

.....

.....

.....

Name: ..... Class: ..... Adm.No. .....

School: ..... Index No. .....

Date: ..... Sign:.....

233/2
CHEMISTRY
Paper 2
JUNE 2019
Time: 2 hours

KASSU JOINT EXAMINATION - 2019

Kenya Certificate to Secondary Education

CHEMISTRY PAPER 2

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

- *Write your name, admission number, date and school in the spaces provided.*
- *Answer all the questions in the spaces provided.*
- *All working must be clearly shown where necessary.*
- *Scientific calculators may be used.*

FOR EXAMINERS' USE ONLY

Questions	Maximum Score	Candidate's Score
1	14	
2	12	
3	07	
4	12	
5	14	
6	11	
7	13	
	80	

This paper consists of **12** printed pages. Candidates are advised to check and to make sure all pages are as indicated and no question is missing.

1. Use the information in the table below to answer the questions that follow. The letters do not represent the actual symbols of the elements.

Element	Atomic number	Melting point ^0C
R	11	97.8
S	12	650.0
T	15	44.0
U	17	-102.0
V	18	-189.0
W	19	64.0

(a) Give a reason why the melting point of;

(i) **S** is higher than that of **R.** **(2 marks)**

.....

.....

.....

.....

(ii) **V** is lower than that of **U.** **(2 marks)**

.....

.....

.....

.....

(b) How does the reactivity of **W** with chlorine compare with that of **R** with chlorine? **(2 marks)**

.....

.....

.....

(c) When 0.30g or **R** was reacted with water 1600cm^3 of gas was produced. Determine the relative atomic mass of **R.** (Molar gas volume = 24000cm^3 r.t.p) **(3 marks)**

(d) Give **one** use of element **V**. **(1 mark)**

.....

.....

(e) Draw a structure of the compound formed when **S** reacts with **U**. **(1 mark)**

(f) Compare the atomic radius of element **S** and **V**. Give a reason. **(2 marks)**

.....

.....

2. (a) Give the name of the following processes.

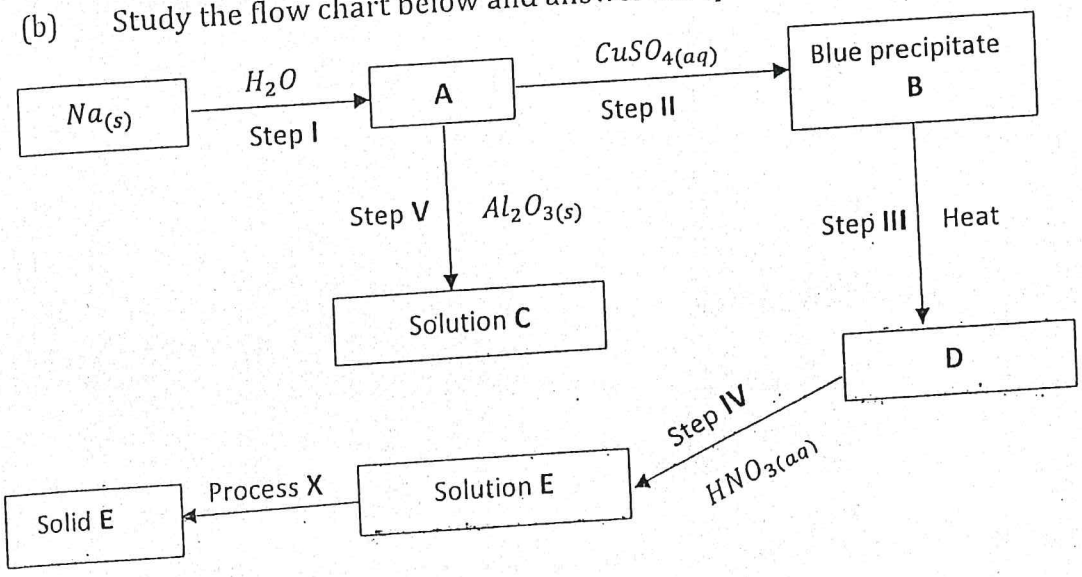
(i) A hot saturated solution of copper (II) sulphate is cooled to form crystals of copper (II) sulphate. **(1 mark)**

.....

(ii) A white powder is formed when concentrated sulphuric (V) acid is added to blue hydrated copper (II) sulphate. **(1 mark)**

.....

(b) Study the flow chart below and answer the questions that follow.



(i) Name substances: **(4 marks)**

B .....

C .....

D .....

Solid **E** .....

(ii) Write equations for the reactions in steps; **(2 marks)**

III .....

V .....

(iii) Write the ionic equation for the reaction in step **II**. **(1 mark)**

.....

(iv) State any **two** observations made in step **I**. **(2 marks)**

.....

.....

.....

(c) Write an equation to show how addition of ammonia solution is used to remove temporary water hardness. **(1 mark)**

.....

3. 4g zinc powder was added to 200cm³ of 1M $CuSO_{4(aq)}$. During the experiment there was a temperature rise of 10K. If the density of the solution was 1g/cm³ and specific heat of the solution was 4.2kJ/kg/K;

(a) determine the energy change of the reaction. (Zn = 65) **(2 marks)**

(b) What would be the enthalpy change of the above reaction? **(3 marks)**

(c) Write a thermochemical equation to represent the above reaction. **(1 mark)**

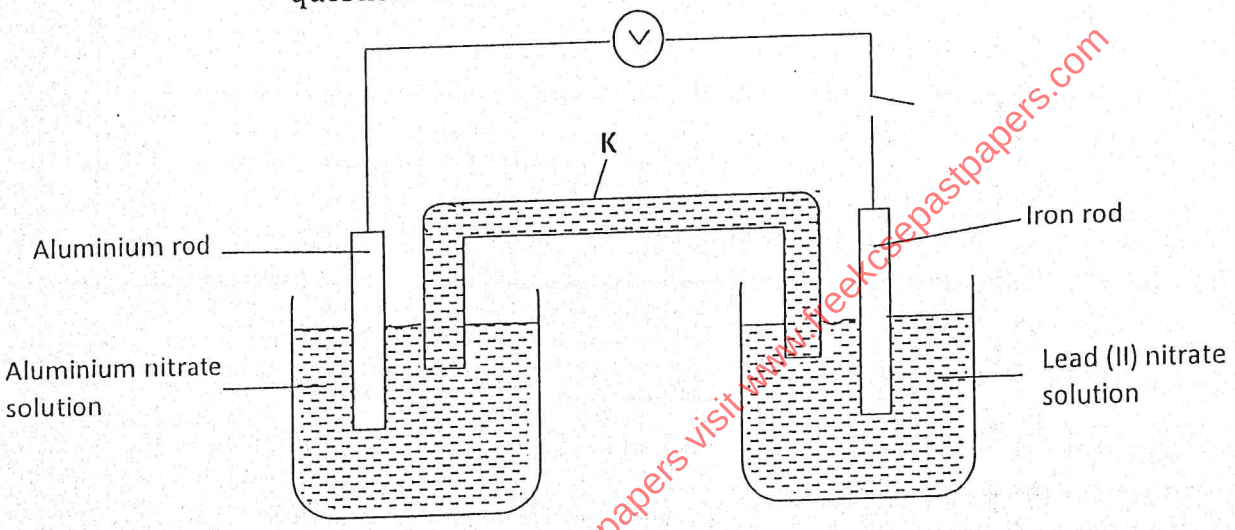
.....

(d) State **two** observations made when zinc powder is added to copper II sulphate solution. **(1 mark)**

.....

.....

4. (a) The diagram below shows electrochemical cell. Study it and answer the questions that follow.



Given the following:

$Fe^{2+}_{(aq)} + 2e \longrightarrow Fe_{(s)};\ E^{\theta} = -0.44V$

$Al^{3+}_{(aq)} + 3e \longrightarrow Al_{(s)};\ E^{\theta} = -1.66V$

(i) On the diagram, show the direction of flow of;

(I) Electrons **(½ mark)**
(II) Current **(½ mark)**

(ii) Name a substance that is used to fill part **K**. Give a reason. **(2 marks)**

.....

.....

.....

.....

(iii) State the **two** observations made in the half cell containing iron (II) ions. **(2 marks)**

.....

.....

(iv) Write the half ionic equation for the reaction that results into oxidation. **(1 mark)**

.....

(v) Write the cell diagram for this electrochemical cell. **(1 mark)**

.....

(vi) Give any one use of the part **K**. **(1 mark)**

.....

(b) In an experiment to electroplate iron with silver, current of 1 Ampere was passed through a silver solution of ions for 60 minutes.

(i) Give a reason why it is necessary to electroplate iron. **(1 mark)**

.....

.....

(ii) Calculate the mass of silver deposited on iron during the electroplating process. **(3 marks)**
(Ag = 108, IF = 96500c)

5. (a) Give the systematic names of the following compounds.

(i) $CH_2 = \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} - CH_3$ ..... **(1 mark)**

(ii) $CH_3CH_2CH_2C \equiv CH$ ..... **(1 mark)**

(b) State the observations made when Propan-l-ol reacts with:

(i) Acidified potassium dichromate (VI) solution. **(1 mark)**

.....

.....

(c) Ethanol obtained from glucose can be converted to ethane as shown below.

$$C_6H_{12}O_6 \xrightarrow{\text{Step I}} C_2H_5OH \xrightarrow{\text{Step II}} CH_2 \equiv CH_2$$

Name and describe the process that takes place I steps I and II.

Step **I** ..... **(1 mark)**

Step **II** ..... **(1 mark)**

(d) Compounds A and B have the same molecular formula $C_3H_6O_2$. Compound A liberates carbon (IV) oxide on addition of aqueous sodium carbonate while compound B does not. Compound B has a sweet smell. Draw the possible structures of;

(i) Compound A **(1 mark)**

(ii) Compound B **(1 mark)**

(e) Give **two** reasons why the disposal of polymers such as polychloroethane by burning pollutes the environment. **(2 marks)**

.....

.....

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

(i) Margarine **(1 mark)**

.....

.....

(ii) Soap **(1 mark)**

.....

.....

(g) (i) The use of CFCs has been linked to depletion of ozone layer. What does CFC stand for? **(1 mark)**

.....

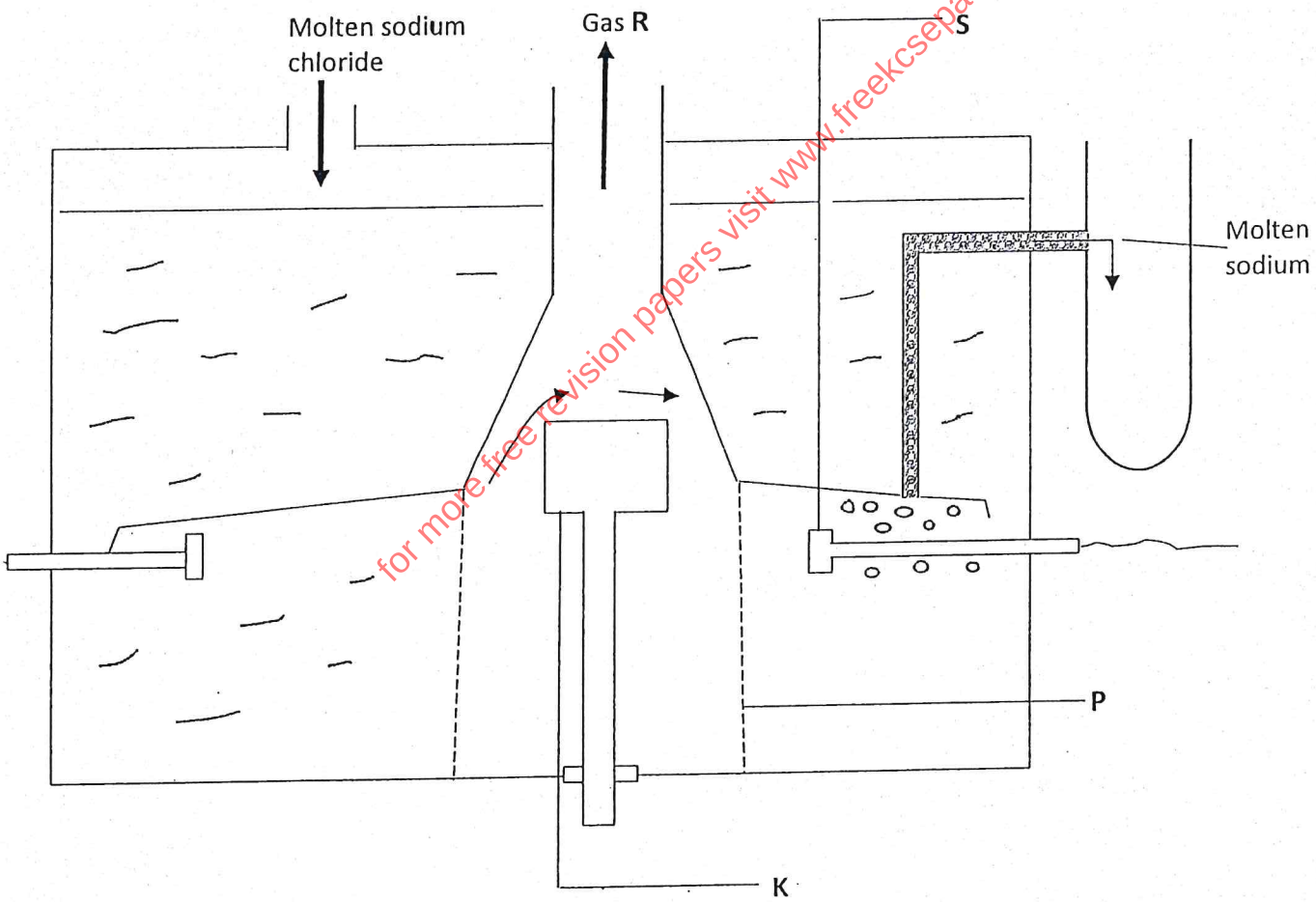
(ii) Explain the problem associated with the depletion of the ozone layer. **(1 mark)**

