Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

2014

MATHEMATICS

Time allowed: 2hours 15 minutes

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Index No:

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## WITH ANSWERS

Candidate's Name……..

Candidate's signature……..

District Name……

Read the following instructions carefully

1. This paper has two sections **A** and **B**.
2. All the working. For both section A and B must be shown in the spaces provided
3. All working must be done using a blue or black ball
   Point pen or fountain pen Diagram should be drawn in pencil
4. No calculators are allowed in the examination room.
5. Unnecessary change of work may lead to loss of marks
6. Any hand writing that cannot easily be read may lead to loss of marks
7. Do not fill anything in the boxes indicated:
   "For examiners'. And those inside the question paper

| FOR EXAMINERS USE ONLY | | |
|---|---|---|
| **Qn.No** | **MARKS** | **EXR'S NO.** |
| **1-5** | | |
| **6-10** | | |
| **11-15** | | |
| **16-20** | | |
| **21-22** | | |
| **23-24** | | |
| **25-26** | | |
| **27-28** | | |
| **29-30** | | |
| **31-32** | | |
| **TOTAL** | | |

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**Turn over**

**SECTION A: 40 MARKS**

**Answer all question in this section**

**Question 1 to 2 carry two marks each**

1. Work out 14 + 53 **= 67 or**

$$\begin{array}{r} 1\ 4 \\ +5\ 3 \\ \hline 6\ 7 \end{array}$$

2. Write 99,040 in words

**Ninety nine thousands forty**

3. Give that k = (1,2,3,4,5) and M= (2,4,6,8) Find n(K∪M) Find n(KUM)

***KUM = (1, 2, 3, 4, 5, 6, 8) NB, Union (U) means all members in set k and set M but similar members (ie. 2, 4) in both sets are listed once.***

***Thus n(KUM) = 7***

4. Workout: $\frac{1}{6} \times \frac{3}{4}$

$$\frac{1}{\cancel{6}_{2}} \times \frac{\cancel{3}}{4} = \frac{1}{8}$$

5. Simplify: 5ab-2xy-ab+7xy.

**Collect like terms**

(5ab-ab)+ (-2xy+7xy) = 4ab +5xy

6. Find the next number in the sequence: 49, 47, 44, 39……

Analyze the pattern in the differences of the number

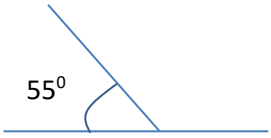
49 47 44 39 ***32***

-2 -3 -5 ***-7*** (subtraction of consecutive prime numbers)

7. Using a protractor, draw angle of $55^0$ in the space below

(i) Draw a horizontal straight line and mark a point in the middle

(ii) Place a protractor at the point and mark angle $55^0$ from any side and join that point to the point on the horizontal line



8. A lady bought a dress at shs 55,000. She later sold it and made a loss of shs 15,000. At what price did she sell the dress?

