

**Student's Name:.....**

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## S.5 GENERAL PAPER

### *INSTRUCTIONS TO CANDIDATES:*

- Answer two questions which must be chosen as follows:  
**one** question from section A and **one** question from section B.
- Any additional question(s) attempted will not be marked.

### SECTION A

Answer one question from this section

Answers should be between 500 and 800 words in length.

1. Account for the high rate of crime in your community.
2. To what extent has the Television promoted crime among the youth in your community?
3. Give an account of how human rights have been violated in Uganda.
4. Why is there an increase in the level of unemployment in Uganda?

## **SECTION B**

**Answer one question from this section**

5. Study the information given below very carefully and answer the questions that follow.

You are the Managing Director of a small but long – established firm that specializes in the manufacture of high quality furniture for export.

As a result of the global recession and a sharp fall in orders, you had to cut back on overheads such as training, sponsorship and advertising. As a further economy measure, you now have to decide on which member of your senior management team should leave the firm. (Apart from their own particular responsibilities, this senior management team advises the managing director on the overall running of the business)>

Below are the notes you have made on your three colleagues.

### **A. Felix Momsenta**

1. He plays too much golf
2. Much loved by the welfare
3. Two children in the armed forces
4. Great grandson of the original founders of the firm
5. In the past, he has invested heavily in the company

6. Hopeless with figures
7. Family still owns the site on which our factory stands.
8. Can't stand paperwork or long business meetings
9. Lost a fortune in the recent financial melt down
10. Nice manners can always be trusted with foreign visitors

**B. Henry Ordoma**

1. Must be nearly 60
2. Who else could put the finishing touches to our products
3. He's never complained when we've had to freeze everyone's salary in the past.
4. Tends to come into work only when it suits him.
5. His mind goes blank as soon as we suggest anything new.
6. Without him, that strike would have gone on for weeks
7. He devotes much of his spare time to serving charities
8. His family members have been skilled craftsmen here for generations
9. He's too much fond of gossip.
10. He often shows a great deal of commonsense.

**C. Grace Nautienne**

1. It was her flair for publicity that gained us worldwide fame

2. Almost always exceeds her budget
3. I do like the biscuits she brings for our meetings
4. She's my wife's best friend
5. Puts in long hours every day.
6. She will make the odd unfortunate remark that everyone hears
7. She has often applied for "more rewarding" positions elsewhere
8. Her husband's the Minister for overseas trade.
9. Can be very busy. Won't take no for an answer
10. A pity I've had to turn down so many of her "brilliant" ideas

## Questions

- (a) As a Managing Director, which member of the senior management team would you be most inclined to ask to leave? Select five evidences from the passage.
- (b) As a Managing Director, which member of the senior management team would you be least inclined to ask to leave? Select five evidence from the passage.
- (c) Out of ten comments recorded above for each, in your opinion, which has the least relevance to the decision that has to be taken for:
  - (i) Felix (choose one)
  - (ii) Grace (choose one)

- (iii) Henry (choose one)
- (d) Give the effects of the economic recession in your country.

**6. Read the passage below and answer the questions which follow.**

It still remains to speak of one of the principal causes which make diversity of opinion advantageous, and will continue to do so until mankind shall have entered a stage of intellectual advancement which at present seems at an incalculable distance. We have hitherto considered only two possibilities: that the received opinion may be false, and some other opinion, consequently true: or that the received opinion being true, a conflict with the opposite error is essential to a clear apprehension and deep feeling of its truth. But there is a commoner case that neither of these; when the conflicting doctrines, instead of being one true and the other false, share the truth between them, and the nonconforming opinion is needed to supply the remainder of the truth, of which the received doctrine embodies only a part popular opinions, on subjects not **palpable** to sense, are often true, but seldom or never the whole truth. They are apart of the truth; but seldom or never the whole truth. They are a part of the truth; sometimes a greater, sometimes a smaller

part, but exaggerated, distorted, and disjointed from the truths by which they ought to be accompanied and limited. Heretical opinions, on the other hand, are generally some of these suppressed and neglected truths, bursting the bonds which kept them down, and either seeking reconciliation with the truth contained in the common opinion, or fronting it as enemies, and setting themselves up, with similar **exclusiveness**, as the whole truth. The latter case is hitherto the most frequent, as in the human mind, one-sidedness has always been the rule, and many sidedness the exception. Hence, even in revolutions of opinion, one part of the truth usually sets while another rises.