.....

(iii) State another environment problem caused by CFCs. **(1 mark)**

.....

6. Use the diagram below to answer the questions that follow.



(a) Identify the substances labelled. **(2 marks)**

R .....

S .....

K .....

P .....

(b) What is the function of the part labelled P? **(1 mark)**

.....

.....

(c) Write half equations at the electrodes. **(2 marks)**

.....

.....

.....

.....

(d) Why is molten sodium chloride used instead of sodium chloride solution? **(1 mark)**

.....

.....

.....

(e) Why is calcium chloride added in the electrolysis of molten sodium chloride? **(1 mark)**

.....

.....

(f) How is the calcium eventually separated from the sodium? **(2 marks)**

.....

.....

(g) When sodium is left exposed in the air a white solid is formed but when sodium is burnt in oxygen, a yellow solid is formed. Explain this difference using equations. **(2 marks)**

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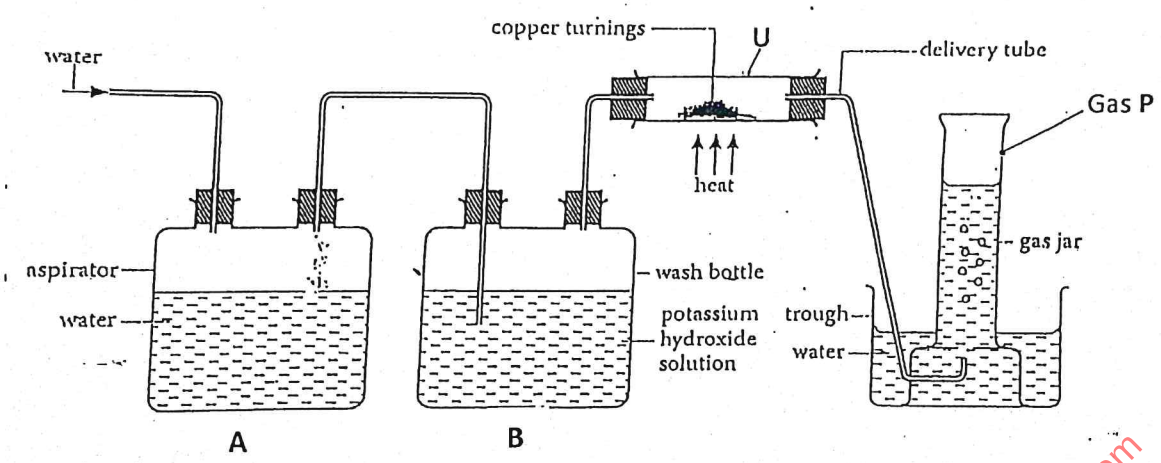
7. (a) The diagram below was used to obtain gas P in the laboratory. Study it and answer the questions that follow.



(i) State the role of aspirator **A**. **(1 mark)**

.....

(ii) Write an equation in wash bottle **B**. **(1 mark)**

.....

(iv) Give the name of apparatus **U**. **(1 mark)**

.....

(v) State and explain the observation made in apparatus **U**. **(1 mark)**

.....

(vi) Gas **P** was found to be denser than the form obtained when heating ammonium nitrate.

I. Write an equation for decomposition of ammonium nitrate. **(1 mark)**

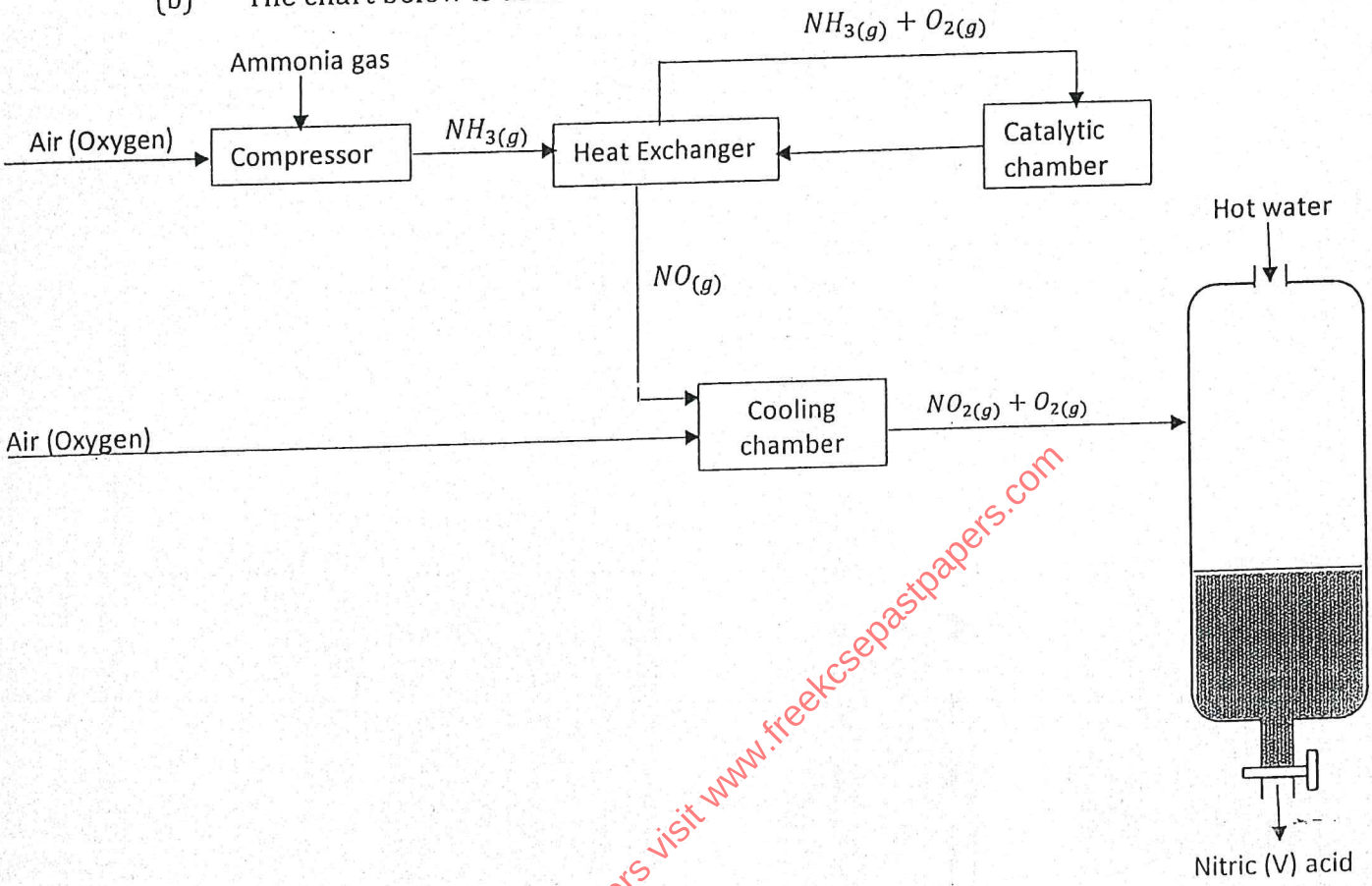
.....

II. Explain the difference in densities of two gases. **(1 mark)**

.....

.....

(b) The chart below is used in industrial preparation of Nitric (V) acid.



(i) State the role of heat exchange. **(1 mark)**

.....

.....

(ii) Write the equation in the catalytic chamber. **(1 mark)**

.....

(iii) State the conditions **three** conditions in the catalytic chamber. **(1 ½ marks)**

.....

.....

.....

(iv) State observations made in cooling chamber. **(½ mark)**

.....

(v) Name **one** method of concentrating Nitric (VI) acid obtained. **(1 mark)**

.....

(vi) State uses of Nitric (VI) acid. **(2 marks)**

.....

.....

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

Candidate's Signature .....

Date.....

233/3

CHEMISTRY

PRACTICAL

PAPER 3

May/June 2019

TIME: 2 ¼ HOURS

KASSU JOINT EVALUATION EXAMINATION

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

Chemistry 233/3

2 ¼ Hours

INSTRUCTIONS TO CANDIDATES

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

For examiners use only

Question	Maximum Score	Candidate's Score
1	22	
2	10	
3	08	
TOTAL	40	

1. You are provided with;
   - Solution **A**, 2M Hydrochloric acid
   - Solution **B**, 0.2M Sodium hydroxide
   - 6 pieces of 2cm length of **magnesium** ribbon.

You are required to determine the mass of magnesium ribbon that reacted with hydrochloric acid.