Selling price = cost price minus loss

= 55,000 – 15,000

=shs. 40,000

9. The mas of a packet of coffee is $\frac{1}{8}$kg. what is the mass in grams

1kg = 1000g

$\frac{1}{8}kg = \frac{1}{8} x\ 1000 = 125g$

10. Work out:

412 five

- 13 five

412 five

- 13 five

344 five

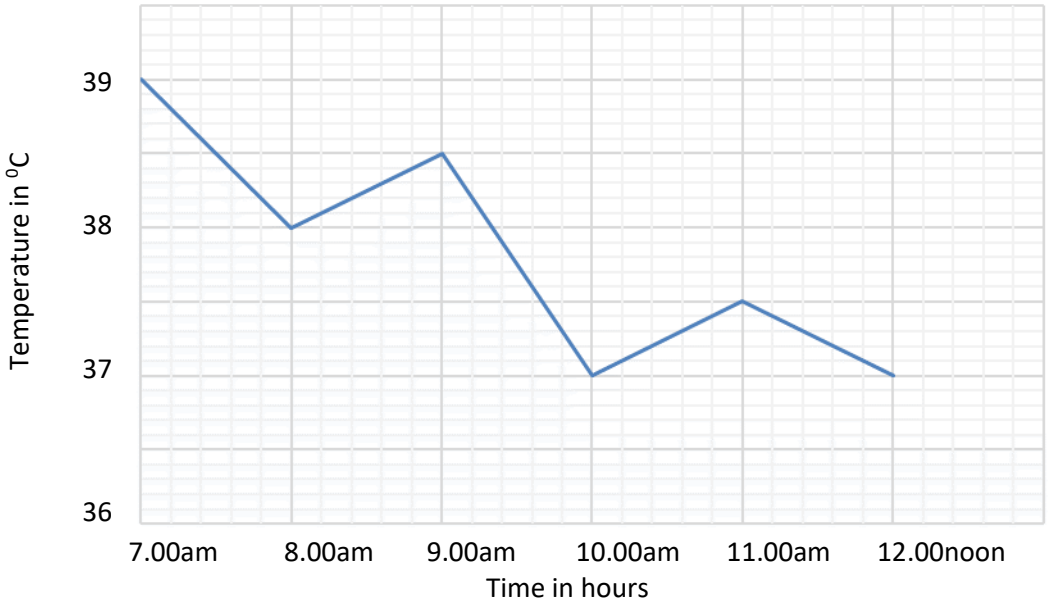
Turnover

11. Given that n = 3 and r = -2, evaluate $\frac{2n+r}{r}$

Substitute the expression

$$\frac{2n + r}{-2} = \frac{(2 \times 3) + -2}{-2} = \frac{6 - 2}{-2} = \frac{4}{-2} = -2$$

12. The graph below shows the temperature of a patient in a hospital from 7:00a.m. to 12:00noon in a day. Use it to answer the question the follow.




(a) What times of the day was the temperature the patient the same?

***At 10.00am and 12.00noon (the temperature is 37$^{0}$)***

13. Today Monday, the workers on farm are paid their salary, what day of the week will the workers' next pay be, 30 days from today?

Mon + 30 = …….. (finite 7) (finite 7 because a week 7days i.e. 1-7 or Mon - Sun)

1 + 30 = …….. (finite 7)

$\frac{31}{7} = 4\ r\ 3$

31 = 3 (finite 7)

The day will be Wednesday

14. What the number whose scientific notation is $9.85x10^3$

$9.85x10^3 = 9.85 \times 1000 = 9850$

15. A cyclist covers 70km in $2\frac{1}{2}$hours, how long wil he take to cover 21km at the some speed?

**Method I**

First determine the speed of a cyclist

$$speed = \frac{distance}{time} = \frac{70}{2\,{}^1/_2} = \frac{70}{\frac{5}{2}} = 70\,x\frac{2}{5} = 28kmhr^{-1}$$

Then, find the time; $Time = \frac{distance}{spedd} = \frac{21}{28} = \frac{3}{4}hrs$