Even progress, which ought to **superadd**, for the most part only substitutes, one partial and incomplete truth for another; improvement consisting chiefly in this, that the new fragment of truth is usually more wanted, more adapted to the needs of the time, than that which it displaces.

Thus, in the eighteenth century, when nearly **all the instructed, and all those of the uninstructed** who were led by them, were lost in admiration of what is called civilization, and of the **marvels** of modern science, literature, and philosophy, and while greatly over-rating the amount of **unlikeness** between the men of modern and those of ancient times, **indulged the belief that the whole of the**

**difference was in their own favour;** with what a salutary shock did the paradoxes of Rousseau explode like bombshells in the midst, **dislocating the compact mass** of one-side opinion, and forcing its elements to recombine in a better form and with **additional ingredients.** Not that the current opinions were nearer to it; they contained more of positive truth, and very much less of error. Nevertheless there lay in Rousseau's doctrine, and has floated down the stream of opinion wanted; and these are the deposit which was left behind when the **flood sub-sided.** The superior worth of simplicity of life, the enervating and demoralizing effect of the trammels and hypocrises of artificial society, are ideas which have never been entirely absent from **cultivated minds** since Rousseau wrote; and they will in time produce their due effect, though at present needing to be asserted as much as ever, and to be asserted by deeds, for words, on this subject, have nearly exhausted their power.

- (a) Suggest a suitable title for passage
- (b) What does the author mean by:
  - (i) ..... “all the instructed and those of the uninstructed .....
  - (ii) ..... “Indulged in the belief that the whole of the difference was in their favour.....”



- (c) In not more than 100 words, summarize the reasons why diversity of opinion is necessary (12marks)
- (d) Explain the meaning of the following words and phrases as used in the passage, using your own whenever possible
- |                                    |                 |
|------------------------------------|-----------------|
| (i) Palpable                       | (iv) Instructed |
| (ii) Exclusiveness                 | (v) Marvels     |
| (iii) Superadd                     | (vi) Indulged   |
| (vii) Dislocating the compact mass |                 |
| (viii) Additional ingredients      |                 |
| (ix) Flood subsided                |                 |
| (x) Cultivated minds               |                 |

**END**

## **S.5 P250/1 GEOGRAPHY**

### ***INSTRUCTIONS:***

- *Attempt all questions*

### **SECTION A – MAP WORK**

1. Study the map 1:50,000 (UGANDA) **MOROTO** and answer the questions that follow.
  - (a) State the grid reference of the
    - (i) Secondary trigonometrical station at Moruarengan
    - (ii) Post office at Moroto.
  - (b) Name:
    - (i) The man made feature at Grid reference 770779.
    - (ii) Physical feature at grid reference 925830.
  - (c) Measure and state in kilometres the distance of a bound surface road from abride (Grid ref) 753775 to a junction at Moroto grid ref 843804.
  - (d) Draw a sketch map of the area shown on the map and on it mark and name the following
    - (i) Mounteneous region
    - (ii) Moroto town
    - (iii) Rivers Musupo and Matheniko and their tributaries.
    - (iv) Forested areas
    - (v) Dry weather Road.
    - (vi) Bound surface road
  - (e) Giving specific evidences

- (i) Identify any two activities carried in the area.
- (ii) Outline the four problems faced by the people living in the area.

## **SECTION B**

- 2.(a) What is meant by the term continental drift.
- (b) Describe Wegner's theory of continental drift
- 3. With reference to the southern continents, explain the evidences put forward to justify continental drift .
- 4.(a) Account for the formation of a rift valley in East Africa
- (b) Explain the problems faced by people living in rift valley areas of East Africa.