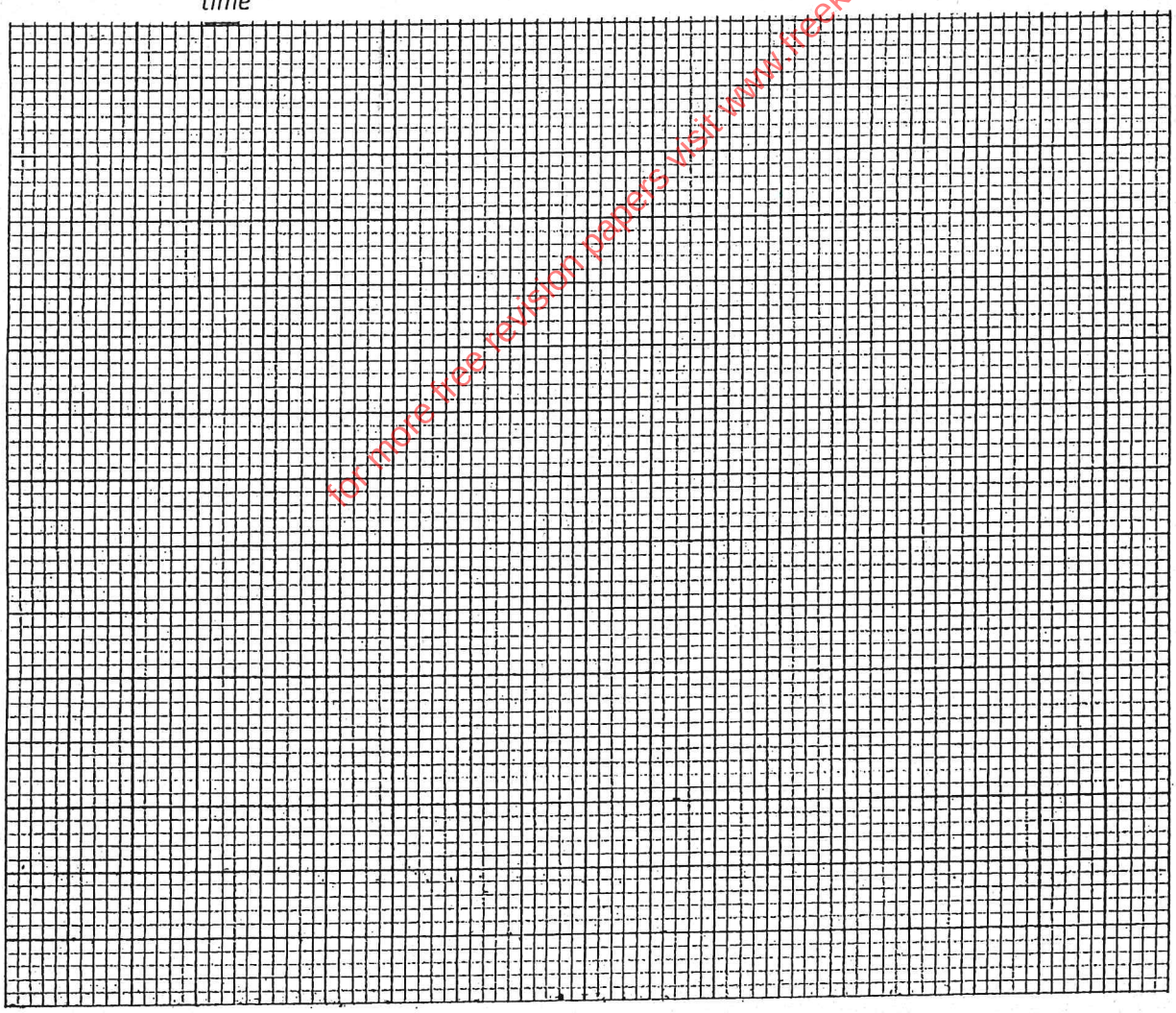
PROCEDURE I

i) Using clean measuring cylinder, measure $50cm^3$ of solution **A** into a 100ml glass beaker
ii) Put one piece of **magnesium ribbon** into solution **A** in the 100ml glass beaker and **simultaneously** start the stop watch
iii) Record the **time taken** by magnesium ribbon to get completely finished in the table I.
Repeat procedure (ii) and (ii) using the same solution in procedure (i) adding each piece of solution, M and **RETAIN** it for procedure II (5marks)

TABLE I

Magnesium ribbon	1st	2nd	3rd	4th	5th	6th
Time taken(s)						
$\frac{1}{\text{time}}$ (s^{-1})						

a) Plot graph of 1 (vertical axis) against the magnesium ribbon. (3marks)
time



b) From the graph determine the time that would be taken for 5cm pieces of the ribbon to get completely finished. (2marks)

PROCEDURE II

Transfer all the solution **M** from procedure I into a 250ml volumetric flask. Top up the flask to the mark with distilled water and shake. Label as solution **N.**

- Fill the burette with solution **N.**
- Using a pipette and pipette filler, place 25cm^3 of solution **B** in a 250ml conical flask. Add 2 drops of phenolphthalein indicator and titrate with solution **N.**
- Record your results in table II. Repeat the titration two more times and complete the table.

TABLE I

	I	II	III
Final burette reading			
Initial burette reading			
Volume of solution **N** used (cm^3)			

(4marks)

c) Calculate the;

i. Average volume of solution **N** (1mk)

ii. Mole of sodium hydroxide, solution **B** used (1mk)

iii. Moles of hydrochloric acid, solution **N**, used. (1mk)

iv. Moles of hydrochloric acid in 250cm^3 of solution **N.** (1mk)

v. Moles of hydrochloric acid in $50cm^3$ of solution **A**. (1mk)

vi. Moles of hydrochloric acid in solution **A** that reacted with all the pieces of magnesium ribbon. (1mk)

vii. Mass of magnesium ribbon used in the reacted (Mg = 24) (2mks)

2. You have provided with solid K carry out the test below and record your observation and inferences in the spaces provided.

a) Place all of solid P in a boiling tube. Add 10cm3 of distilled water and shake. Keep the mixture for the test in part (b) below.

Observations	Inferences
(1mark)	(1mark)

b) Divide the mixture from (a) above into 4 portions

i) To the first portion, add aqueous ammonia drop wise until in excess.

Observations	Inferences
(1mark)	(1mark)

ii) Dip a clean end of glass rod into the second portion, and place in on a non-luminous flame.

Observation	Inferences

(1mark) (1mark)

iii) To the third portion, add four drops of barium chloride solution.

Observations	Inferences

(1mark) (1mark)

iv) To the fourth portion, add two drops of acidified potassium manganate (VII) solution

Observations	Inferences

(1mark) (1mark)

3. You are provided with liquid P. Carry out the following tests. Write your observations and inferences in the spaces provided.

a) Place about $1cm^3$ of solution **P** on a watch glass. Place a burning splint to the solution on the watch glass.

Observations	Inferences
(1mk)	(1mk)

b) Place about $2cm^3$ of solution P in a test tube, add two drops of potassium dichromate (VI)

Observations	inferences
(1mk)	(1mk)

c) Place about $2cm^3$ of solution P in a 2^{nd} test tube and add bromine water.

Observations	inferences
(1mk)	(1mk)

d) To the 3^{rd} portion of $2cm^3$ of solution P; add spatula of sodium carbonate provided.

Observations	Inferences
(1mk).	(1mk)

Name: .....Class: ..... Adm.No. .....

Candidate's Signature: .....

232/1
PHYSICS
THEORY
Paper 1
May - June 2019
Time: 2 hours

KASSU JOINT EXAMINATION

MAY - JUNE 2019

Kenya Certificate of Secondary Education

PHYSICS

PAPER 1

Instructions to Candidates

- *Write your name, admission number, class and signature in the spaces provided at the top of the page. This paper consists of two sections; A and B.*
- *Answer **ALL** the questions in the spaces provided.*
- *Mathematical tables and electronic calculator may be used.*
- *All working MUST be clearly shown.*
- *This paper consists of **12** printed pages.*
- *Candidates should answer the questions in English and check to ensure that no question(s) is missing.*

FOR EXAMINER'S USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 12	25	
B	13	13	
	14	12	
	15	10	
	16	13	
	17	9	
	TOTAL SCORE	80	

Points **A** and **B** are near the ends of the boat. A drop of oil is placed at point **B**. State and explain what happens to the boat. **(2 marks)**

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3. A girl in a school in Nakuru plans to make a barometer using a liquid of density $1.25gcm^{-3}$. If the atmospheric pressure in the school is $93750Nm^{-2}$. Determine the minimum length of the tube that she will require? **(3 marks)**

4. Smoke is enclosed in smoke cell and sealed. When illuminated and viewed under a microscope, it is observed to be moving in continuous random motion. State and explain the observation when cold water is poured on the smoke cell. **(2 marks)**

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5. At 27°C the pressure of a gas is 50cmHg. At what temperature in degree Celsius would the pressure of the gas fall to 40cmHg if the volume is kept constant? **(3 marks)**

6. State **two** factors that affect the spring constant of a spring. **(2 marks)**

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12. Distinguish between elastic collision and inelastic collision. **(1 mark)**

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SECTION B (55 MARKS)

Answer ALL questions in the spaces provided.

13. (a) Define angular velocity. **(1 mark)**

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(b) State the reason why a body in uniform circular motion is said to be accelerating. **(1 mark)**

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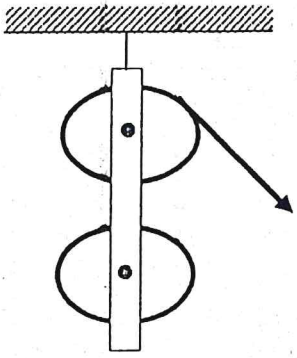
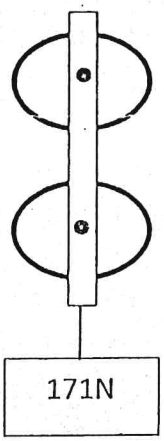
(c) The graph of centripetal force against the square of angular velocity (ω^2) is plotted as shown below.

(b) Complete the diagram below by showing how the string is connected for the effort of 45N to be applied to raise a load of 171N through a height of 5m.
(1 mark)



Effort = 45N



(c) From the block and tackle system shown in (b) above, determine;

(i) the velocity ratio. **(1 mark)**

(ii) the work done on the load. **(2 marks)**

(iii) the work input. **(2 marks)**

(i) Determine the weight W of the block. **(2 marks)**

(ii) If the tension on the string is 1684N, determine the upthrust U of the liquid. **(1 mark)**

(iii) Determine the density of the liquid. **(2 marks)**

(iv) If a liquid of density 1100kg/m^3 is poured on top of the liquid until the block is just submerged, determine the new tension in the string. **(2 marks)**

(c) A hydrometer of mass 30g floats in oil of density 0.9g/cm^3 with 6cm of its stem above the oil. If the cross-sectional area of the stem is 0.5cm^2, calculate the total volume of the hydrometer. **(3 marks)**

(c) Describe how the measurement taken can be used to determine the specific latent heat of fusion of ice. **(2 marks)**

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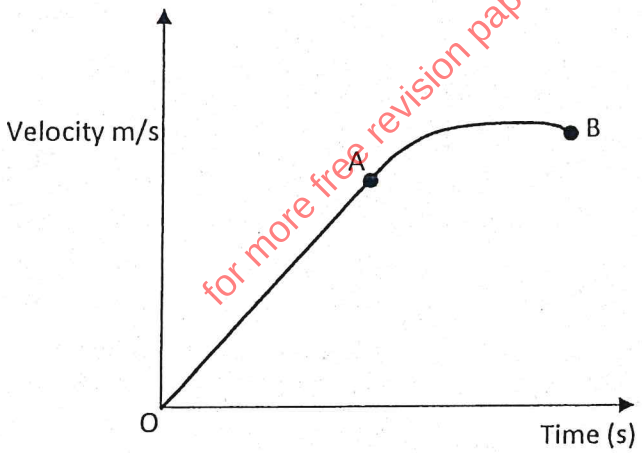
(d) A heater rated 300W was used to heat water from 0^0C to 40^0C. If the heating took 5 minutes; determine;

(i) the heat capacity of water. **(2 marks)**

(ii) the mass of water. (specific heat capacity of water $4.2Jg^{-1}k^{-1}$) **(1 marks)**

17. (a) The figure below shows a velocity – time graph of a body.



Describe the motion of the body between;

(i) OA **(1 mark)**

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(ii) AB **(1 mark)**

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NAME_____ADM.NO_____CLASS_____

INDEX NO._____SIGNATURE:_____

DATE:_____

KASSU JET

The Kenya Certificate Of Secondary Education

232/2
PHYSICS
Paper 2 Theory
June 2019
Time: 2 Hours

Instructions to Candidates

1. *Write your name, index number, class and admission number in the spaces provided above.*
2. *This paper consists of **TWO** sections: Sections **A** and **B**.*
3. *Answer **ALL** the questions in sections **A** and **B** in the spaces provided.*
4. *ALL working **MUST** be clearly shown.*
5. *Mathematical tables and electronic calculators may be used.*

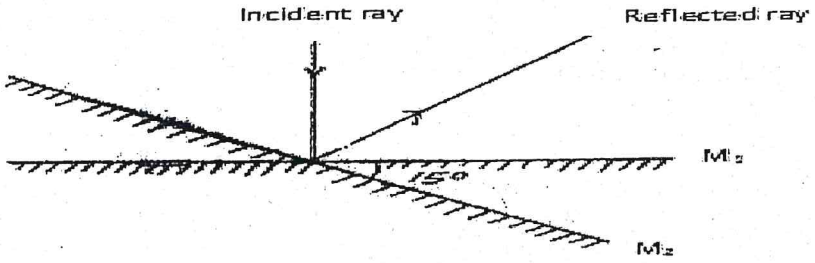
For Examiner's Use Only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1-12	25	
B	13	14	
	14	13	
	15	14	
	16	14	
TOTAL SCORE		80	

This paper consists of 13 printed pages.
Students should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (25 Marks)

1. The figure below shows a ray of light incident along the normal. The mirror is rotated at an angle of 15° in a clockwise direction without changing the position of the incident ray,



Determine the angle between the incident ray and the reflected ray. (2 marks)

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2. Describe how to charge a gold leaf electroscope positively by induction method using a polythene rod and a silk cloth (2 marks)

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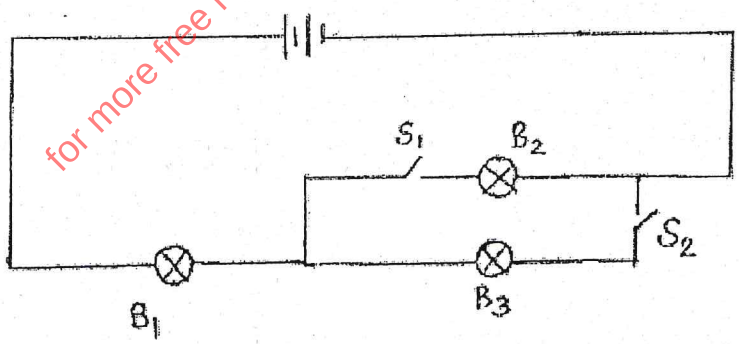
3. A student set up the circuit shown in figure below.



State the observation when;

i. Switch S_1 is closed (1 mark)

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ii. If all switches are closed; compare the brightness between B_1, B_2 and B_3

(2 marks)

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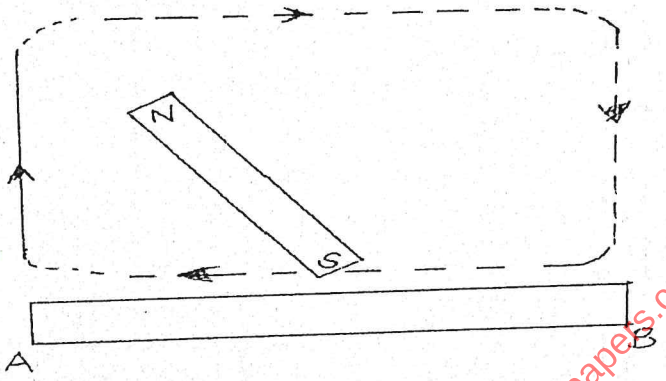
4. The figure below shows one of the method used to magnetise a magnetic material



State the polarity of B. (1 mark)

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5. State two ways of increasing the strength of an electromagnet. (2 marks)

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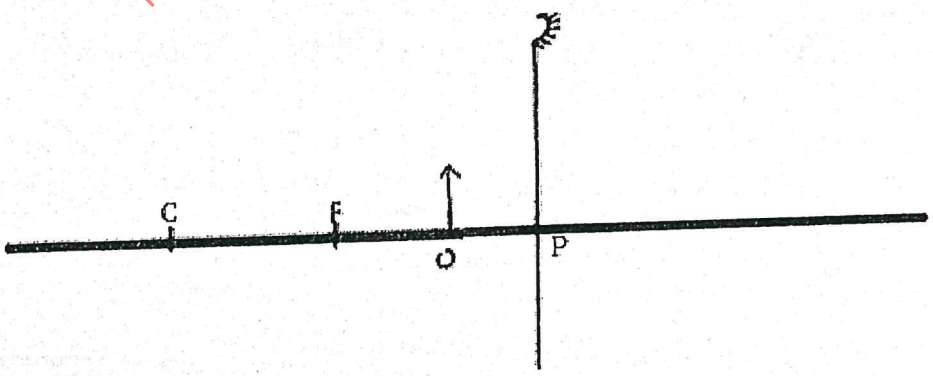
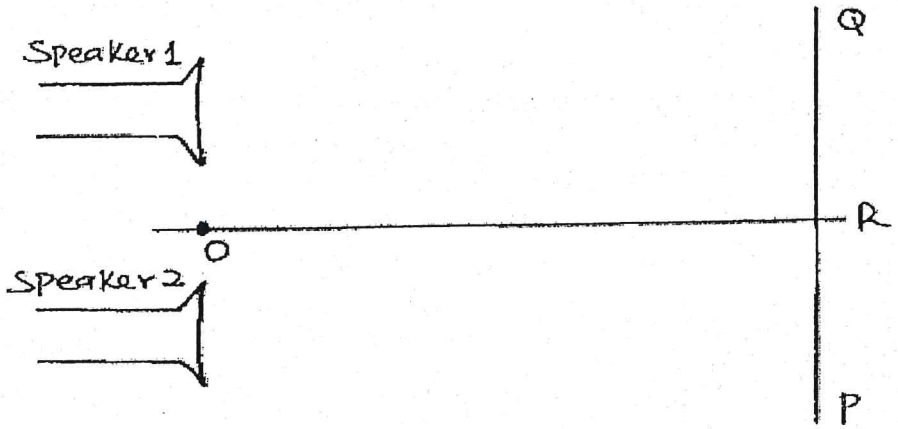
6. An object O is placed in front of a concave mirror as shown in the figure below. Complete the light ray diagram to locate the position of the image. (3 marks)



7. Two identical loudspeakers are arranged as shown and connected to the same signal generator. Line OR is equidistant from the speakers.



i. An observer moves along line PQ. State and explain the observation. (2 marks)

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ii. If the frequency of sound from the generator is increased, what effect does this have on the interval at which the observer hears the soft sound? (1 mark)

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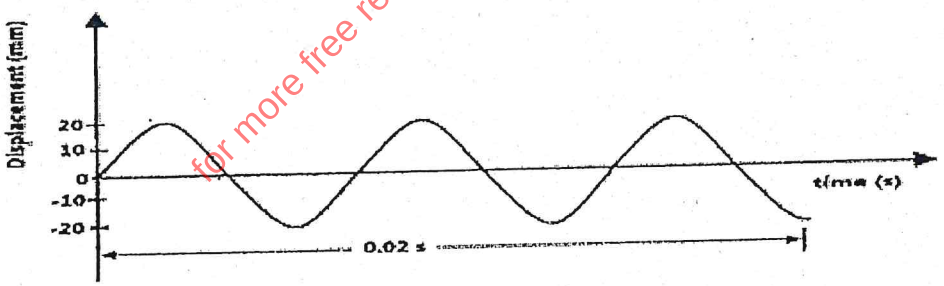
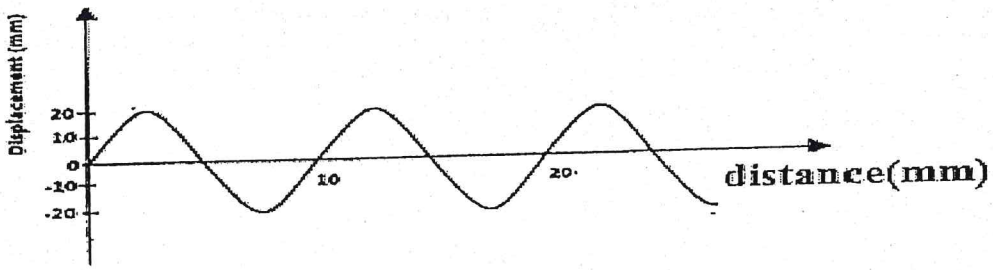
8. The figures below show the profiles of a transverse wave.





Determine for the wave the:

(i) Wavelength (1mark)

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(iii) Velocity (2 marks)

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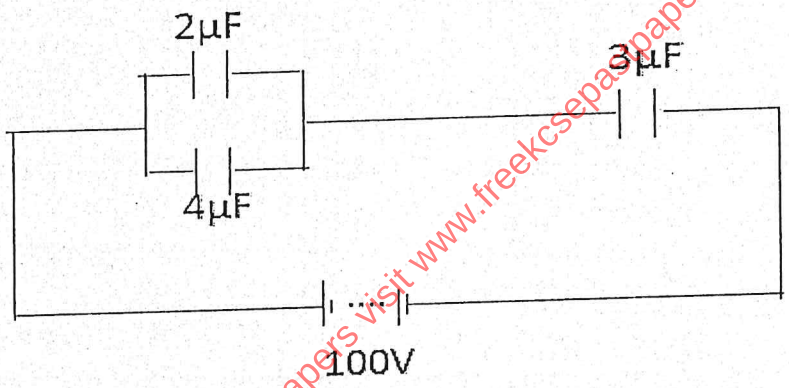
9. The diagram below shows a capacitor network connected to a 100V supply.



Calculate the charge across the 2μF capacitor in the circuit. (3 marks)

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10. Define the term doping as applied in electronics (1 mark)

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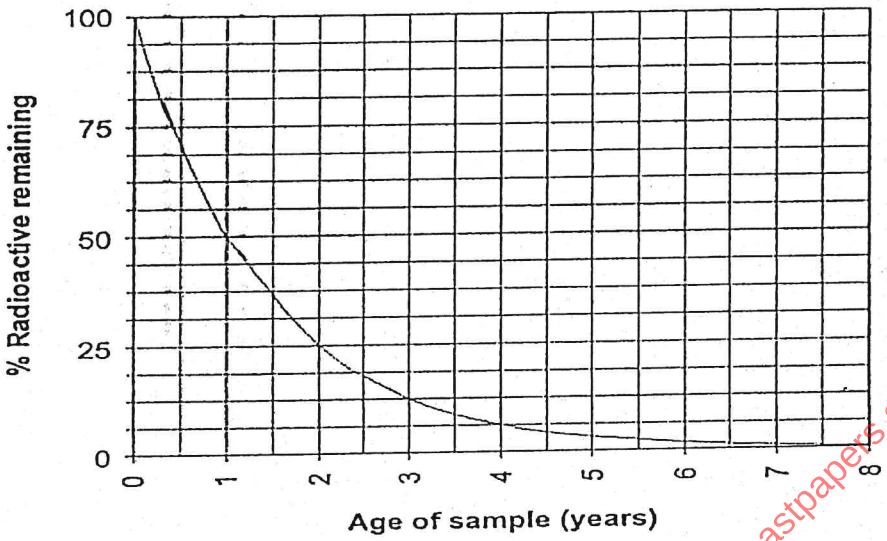
11. The graph below shows the variation of percentage mass remaining against age in years of a certain radioactive substance



Determine the half-life of the source (1 mark)

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12. State one difference between the Cathode Ray Tube of a television and that of a Cathode ray Oscilloscope (CRO). (1mark)

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SECTION B (55 marks)

13 (a) State Ohm's law (1mark)

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(b) You are provided with the following apparatus; a coil of nichrome wire, two dry cells, ammeter, voltmeter, connecting wires, switch and rheostat.

(i) Draw a possible circuit diagram that can be used to verify Ohm's law. (1mark)

(ii) State the measurements to be taken (2marks)

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(i) Describe how the measurements taken above can be used to verify Ohm's law (3marks)

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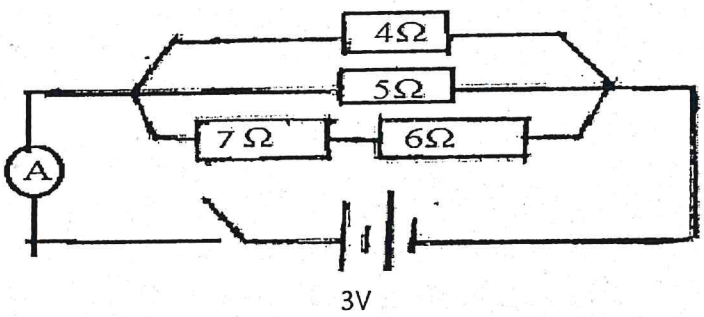
(c) Study the figure below and answer the questions that follow



Determine:

(i) the combined resistance (3 marks)

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(ii) the total current flowing through the 6Ω resistor (2 marks)

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(iii) voltage across the 7Ω resistor (2marks)

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14 (a) Define critical angle (1 mark)

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(b) Crown glass has a refractive index of 1.55. Determine its critical angle (3 marks)

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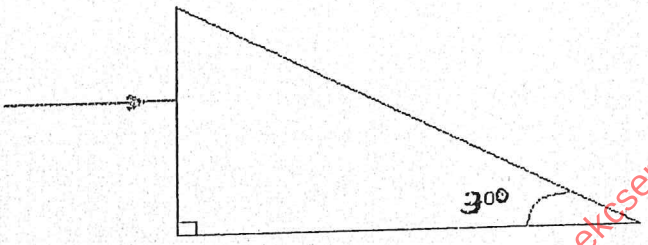
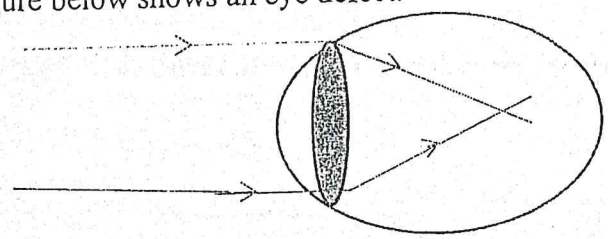
(c) A ray of light strikes the crown prism in (b) above as shown below.