**END**

## **S.5 GEOGRAPHY P.2**

### **(WORLD PROBLEMS AND DEVELOPMENT**

***INSTRUCTIONS: Attempt 2 questions.***

- 1.(a) What is meant by the term shift cultivation?  
(b) Explain the merits and demerits of shift cultivation in Africa.  
(c) Why is shift cultivation disappearing in Africa?
- 2.For either Kenya and California, discuss the factors favouring the development of market gardening.
- 3.Assess the contributions of irrigation farming in either Sudan or Egypt.
- 4.Account for the development of dairy farming in either Denmark or Kenya.

**END**

## **S.5 GEOGRAPHY P.3**

### **INSTRUCTIONS: Attempt 2 questions**

1.(a) Describe the formation of the Western rift valley in Uganda.

(b) Explain the influence of the rift valley on the land use in Uganda.

2.(a) Differentiate between intrusive volcanicity and extrusive volcanicity.

(b) Describe the formation of the following volcanic features.

i. Volcanoes

iii. Volcanic plug

ii. Lava plateaus

iv. Hot springs

c) Explain the values of the above land forms in Uganda.

3.(a) Describe the formation of either Lake Victoria or Lake Albert.

(b) Assess the importances of lakes in Uganda.

### **S.5 HISTORY P.3**

**TIME: 1½ HOURS**

***INSTRUCTIONS:* Attempt 2 questions**

- 1.How far did the character of king Louis (XIV) lead to the events of 1789 in France?
- 2.“The bankruptcy of the French crown led to the out break of the French revolution?

3. How did the American war of independence lead to the outbreak of the French revolution?
4. Account for the collapse of the ancient regions in France by 1792.
5. Examine the causes and effects of the war between France and the rest of Europe.

## **S.5 ECONOMICS**

**TIME: 2HOURS**

### ***INSTRUCTIONS:***

- *Answer all questions*
- *Answer must be concise and precise*

1. What is Economics?
2. Relate the basic Economics problems.
3. Construct a hypothetical abnormal demand schedule and from it derive a demand curve.
4. Distinguish between the following:
  - (a) Public goods and Free goods

- (b) Inferior goods and Giffen goods
- (c) Joint supply and Joint demand

5. What is meant by Resource Allocation?

6. Distinguish between Price floor and Price ceiling

7. Give four characteristics of an Economic good

8. With illustration explain how an increase in price of other goods affect the demand for a commodity.

9. What are rewards to factors of Production.

10. Illustrate the relationship between Total utility and Marginal utility.

11. Give four factors which affect the quantity supplied of a commodity.

12. Given that  $Q_{ss} = 16$  ,  $Q_{dd} = 3P - 8$ . Calculate and illustrate the equilibrium price and quantity.

13. What is Conspicuous consumption?



14. Illustrate the demand behavior of different commodities as a consumers' income changes.
15. Give four factors which lead to low capital accumulation.
16. State four ways of determining prices in your country.
17. Distinguish between division of labour and specialization .
18. What is macroeconomics?
19. What is impulse demand?
20. Outline four reasons why your country should emphasize a free market economy.

**END**

## **S.5 ENTREPRENEURSHIP P.1**

**Time: 1: 30mins**

***Instructions: Attempt all questions***

- 1.(a) What is entrepreneurship education?  
(b) Differentiate between intrapreneurship and entrepreneurship.
- 2.(a) Explain the qualities of a successful entrepreneur.  
(b) Explain the functions of an entrepreneur.
- 3.Explain the benefits of being an entrepreneur.
- 4.What challenges do most entrepreneurs face in Uganda?

### **SECTION B**

- 1.(a) Explain the essential of effective communication.  
(b) What are the barrier to effective communication in an enterprise.

## S.5 ENTREPRENEURSHIP P.2

- Given the total balance of Aboke Enterpriser as at 31<sup>st</sup>December 1993.