Trace the path of the ray till it emerges out (show your working above) (3 marks)

(d) Using a well labeled diagram, show how you would use a converging lens as a simple microscope (3 marks)

(e) The figure below shows an eye defect.



(i) Name the defect shown above (1 mark)

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(ii) On the same diagram show how you can correct the above defect (2 marks)

15. (a) State Lenz's Law (1 mark)

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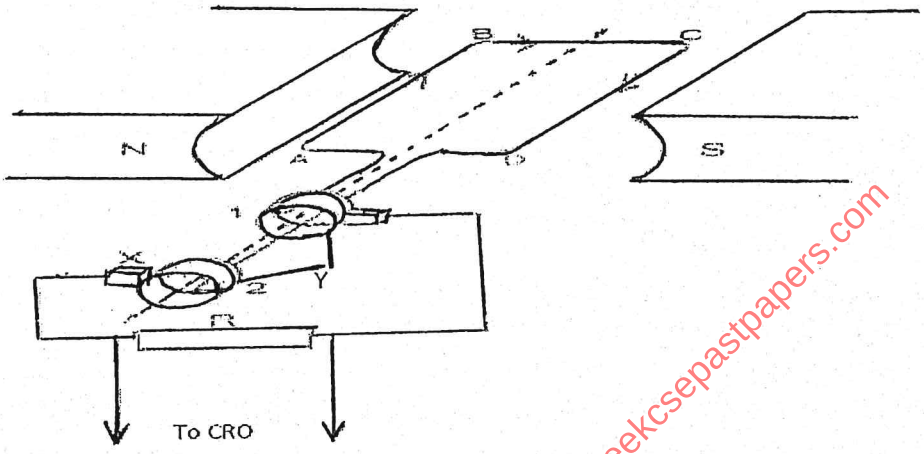
(b) The diagram below shows a simple generator



(i) Name the parts labeled; (I) X ..... (1 mark)

(II) Y..... (1 mark)

(ii) On the diagram, show the direction of rotation, such that the induced current flows in the direction indicated by the arrows (1 mark)

(iii) State two ways of making the generator produce more current (2 marks)

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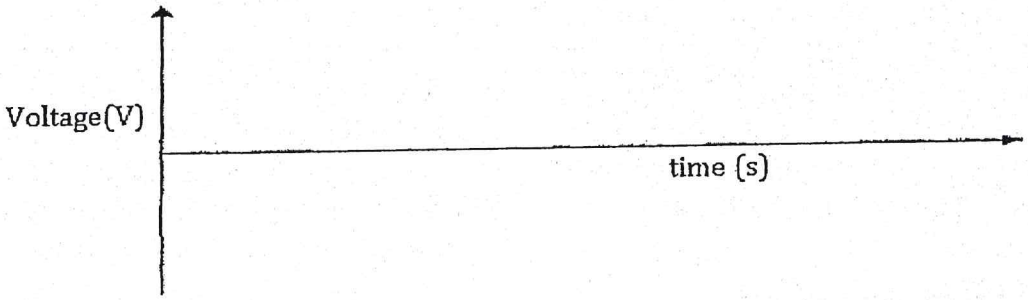
(iv) On the axes below, sketch the graph of the output voltage for two complete cycles if the C.R.O is connected as shown (1 mar



(v) Explain how you would modify the generator above to produce d.c. voltage (1 mark)

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(c) A power line supplies electrical energy to a transformer in a factory. The input voltage to the transformer is 11,000 V. The transformer changes the voltage to 415 V for use in a factory. The power input to the transformer is 40KW. Calculate the current in the secondary coil of the transformer if the transformer is 90%. (3 marks)

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(d) A Form four student spent the April holiday at home and used the following electrical appliances per day:-

8KW cooker for 1 hour,

40W study bulb for 12 hours

(i) Find the total monthly bill for the above household if the power company charges ksh. 2.50 per unit. In addition to the energy consumed, the power company charges each consumer.

I A standing charge of Ksh.200.

II Fuel cost levy at 70 cents per unit. (3 marks)

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16 (a) Apart from the intensity of light, state **two** other factors which affect photoelectric effect.

(2 marks)

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(b) A material has a work function of 2.9eV. The wavelength of an incident radiation on its surface is 2.9 X 10^{-7} m. (Given that; c = 3.0 x 10^{8} m/s, h = 6.63 x 10^{-34} Js, 1eV = 1.6 x 10^{-19} J and mass of an electron = 9.11 × 10^{-31}kg).

(i) determine frequency of incident radiation (2 marks)

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(ii) calculate the stopping potential. (3 marks)

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(iii) determine the speed of the emitted electrons (3 marks)

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(c) (i) state how you can increase the energy of X-rays (1 mark)

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(ii) Give **one** application of X-rays in industry. (1 mark)

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(iii) Why is the X-ray tube evacuated? (1 mark)

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(iv) State why the anode is made of copper (1 mark)

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-END-

PHYSICS PAPER 3 CONFIDENTIAL

KASSU

QUESTION ONE

- A pendulum bob.
- A thread 110cm long
- A retort stand, clamp and boss.
- Two pieces of wood.
- A metre rule.
- A stop watch.

QUESTION TWO

- A lens and a lens holder.(f=15cm)
- A screen with cross wires
- A candle
- A micrometer screw gauge (to be shared)
- A centre zero galvanometer
- A switch
- Connecting wires (at least five with a crocodile clip on one end)
- A resistance wire mounted on a millimeter scale labelled **AB(G32)**
- A resistance wire labelled **P(G32)**
- A resistance wire labelled **Q(G28)**
- Ametre rule or half metre rule
- Two dry cells and a cell holder

NAME _____ ADM.NO _____ CLASS_____

Candidate's signature _____ Date _____

KASSU 2019 JOINT EXAMINATIONS

Kenya Certificate of Secondary Education

PHYSICS PRACTICAL

PAPER 3

2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

i) Write your name and Admission number in the spaces provided above.

ii) Answer all the questions in the spaces provided above.

iii) 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

iv) Marks are given for a clear record of the observations actually made their suitability, accuracy and the use made of them.

v) Candidates are advised to record their observations as soon as they are made.

vi) Non- programmable silent calculators and KNEC Mathematical tables may be used.

FOR EXAMINER'S USE ONLY

Question 1

	b (i)	b (ii)	c (i)	c (ii)	c (iii)
Maximum score	1	7	5	3	4
Candidates score					

Total

Question 2

	a (i-ii)	b (i)	b(ii)	c(i)	c(ii)	d	e(I-II)	f(i-ii)
Maximum score	4	1	4	1	1	2	2	5
Candidates score								

Total

Grand total

This paper consists of 8 printed pages

QUESTION ONE

You are provided with the following

- A pendulum bob.
- A thread 110cm long
- A retort stand, clamp and boss.
- Two pieces of wood.
- A metre rule.
- A stop watch.

Proceed as follows:

(a) Tie the pendulum bob with the thread provided as shown in **Figure 1**. Clamp the end of the thread between the two pieces of wood, so that the length L of the pendulum is 100cm

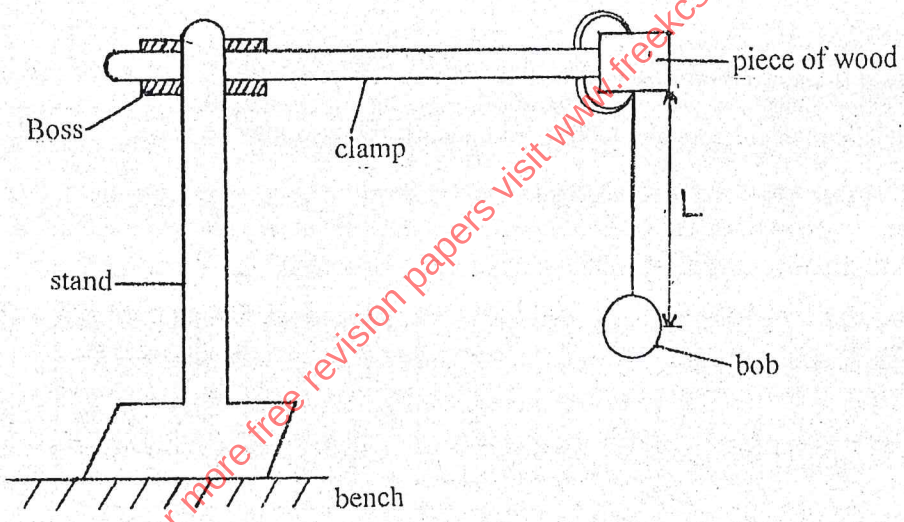


Figure 1

(b) (i) Give the bob a slight displacement and release it. Record time 20 oscillations when the length of the pendulum is 100cm.

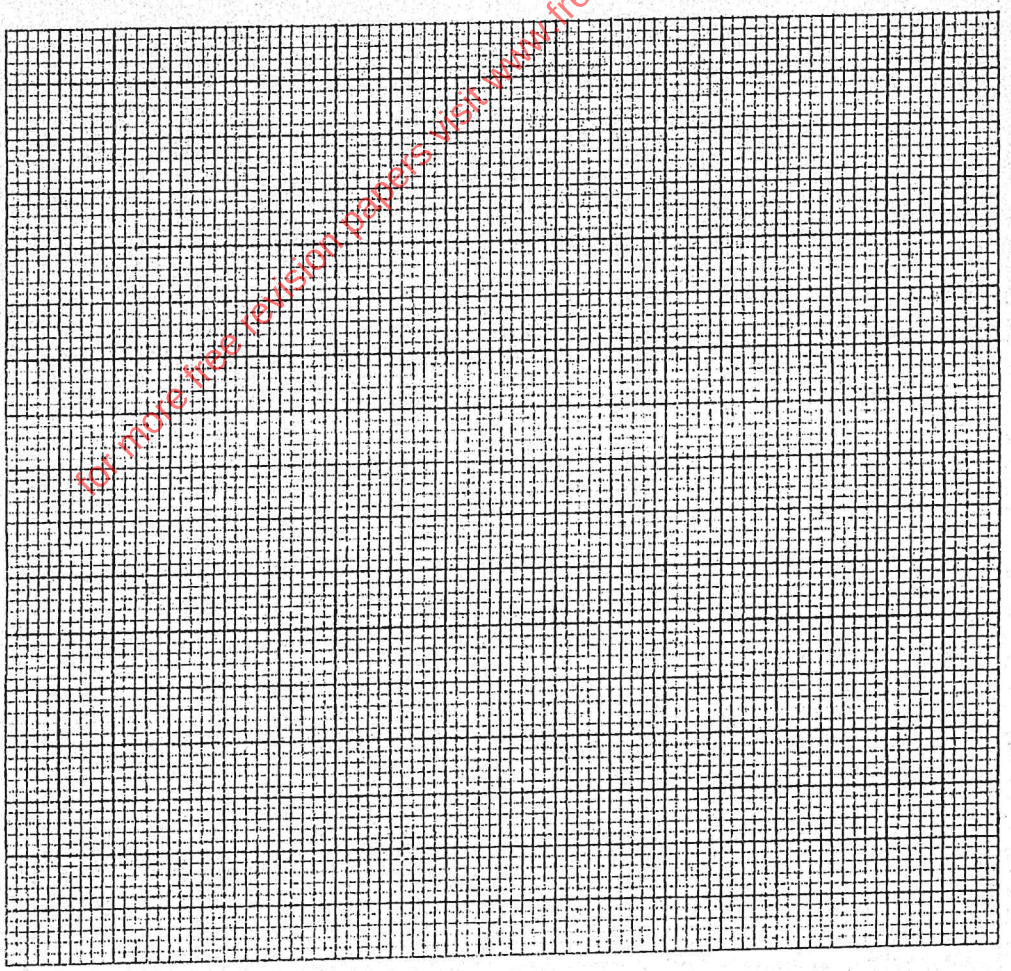
time t = ... s. (1mark)

(ii) Repeat b (i) above for values of L of 90cm, 80cm, 70cm, 60cm, 50cm, 40cm and 30cm and complete the table below.