**TRIAL BALANCE**  
**AS AT 31<sup>ST</sup> DECEMBER 1993**

<b>PARTICULARS</b>	<b>DEBT (SHS)</b>	<b>CREDIT (SHS)</b>
Stock 1 <sup>st</sup> January 1993	1,000	
Purchase/sales	110,000	200,000
Bad debts	1,200	
Discount received		1,000
Discount allowed	2,000	
Motor van at cost	10,000	
Cash at hand	2,000	
Debtors	5,000	
Creditors		3,000
Provision for bad debts		2,000
Capital		41,000
Cash at bank	4,000	
Returns	10,000	
Electricity	7,000	
Salaries	8,000	
Rent	1,800	
Carriage inwards	6,000	
Land at cost	100,000	
Equipment at cost	20,000	
<b>Accumulated depreciation</b>		
Motor van		2,000
Equipment		4,000
Bank loan		30,000
	<b>288,000</b>	<b>288,000</b>

## Adjustments

- (i) Closing stock was valued at shs 20,000
- (ii) Half of the rent paid is for the forth coming financial year.
- (iii) Salaries of shs 2,000 were due.
- (iv) Provision for bad debts is to be charged at 5% of debtors.
- (v) Depreciate equipment by 20% on cost and motor van by 10% on net book value.

### **Required;**

- (a) Trading and profit and loss account for the year ending 31<sup>st</sup> December 1993.
- (b) A balance sheet as at that date.

2. You are operating a fact foods business that is also affecting outside catering services.

- (a) Draw a signpost for your business.
- (b) Design an identity card to be issued to you staff.
- (c) Design a menu card for the business
- (d) Design a business card for the manager.
- (e) Develop a log for your business.

**END**

## **S.5 CRE P.1**

***INSTRUCTIONS: Attempt ALL questions.***

1. Examine the inconsistencies and consistence in the two creation stories
- 2.(a) “Let us create a human who will be like us” (Gen 2:26) Explain the meaning of God creating man as per the above statement.  
(b) How has man lived up to God’s image?
- 3.(a) Account for the act of God clothing man kind after his disobedience in Genesis 3.  
(b) In what ways have religious leaders disobeyed God in Uganda today?
- 4.(a) Account for God’s call of Abraham.  
(b) How relevant is Abraham’s faith to Christians today?

**END**

## **S.5 CRE P.2**

### ***INSTRUCTIONS: Attempt ALL questions***

1. (a) How did the Holy spirit influence the activities of the early church?  
  
(b) Discuss the role of the Holy Spirit in the spread of the gospel today.
2. (a) Examine the effects that the believe in the parausia had on the church during the apostolic age.  
  
(b) Discuss the current Christian teachings about the second coming of Jesus Christ.
3. (a) Examine the ways in which the early church conducted worship.  
  
(b) Compare and contrast those ways with the ways in which Christians in Uganda conduct worship today.
4. (a) Discuss the obstacles faced by the church in the spread of Christianity in the first century AD  
(b) What challenges do Christians face today in the spreading the gospel?

5. (a) In what ways did the early church fail to live to the expectations of Jesus Christ?
- (b) What lessons do modern Christians learn from the early believers?

## **S.5 CRE P.4**

### **Instructions: Attempt ALL questions**

- 1.(a) Account for the rampant increasing in cases of adultery in Uganda today.
- (b) Explain the Christian approach to this deviation.
- 2.(a) Examine the African traditional view on sex.
- (b) How did the African provide sex education to their young ones?
- 3.(a) Explain why the sex education provided to Ugandans today has largely failed to provide a positive impact.
- (b) Give the biblical teaching on sex.
4. “Prostitutes are made but not born”
- (a) Discuss this statement
- (b) As a Christian discuss the view that prostitution should be legalised in Uganda.

**END**

## S.5 LUGANDA P.1

1. Tereza ensobi ezeeyolekedde mu mpandiika y'embooji zino wammanga.

(a)

- (i) Abalogo be baana abazalibwa ababiri
- (ii) Abaganda bonna bakubirizibwa okusonda ettoffaali
- (iii) Nantale omuguru gumuruma nnyo
- (iv) Tuli mukweriire mere yafe.
- (v) Wandika ebbaluwa eyo mu nnukuta nene?

(b) Laga ennuukuta za walifu zino wammanga.

- (i) Nakinnyindwa
- (ii) Ennukuta ezitaggumira
- (iii) Empeerezi ezisooka ku kigambo
- (iv) Nampawengwa
- (v) Empeerezi.

(c) Wandika amateeka g'empandiika entongole ataano (5) g'omanyi.

(d) (i) Ddi lwe tuwangaala mu luganda (laga engeri ttaano (5).

(ii) Ddi lwe tweyambisa ennuukuta ennene(laga engeri ttaano (5).



(e) Nyonnyola amateeka g'empaniika entongole agamenyedwa mu bigambo bino:

- (i) Emmandwa
- (ii) Egg wiso
- (iii) Omukyaala (Obubonero 6)

(f) Laga amakulu gaamirundi ebiri ageekigambo kino Ekittavvu. (4marks)

### **Kola 2(a) oba 2(b)**

2. (a) Laga obukulu bw'ekitooke eri Omuganda.

#### **Oba**

(b) Lambulula omugaso gwa bino eri Omuganda

- |              |               |
|--------------|---------------|
| (i) Effumu   | (iv) Akambe   |
| (ii) Olubugo | (v) Ejjambiya |
| (iii) Ekibbo |               |

### **Kola 3(a) ne 3(b)**

3. (a) Ku bisoko ebikuweeredwa londako bibiri onnyonnyole amakulu gaabyo agoomunda

Okubikka akabugo

Obuddde okubuna emiwabo

Okuzza erinnya.

(b) Ku bisoko bino londako (3) ssatu obikozese mu mboozi eziggyayo obulungi amakulu gaabyo

- (i) Okugenda ezzirakumwa
- (ii) Okusimba kasooli
- (iii) Okuba nga oyita tembo
- (iv) Okuyita obuswa

### **Kola 4(a) ne 4(b)**

4. (a) Maliriza engro bbiri ku zino nga bwezogerebwa .

(i) Ataakwalize njanda

.....

(ii) Kyowola otudde

.....

(iii) Gwaka nga musana

.....

(iv) Tunaayitanga babiri

.....

(b) Ku ngero zino wammanga londako (3) ssatu olage kye zituyigiriza.

- (i) Asooka okwekweka, yatenda banne okukwakwaya.
- (ii) Ataalukutambulire, entanda akusibira yaamenvu.
- (iii) Tabyetisse tamanyi buzito bwabyo.
- (iv) Alowooleza enkoko byerya tagimazisa ttooke.

## **BIKOMYE WANO**

## **S.5 LUGANDA P.2**

### **ESSAAWA: EMU N'EKITUNDU.**

#### **Kola**

1. (a) Ku mitwe egikuweereddwa wammanga londako gumu oguwandiikeko emboozi ya bigambo nga 300-400.
- (i) Ekyeya ekyatwokya
  - (ii) “Amasomero g'ebisulo tegalimu Kalungi konna” Kubaganya ebirowoozo.
  - (iii) .....buli omu yavaayo nga yeekunkumula era ng'atokooteredde olw'ebigambo ebyali bivudde mu kabwejungira Kazaala muwala.
  - (iv) Singa emitima ggyali gibikkulwa.

#### **Oba**

- (b) Ku mitwe egikuweereddwa wammanga londako ebiri buli gumu oguwandiikeko emboozi ya bigambo 200.
- (i) Wandikira muliraanwa wo ebbaluwa ng'omulabula ku bintu bino:
- Embwa ze enkambwe z'atasiba
  - Akasiko akabaawula k'atayagala kulimawo
  - Ebiduula bya batabani be.

- (ii) Weefuule omukungu mu kitongole ky'eby'obulamu owandiike alipoota eraga ensonga ezivuddeko siriimu okulemera mu Yuganda.
- (iii) Wandika omuko mu mawulire ng'owa gavumenti amgezi g'eneekozesa okulaba nti ekuumira abaana abawala mu ssomero baleme kuvaamu nga tebamalirizza misomo gyabwe.

**“Twagaliza Buganda buwanguzi”**

## S.5 FINEART P615/4 (STUDIO TECHNOLOGY)

**TIME: 2HOURS**

### INSTRUCTIONS:

- *Attempt all questions*
- *Drawings and diagrams should be used where necessary*

1.(a) Define Art

(b) Give reasons why Art is Important.

2.(a) What is a craft?

(b) Mention any four categories of crafts.

3.(a) Define a sketch.