Length L (m)	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3
Time t for 20 oscillations (s)								
Periodic time T (s)								
T^2 (S^2)								
Log T^2								
Log L	0	-0.05			-0.22			

(7marks)

(c) (i) Plot a graph of log L against log T^2 (5marks)



(ii) Determine the slope of the graph (3marks)

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(iii) Given that the relationship between L and T^2 is given by $\text{Log } L = \text{Log } T^2 - \text{Log}\left(\frac{39.44}{g}\right)$ where g is a constant. Use the graph to determine the value of g.

(4marks)

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QUESTION TWO - Part A

You are provided with the following:

- A lens and a lens holder.
- A screen with cross wires
- A candle
- A metre rule.

Proceed as follows:

a) Arrange the lighted candle, the lens and the screen as shown in **figure 2**. Adjust the position of the screen until a sharp inverted image of the candle is formed on the screen.

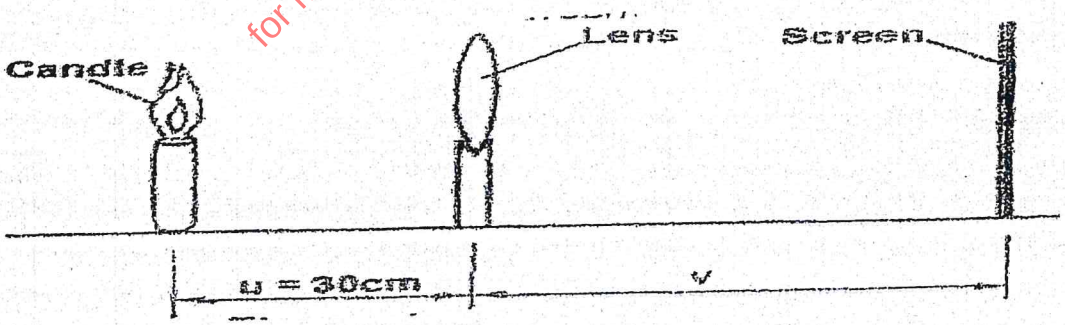

Figure 2

i) Measure the image distance.

(1mark)

v = ... cm

ii) Determine the focal length of the lens using the formula $f = \frac{uv}{u+v}$ (3 marks)

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b) Now arrange the lighted candle, the screen with cross wires and the lens as shown in **figure 3**. *Ensure that the centre of the lens, the cross-wires, and the candle flame lie on the same horizontal line*. The candle flames should be placed close to the cross-wires for better illumination.

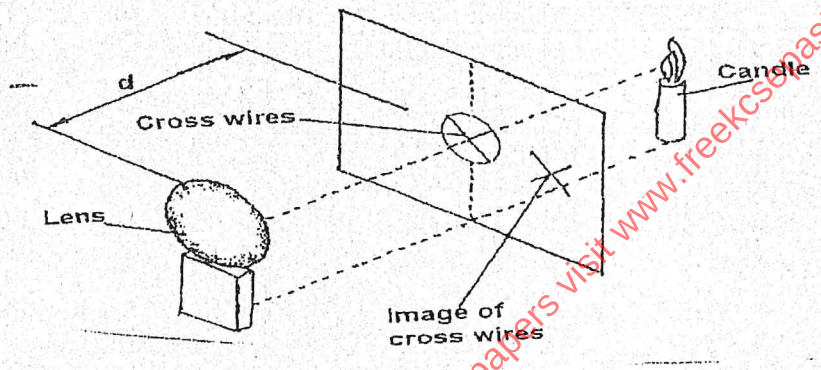

Figure 3

i) Adjust the position of the lens until a sharp image of the cross-wire is formed on the screen next to the cross wires. (*Hint: You have to rotate the lens slightly about a vertical axis so that the image of the cross-wires falls on the screen next to the cross-wires and not on the cross-wires.)*

Measure the distance d, between the lens and the screen.

d = ---------- cm (1mark)

ii) Determine the values of L and X:

a) $L = \frac{df}{f-d}$ (2marks)

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b) $X = \frac{L}{2f} + 1$ (2marks)

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Part B

You are provided with the following

- A micrometer screw gauge (to be shared)
- A centre zero galvanometer
- A switch
- Connecting wires (at least five with a crocodile clip on one end)
- A resistance wire mounted on a millimeter scale labelled **AB**
- A resistance wire labelled **P**
- A resistance wire labelled **G**
- a metre rule or half metre rule
- two dry cells and a cell holder

Proceed as follows:

c) Using the micrometer screw gauge provided, measure the diameter

i) D of wire P

D = ...mm (1mark)

ii) d of wire Q

d = ...mm (1mark)

d) Determine C_1, the value of the ratio $\frac{D}{d}$

C_1 = ... (2marks)

e) Set up the circuit as shown in **Figure 4**. (*Ensure that each of the wires P and Q is 50cm long.)*

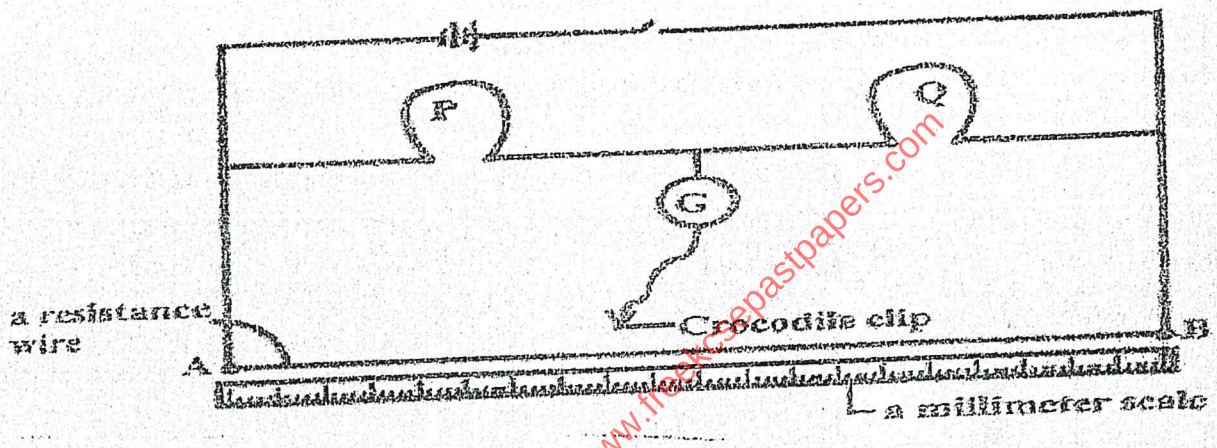

Figure 4

Close the switch. Using the clip at the free end of the wire from the galvanometer, tap wire **AB** near end **A** and observe the deflection in the galvanometer.

ii) Then tap the wire near end **B** and again observe the deflection in the galvanometer

iii) Now tap the wire **AB** at various points between **A** and **B** to obtain a point K where there is no deflection in the galvanometer

I. Determine the length L_1, the distance from **A** to **K** (1mark)

L_1 = ...cm

II. Determine the length L_2, the distance from **B** to **K** (1mark)

L_2 =..... cm

f i) Given that the resistance R_Q of **Q** is 9.0 Ω , determine the resistance R_p of **P** using the expression: (2marks)

$$\frac{R_p}{R_Q} = \frac{L_1}{L_2}$$

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ii) Determine the value of C_2, given that, (2marks)

$$C_2 = \sqrt{\frac{R_Q}{R_P}}$$

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iii) Compare the value of C_1, in part (b) with that of C_2 (1mark)

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THIS IS THE LAST PRINTED PAGE

NAME.....CLASS.....

INDEX NO..... DATE .....SIGN..... ADM NO .....

231/1
BIOLOGY
PAPER 1
MAY 2019
TIME: 2 HOURS

KASSU EXAMINATIONS

(Kenya Certificate of Secondary Education)

BIOLOGY THEORY

Instructions

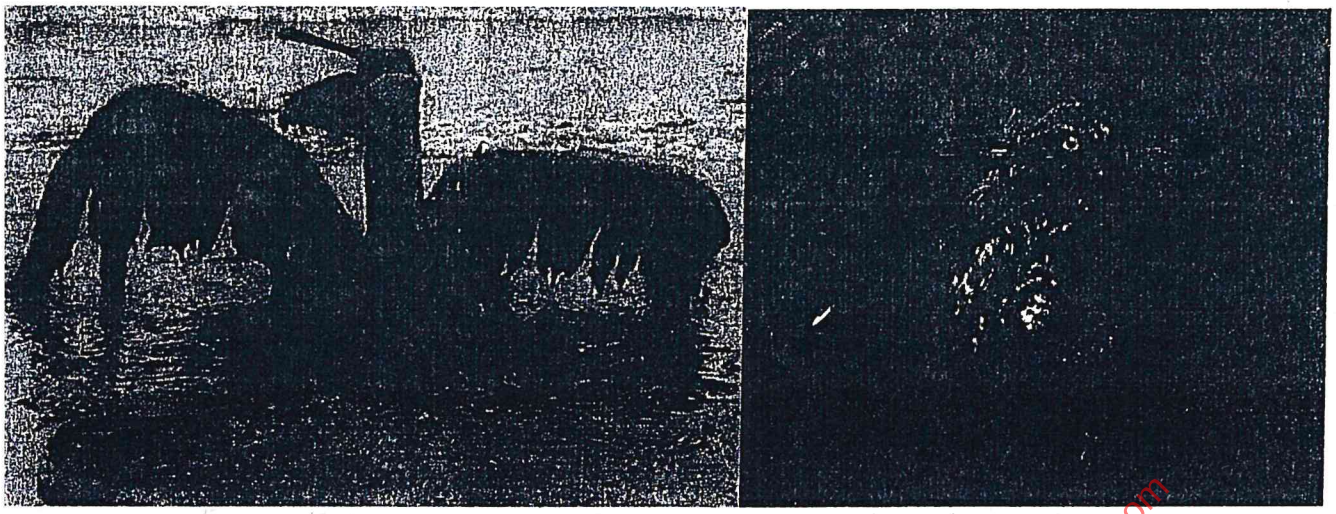
- Write your name, class and admission number in the space provided above.
- Write the date of the examination and sign in the space provided above.
- Answer *all* the questions in the spaces provided.
- You may be *penalized* for wrong spelling especially technical terms.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1-33	80	

This paper consists of 13 printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing

4. Use the illustration below to answer questions that follow.



a) Identify the type of pollution that has such an effect. (1 mark)

.....

b) State two effects of the type of pollution identified in (a) above to the organism. (2 marks)

.....

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.....

Identify the following types of responses:

i) Pollen tube growing towards the ovary (1 mark)

.....

ii) Maggots moving away from light. (1 mark)

.....

State two activities of the cell that are controlled by the nucleus. (2 marks)

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Distinguish between botany and zoology. (1 mark)

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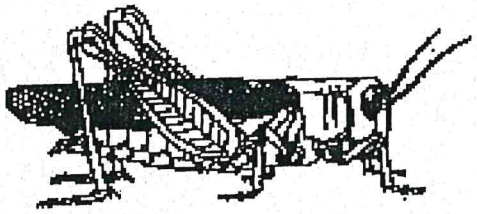
11. Below is an illustration of an organism captured by students during a practical lesson.



(a) Identify two features that enable the organism to be placed in the phylum Arthropoda. (2 marks)

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.....