(b) Why is sketching important to an artist?

4.(a) What are elements of Art and design?

(b) Discuss any five elements of Art and design.

5.Using illustrations explain the following principles of design

(i) Perspective

(iii) Balance

(ii) Proportion

(iv) Rhythm

6. (a) Define the term colour.

(b) Explain the following terms as used in colour.

(i) Primary colours

(ii) Tertiary colours

(iii) Monochromatic colours

(iv) Complementary colours

(v) A shade

(vi) Tint

7. (a) Discuss the importance of elements of art and design in the production of an art work.

(b) Mention five uses of lines in drawing.

8. (a) What is the difference between a tool and a material?

(b) Give four advantages of using materials in Art and design.

9. (a) What is clay?

(b) Explain the three properties of clay.

(c) Give four advantages of using clay of pottery.

**END**

## S.5 FINEART P615/3

TIME: 4HOURS

### INSTRUCTIONS:

- *Attempt only one question*
  - *Untidy and smugged work will lead to loss of marks.*
1. A new nursing school is looking for an artist to design an emblem “**EQUATOR NURSING SCHOOL**” its motto is **HEALTH IS WEALTH**” space is 15cm x 18cm. use three colours of you choice
  2. In an area of 16cm x 14cm design a logo for **MUDDE CRAFTS LIMITED**. The company makes and sells local craft. Use black and may other colour of your choice .

## S.5 MATHS P425/1

### INSTRUCTIONS:

- Attempt all questions
- Clear working should be shown

1. Find  $x$  if  $\log \frac{8}{x} - \log \frac{16}{x^2} = 1$ .

2. Solve the equation  $\log_2 x - \log_x 8 = 2$ .

3. Simplify  $\frac{\sqrt{3}-2}{2\sqrt{3}+3}$  in the form  $p+q\sqrt{3}$  where  $p, q$  are rational numbers.

4. Solve for  $x$  in the equation  $\log_4(6-x) = \log_2 x$ .

5. Find  $\frac{dy}{dx}$  if  $y = \frac{(x+1)^2(x+2)}{(x+3)^3}$  giving your answer in the simplest form.

6. Differentiate the following with respect to  $x$ ;

(i)  $(x+1)^{\frac{1}{2}}(x+2)^2$

(ii)  $\frac{2x^2+3x}{(x-4)^2}$

(iii)  $\frac{(x+1)^2}{(x+4)^4}$



$$(iv) \frac{\sqrt{x^2+1}}{(2x-1)^2}$$

$$(v) \frac{x^2 e^x}{(x-1)^3}$$

$$(vi) y = \sqrt{(6+x)} \sqrt{(3-2x)}$$

$$(vii) y = 7x^2 \sqrt{(x^2-1)}$$

$$(viii) y = \frac{1}{x^2-3x+5}$$

$$(ix) y = (1-3x^2)^5$$

(5marks)

7. Express as equivalent fraction with a rational denominator

$$\frac{\sqrt{2}}{\sqrt{2} + \sqrt{3} - \sqrt{5}}$$

8. (a) If  $\log_{a^b} = \frac{1}{\log_{ba}}$

(b) Solve (i)  $\log_n 7 + \log_{4n^2} = 3$ .

(ii)  $2^{2x-1} + \frac{3}{2} = 2^{x+1}$

c) Prove that  $\log_6 x = \frac{\log_3 x}{1 + \log_3 2}$  hence given that

$\log_3 2 = 0.631$ , find without using table or calculator  $\log_6 4$  correct to 3 significant figures.

## S.5 MATHEMATICS P.2

**INSTRUCTIONS:** Answer all questions in this section A

### SECTION A

1. A class performed an experiment to estimate the diameter of a circular object. A sample of five students had the following results in centimeters, 3.13, 3.16, 2.94, 3.33 and 3.0

Determine the sample;

- (a) Mean
- (b) Standard deviation

2. Events A and B are such that  $P(A \cap B) = \frac{1}{2}$  and  $P(A/B) = \frac{1}{3}$   
find  $P(B \cap A^c)$

3. A vehicle of mass 2.5 metric tonnes is drawn up on a slope of 1 in 10 from rest with an acceleration of  $1.2 \text{ ms}^{-2}$  against a constant frictional resistance of  $\frac{1}{100}$  of the weight of the vehicle, using a cable. Find the tension in the cable.

4. Given that A and b are mutually exclusive events and

$$P(A) = \frac{2}{3} \text{ and } P(B) = \frac{1}{2} \text{ find;}$$

(i)  $P(A \cup B)$  , (ii)  $P(A \cap B^1)$  (iii)  $(A^1 \cap B^1)$

5. Four forces  $ai + (a - 1)j$ ,  $3i + 2aj$ ,  $5i - 6j$  and  $-i - 2j$  act on a particle. The resultant forces makes angle of  $45^\circ$  with the horizontal. Find the value of a, Hence determine the magnitude of the resultant force.

6. If A and B are independent events;

(i) Show that the vents A and  $A^1$  are also independent

(ii) Find the P(B) given that  $P(A) = 0.4$  and  $P(A \cup B) = 0.8$ .

### **SECTION B (DO THREE NUMBERS )**

7. The table below shows the amount of money (in thousands of shillings) that was paid out an allowance to participants during a certain workshop.

Amount (sh'000s)	No of participants
110-114	13
115-119	20
120-129	32
130-134	17
135-144	16
145-159	12

(a) Draw a histogram and use it to estimate the modal allowance.

(b) Calculate; (i) median allowance (ii) mean allowance

8. Below are marks scored by 8 students A,B,C,D,E,F, G and H in mathematics, Economics and Geography in the end of term examinations.

	A	B	C	D	E	F	G	H
MATHS	52	75	41	60	81	31	65	52
ECON	50	60	35	65	66	45	69	48
GEOG	35	40	60	54	63	40	55	72

Calculate the Rank correlation coefficients between the performance of the students in,

(i) Mathematics and Economics

(ii) Geography and Mathematics

Comment on the significance of maths in the performance of Economics and Geography. (spearman,

= 0.86, Kendall's,  $e = 0.79$  based on 8 observations at 1% level of significance)

9. Six force, 9N, 5N, 7N, 3N, 1N and 4N as along the sides of PQ, QR, RS, ST, TU and UP of a rectangular hexagon of side 2m, their direction being indicated by the order of letters. Taking PQ as the reference axis, express each of the forces in vector form, hence find the;

(i) Magnitude and directions of the resultant of the forces

(ii) Distance from P where the line of action of the resultant cuts PQ.

10. A block of mass 6.5kg is projected with a velocity of  $4\text{ms}^{-1}$  up a line of greatest slope of a rough plane.

Calculate the initial kinetic energy of the block. The coefficient of friction between the block and the plane is  $\frac{2}{3}$  and the plane makes an angle  $\theta$  with the horizontal where  $\sin \theta = \frac{5}{13}$ . The block travels a distance dm up

the plane before coming instantaneously to rest. Express in terms of  $d$ .

(i) The potential energy gained by the block in coming to rest.

(ii) The work done against friction by the block in coming to rest. Hence calculate the value of  $d$ . (take  $g=10\text{ms}^{-1}$ ).

11. A mass of  $3\text{kg}$  is at rest, on a smooth horizontal table. It is attached by a light inextensible string passing over a smooth fixed pulley at the edge of the table to another mass of  $2\text{kg}$ , which is hanging freely. The system is released from rest. Determine the resulting acceleration and the tension in the string.

**END**

## S.5 SUB-MATH

**INSTRUCTIONS:** Answer all questions from both section A and B.

1. Express  $\frac{3\sqrt{5} - 2\sqrt{3}}{3\sqrt{5} + 2\sqrt{3}}$  in the form  $p + q\sqrt{r}$ , where  $p$ ,  $q$  and  $r$  are integers.