(b) Explain why the organism will die when Vaseline is applied on its thorax. (1 mark)

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12. Name two properties of enzyme amylase. (2 marks)

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13. State the significance of natural selection. (2 marks)

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14. Explain why a plant shoot develops lateral branches when its tip is removed. (2 marks)

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15. Why is eating a lot of biscuits harmful to the teeth. (2 marks)

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20. State two observable characteristics that show discontinuous variations in *Drosophila melanogaster* 2 marks)

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1. Explain why athletes breathe quickly and deeply after a 100 meters sprint. (3 marks)

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.....

2.(a) State two proteins that determine human blood groups. (1 mark)

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.....

)(i) What is the role of blood capillary? (1 mark)

.....

.....

i) Explain why blood does not clot in undamaged blood vessels. (1 mark)

.....

.....

.....

.(a) List one type of chromosomal aberrations. (1 mark)

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.....

.....

) State one advantage of polyploidy in modern farming. (1mark)

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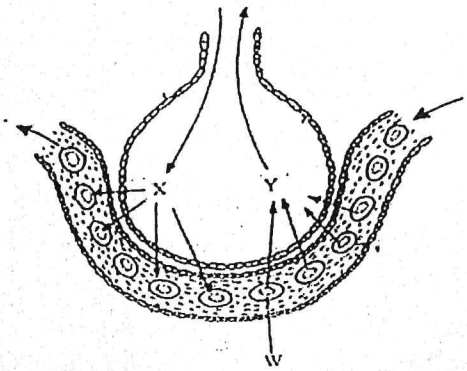
27. Below is a diagram of a respiratory surface. Use it to answer questions that follow.



(a) Name the physiological process involved in the exchange of gases in the structure above. (1 mark)

.....

(b) Identify the substance in cell labeled w that has high affinity for gas X. (1 mark)

.....

(c) State the advantage of gas Y being transported in cells labeled W (1 mark)

.....

.....

28. (a) Explain why when transplanting a young plant, it is advisable to remove some leaves. (2 marks)

.....

.....

.....

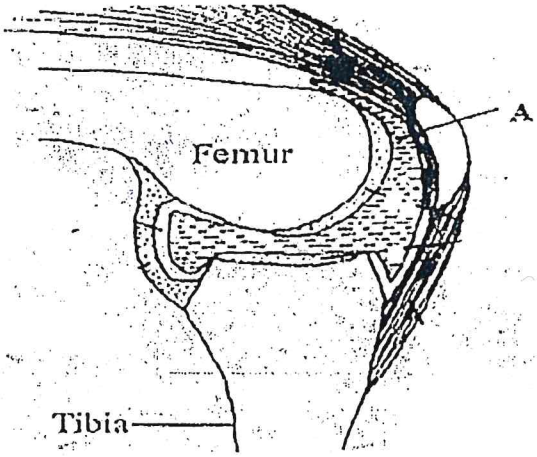
(b) Give one role of xylem vessels other than transport (1 mark)

.....

.....

.....

2. Use the illustration below to answer questions that follow



ı) Identify the fluid labeled A and state its function. (2 marks)

.....

.....

.....

›) Name the type of joint shown above. (1 mark)

.....

3. (a) what is the role of a pollen tube. (1 mark)

.....

.....

.....

›) Identify the role of the following hormones in males:

) Follicle stimulating hormone. (1 mark)

.....

.....

i) Testosterone. (1 mark)

.....

.....

1. Colour blindness is due to a recessive gene linked to the X chromosome. A man with normal colour vision married a woman with normal colour vision but one of their sons was colour blind.

   a) Using letter N to represent the gene for normal colour vision, work out the genotype of the children. (4mks)

   b) What is the probability of a child born by this couple being a boy and colour blind? (2mks)

.....

.....

.....

.....

   c) Explain why colour blindness is more common in males than females in a population. (2mks)

.....

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.....

Name: ..... Index no .....

Admission No.....Candidate's sign .....

School..... Date: .....

231/2
BIOLOGY
PAPER 2
JUNE 2019
TIME: 2 HOURS

KASSU JET EXAMINATION

Kenya Certificate of Secondary Education (K.C.S.E.) 2018

Biology
Paper 2

INSTRUCTIONS TO CANDIDATES:

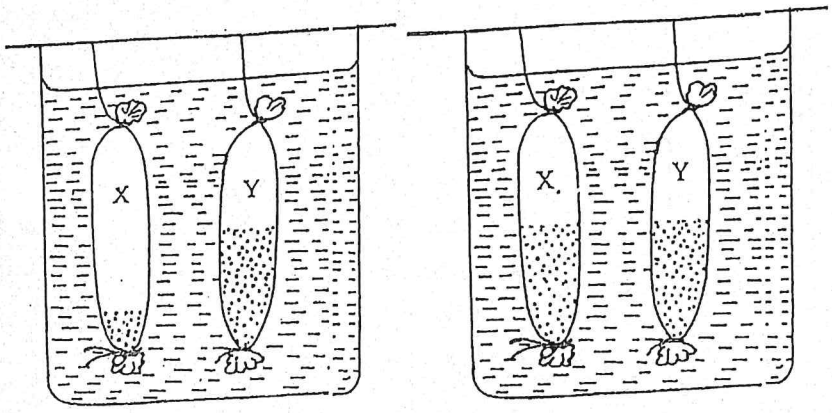
- *Write **your name** and **index number** in the spaces provided.*
- *Answer **all** the questions in Section **A** in the spaces provided.*
- *In section **B** answer questions 6 (compulsory) and either question 7 or 8 in the spaces provided*

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	**80**	

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

2. Two visking tubings X and Y were each half filled with 10ml of sugar solutions of different concentrations. The tubings were then immersed in a beaker containing 15% sugar solution and left for four hours. The results were as shown in the diagrams below.



At the end of experiment At the beginning of experiment

a) Name the process being investigated in the experiment. (1mk)

.....

b) Compare the nature of the solution X to that in the beaker. (1mk)

.....

c) i) Account for the observation in Y. (2mks)

.....

.....

.....

ii) State and explain the observation that would be made if another visking tubing filled with 30% sugar solution is immersed in the same beaker. (3mks)

.....

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.....

d) Briefly explain the significance of the physiological process named in (a) above in gaseous exchange in plants. (1mk)

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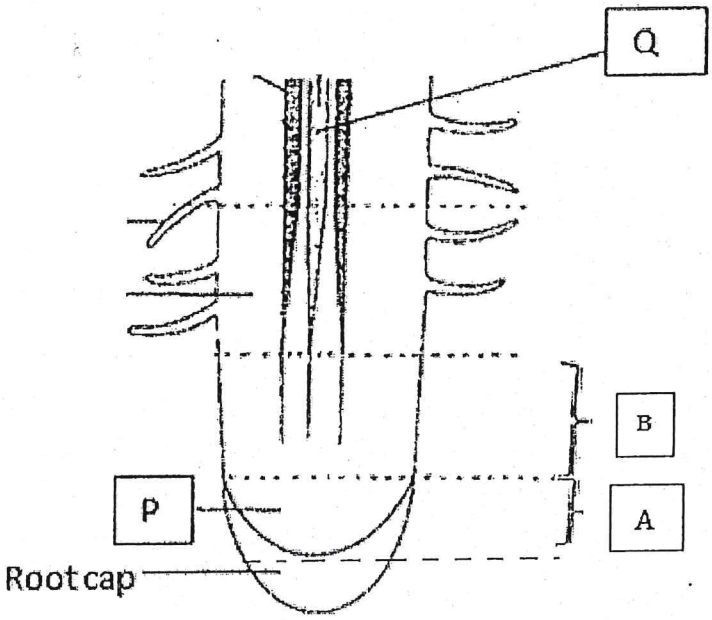
3. The diagram below represents a longitudinal section of a root.



a) i) Identify zone A (1mk)

.....

ii) Give two characteristics of cells found in zone A. (2mks)

.....

.....

.....

b) State two ways in which structure Q is adapted to its functions. (2mks)

.....

.....

.....

c) Name the hormone produced in high concentrations in the part labelled P. (1mk)

.....

d) Give two roles of the hormone named in 3 (c) above in plants. (2mks)

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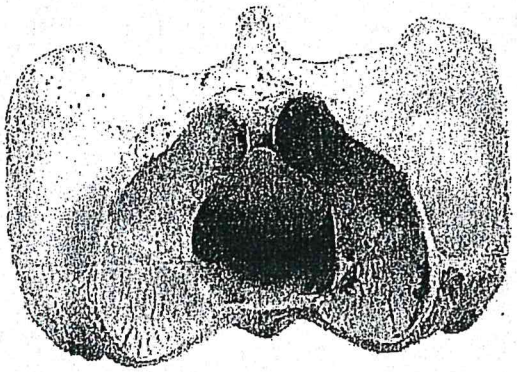
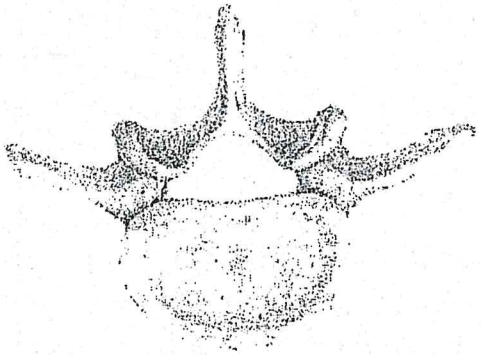
4. The figures below show two bones that from part of the axial skeleton.



G



H

a) Identify the bones (2mks)

G.....

H.....

b) Give two structural adaptations of bone G (2mks)

.....

.....

.....

.....

c) State two observable differences between bones G and H (2mks)

G	H

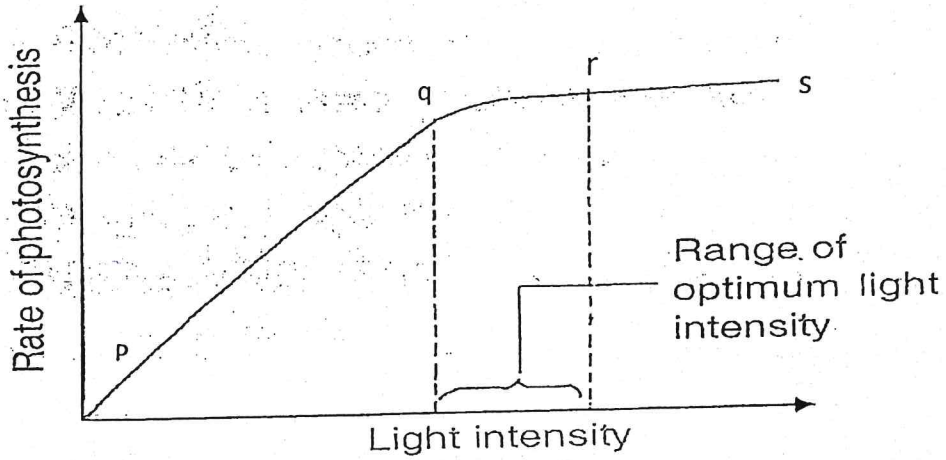
d) Give two functions of intervertebral discs. (2mks)

.....

.....

.....

5. The curve below shows the rate of photosynthesis at difficult light intensities



a) With reference to photosynthesis, give the meaning of the phrase limiting factor.(1mk)

.....

b) Name the limiting factor between the following points (2mks)

i) P and Q

.....

ii) R and S

.....

c) Describe what happens during the light stage of photosynthesis. (2mks)

.....

.....

.....

d) Explain how light affects the rate of photosynthesis. (2mks)

.....

.....

.....

e) What is compensation point? (1mk)

.....

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.....

SECTION B

Answer question 6 and either question 7 or 8

6. Students carried out research on the effect of industrial emissions on the rate of growth of plant shoots and roots. After weeks of observations and analysis, they ended up with results as shown in the table below.

Concentration of Sulphuric acid (mol/dm^3)	**Mean root length (mm)**	**Mean shoot length (mm)**
0.0×10^{-3}	55.5	25.2
$1.0\ 10^{-3}$	63.4	18.4
3.0×10^{-3}	6.5	9.5
4.0×10^{-3}	2.0	4.6
6.0×10^{-3}	1.8	0.8
7.0×10^{-3}	1.5	0.5
8.0×10^{-3}	1.3	0.3
9.0×10^{-3}	1.3	0.0
10.0×10^{-3}	1.0	0.0

a) On the same grid, plot a graph of the mean root length and shoot length against the concentration of Sulphuric acid (7mks)

a) Describe the relationship between the concentration of Sulphuric acid and the
i) Growth of shoots (2mks)

.....

.....

.....

ii) Growth of roots (2mks)

.....

.....

.....

b) Estimate the mean root and mean shoot length when the concentration of Sulphuric acid is 5.0 (2mks)

.....

.....

.....

c) State two other effects of acid rain (2mks)

.....

.....

.....

d) State the ways of preventing acid rain (3mks)

.....

.....

.....

.....

e) What is eutrophication (2mks)

.....

.....

.....

7.a) Describe the events that take place from the time a pollen grain lands on the stigma until fertilization. (14mks)

b) Describe the changes that take place in a flower after fertilization. (6mks)

8.a) Discuss the adaptations of the mammalian ear to its functions. (20mks)

KSSAT

Name: ..... Index no .....

Admission No.....Candidate's sign .....

School..... Date: .....

231/2
BIOLOGY
PAPER 2
JUNE 2019
TIME: 2 HOURS

KASSU JET EXAMINATION

Kenya Certificate of Secondary Education (K.C.S.E.) 2018

Biology
Paper 2

INSTRUCTIONS TO CANDIDATES:

- *Write your name and index number in the spaces provided.*
- *Answer all the questions in Section A in the spaces provided.*
- *In section B answer questions 6 (compulsory) and either question 7 or 8 in the spaces provided*

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1	8	
	2	8	
	3	8	
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	8	20	
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1. Colour blindness is due to a recessive gene linked to the X chromosome. A man with normal colour vision married a woman with normal colour vision but one of their sons was colour blind.

   a) Using letter N to represent the gene for normal colour vision, work out the genotype of the children. (4mks)

   b) What is the probability of a child born by this couple being a boy and colour blind? (2mks)

.....

.....

.....

.....

   c) Explain why colour blindness is more common in males than females in a population. (2mks)

.....

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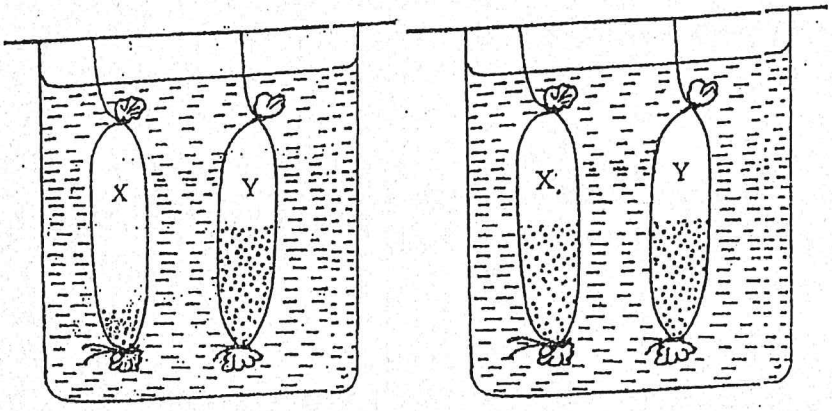

At the end of experiment At the beginning of experiment

a) Name the process being investigated in the experiment. (1mk)

.....

b) Compare the nature of the solution X to that in the beaker. (1mk)

.....

c) i) Account for the observation in Y. (2mks)

.....

.....

.....

ii) State and explain the observation that would be made if another visking tubing filled with 30% sugar solution is immersed in the same beaker. (3mks)

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.....

d) Briefly explain the significance of the physiological process named in (a) above in gaseous exchange in plants. (1mk)

.....

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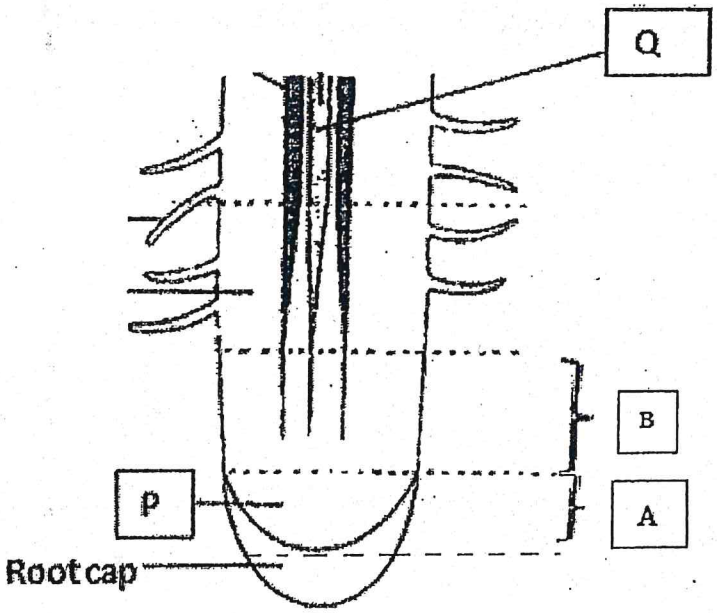
3. The diagram below represents a longitudinal section of a root.



a) i) Identify zone A (1mk)

.....

ii) Give two characteristics of cells found in zone A. (2mks)

.....

.....

.....

b) State two ways in which structure Q is adapted to its functions. (2mks)

.....

.....

.....

c) Name the hormone produced in high concentrations in the part labelled P. (1mk)

.....

d) Give two roles of the hormone named in 3 (c) above in plants. (2mks)

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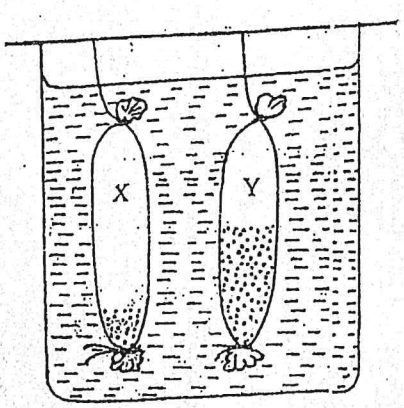
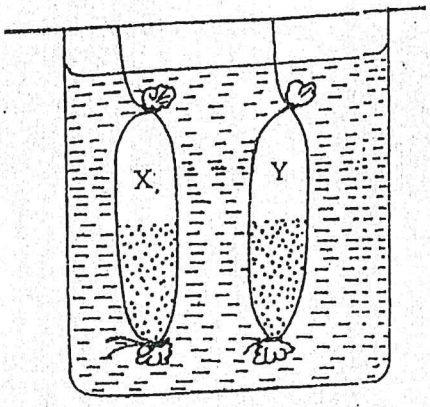


At the end of experiment



At the beginning of experiment

a) Name the process being investigated in the experiment. (1mk)

.....

b) Compare the nature of the solution X to that in the beaker. (1mk)

.....

c) i) Account for the observation in Y. (2mks)

.....

.....

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ii) State and explain the observation that would be made if another visking tubing filled with 30% sugar solution is immersed in the same beaker. (3mks)

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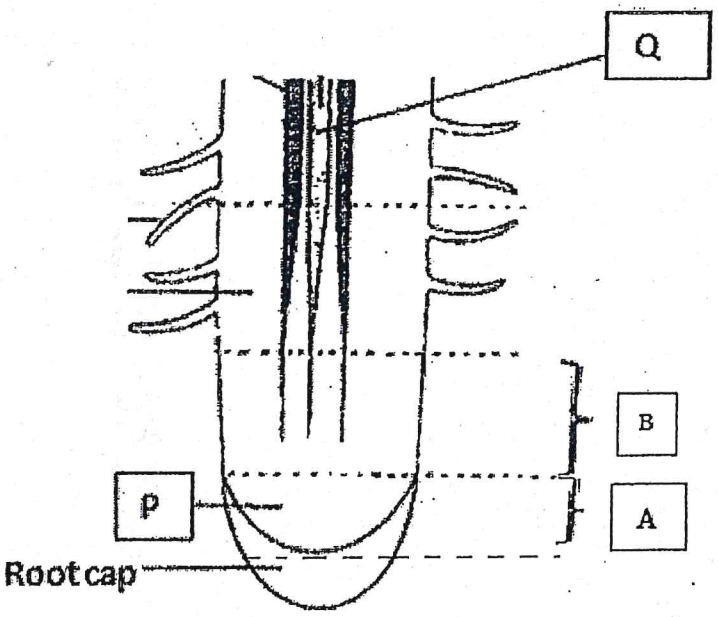

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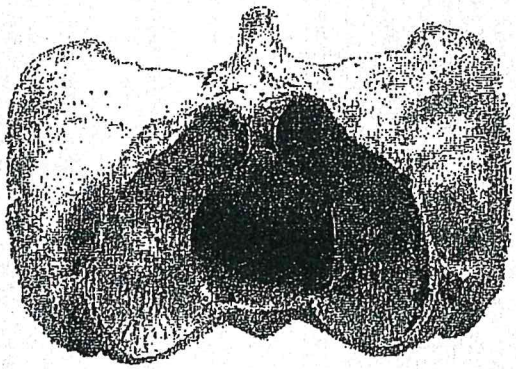

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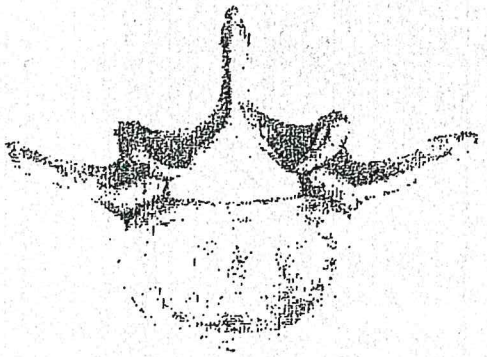

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H.....

b) Give two structural adaptations of bone G (2mks)

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G	H

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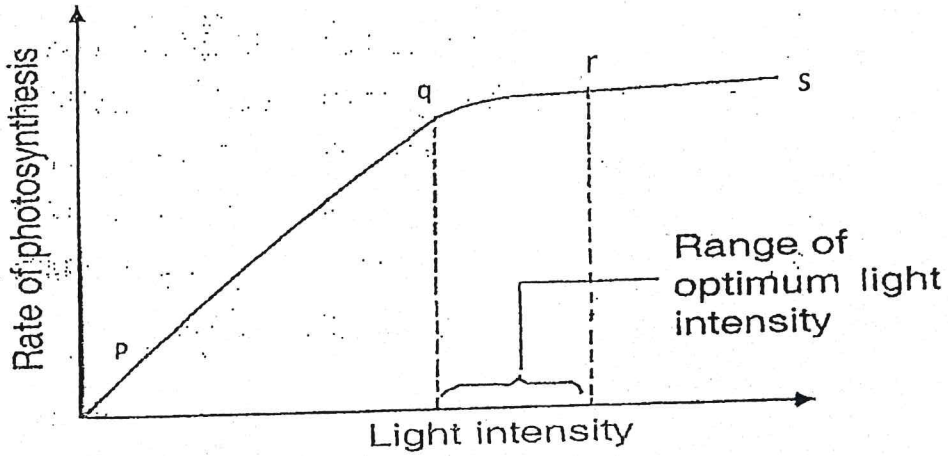
5. The curve below shows the rate of photosynthesis at ~~difficult~~ different light intensities



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i) P and Q

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SECTION B

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a) Describe the relationship between the concentration of Sulphuric acid and the
   i) Growth of shoots (2mks)

.....

.....

.....

   ii) Growth of roots (2mks)

.....

.....

.....

b) Estimate the mean root and mean shoot length when the concentration of Sulphuric acid is 5.0 (2mks)

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c) State two other effects of acid rain (2mks)

.....

.....

.....

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.....

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.....

.....

e) What is eutrophication (2mks)

.....

.....

.....

7.a) Describe the events that take place from the time a pollen grain lands on the stigma until fertilization. (14mks)

b) Describe the changes that take place in a flower after fertilization. (6mks)

8.a) Discuss the adaptations of the mammalian ear to its functions. (20mks)