2. Show that  $\frac{(1+a)^{\frac{2}{3}}}{(1+a)^{\frac{1}{3}} - \frac{1}{3}(1+a)^{\frac{-2}{3}}} = \frac{3(3+2a)^{-1}}{(1+a)^{\frac{-4}{3}}}$

3. Given that  $\log_{10}(p - q + 1) = 0$  and  $\log_{10}(pq) + 1 = 0$ , show that  $p = q = \frac{1}{\sqrt{10}}$ . (5marks)

4. Prove that;  $\left[ \frac{1+\tan 60^\circ}{1-\tan 60^\circ} \right] = 2 + \sqrt{3}$ .

5. Find the quotient and the remainder when

$4x^4 - 3x^2 + x + 2$  is divided by  $2x + 3$ .

6. Given that  $g(x) = x^2 + 3x + 2$  and

$h(x) = x^2 + 2x +$

1, expand and simplify  $\{g(x)\}^2 - \{h(x)\}^2$ .

7. Solve for  $y$   $\frac{5y-2}{15+y} = \frac{y}{2y-7}$

8. Prove that  $ax^2 + bx + c = 0$  is the same as  $x =$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

## SECTION B

9.(a) Solve the equation  $y-x = 5$

$$3x^3 - 7xy + xy^2 = 0$$

(b)(i) Given that matrix  $A \begin{bmatrix} 3 & 2 \\ 1 & 4 \end{bmatrix}$  and I is a 2 x 2 identity matrix, determine the values of  $\lambda$  for which  $\det[A - \lambda I] = 0$ .

(ii) Using matrix methods solve the system of electric circuits represented by the simultaneous equations.

$$3i_1 + 2i_2 = 4$$

$$6i_1 + 4i_2 = 3.$$

10. (a) Without using tables or calculators, find the value of  $y$  given

$$\text{That } y^{\frac{3}{2}} = 64$$

(b) Determine  $\log 0.27$  given  $\log 3 = 0.4881$ .

(c) Given that  $\sqrt{3} = 1.732$  and  $\sqrt{2} = 1.414$ ,

evaluate  $\frac{1}{\sqrt{3}-\sqrt{2}}$  to 3 significant figures.

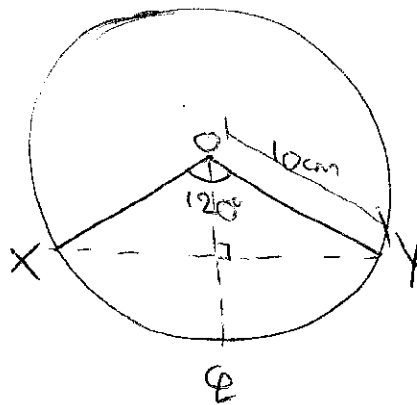
11. (a) (i) Simplify:  $\frac{3(2^{n+1}) - 4(2^{n-1})}{2^{n+1} - 2^n}$



$$(ii) (x - 2)^{\frac{5}{2}} + 2(x - 2)^{3/2}$$

(b) If  $\tan \theta = \frac{7}{24}$  when  $\theta$  is reflex, find without using mathematical tables or calculators the value of  $\frac{1}{3} \cos \theta + \sin \theta$ .

12. The figure below shows a circle with centre O and radius 10cm. Angle XOY =  $120^\circ$ .



Calculate

- Length of the major arc XY.
- Area bounded by the chord XY and the arc XQY.
- Length PQ.

**END**

## S.5 ICT P.1

### Instruction to candidates

- i. Attempt all questions
  - ii. Be brief and precise
- 1.a). What do you understand by the term computer?
  - 2.b). Explain any four (4) characteristics of modern computers.
3. Define the following terms as used under computing
- i. RAM
  - ii. Computer memory
  - iii. Binary
  - iv. Information technology
  - v. Information and communication technology
4. Write the following abbreviations in full.

ENIAC

IBM

CAA

UNIVAC

CAI

CAM

ICs

CAL

5. (a). How are computers categorized?

(b). Name the three ways in which computers are categorized.

(c). Using two examples, write brief notes about each category named in (b) above

(d). Define the following terms

i. Special purpose computers

ii. General purpose computers

iii. Network computers

6. What were the main discoveries during each of the following generations?

i. First generation

ii. Second generation

iii. Third generation

iv. Fourth generation

b) Write the following abbreviations in full

- i. PC                      IC
- ii. MIPS                                      EDVAC
- iii. VLSI

**END**