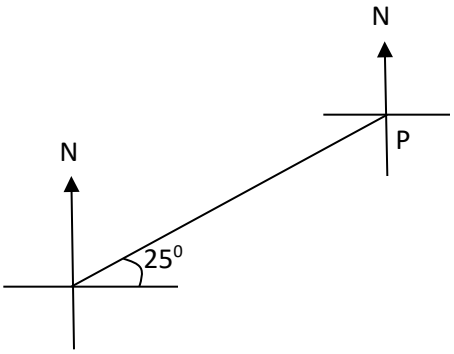
**Method II (by proportions)**

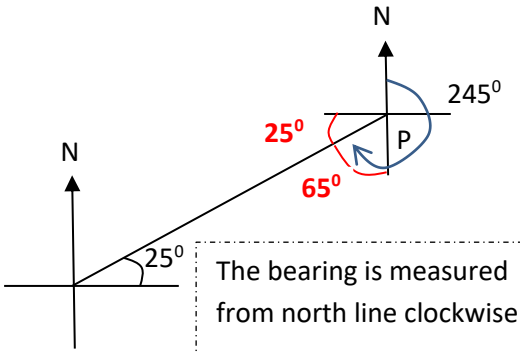
70 km are covered in 2 ½ hours

1 km is covered in 2 ½ ÷ 70

21 km is covered in (2 ½ ÷ 70) x 21 = $\frac{3}{4}hrs$

16. Find the bearing of point Q from P in the diagram below




The bearing is measured from north line clockwise

$= 180^0 + 65^0 = 245^0$

Or $= 270^0 - 25^0 = 245^0$

17. Solve $2^{3n} \div 2^n = 2^4$

**Hint: in division we subtract the powers**

Thus, $2^{3n} \div 2^n = 2^n = 2^4$

By comparison, n = 4

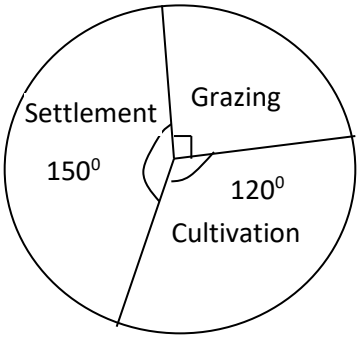
18. The time 12-hour clock is, a quarter to 4 o'clock in the afternoon. Express his time in the 24-hour clock.

The time is 3:45 pm or **12** + 3:45 = 15:45 in 24-hour clock.

Remember that 12 is added because the time in 12-hour clock is pass 12.00noon.

19. The pie- chart below shows how a farmer uses her land.

**Use it to answer the question that follows.**



Calculate the size of her land if she uses 72 acres for cultivation.

If the size of land is Q

$Then,\ \frac{120}{360}\ of\ Q = 72\ acres$ or $\frac{120\ x\ 360}{360\ x\ 120}\ x\ Q = 72\ x\ \frac{360}{120} acres$

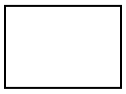
$= \ 216\ acres$

20. A man got a loan of 120,000 from a saving credit co-operative society at a simple interest rate of 8% per annum. He paid an interest of shs 7,200 on the loan, how long was the loan?

Simple interest = principal x rate x time

$\gg 7200 = \ 120000\ x\ \frac{8}{100}\ x\ T$

$. T = \frac{3}{4}$ year or nine months



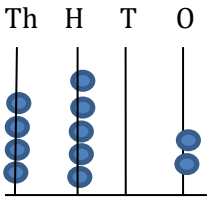
Turn over

**SECTION B: 60MARKS**

**Answer all questions in this section.**

**Marks for each question are indicated in the brackets**

21(a) Draw beads to show the number 4,502 on the abacus below (01mark)




(b) Find the sum of the valves of 3 and 7 in the number, 678

3 x 1000 = 3000

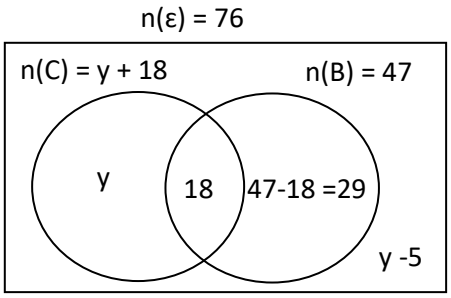
+ 7 x 10 = + 70

= 3070

(03marks)

22. A birthday party attended by 76 guests, 47 were served with beef (B) and 18 were served with both beef and chicken (C). y guest were served with chicken only while (y-5) were not served with any of the two dishes

(a) Use the information above to complete the Venn diagram below. (02marks)




(b) Find the valve of y (2marks)

Y + 18 +29 + y -5 = 76

2y + 47-5 = 76

y = 17

(c) Find the number of guests who were served with chicken (01mark)

Guest served with chicken = y +18 = 17 + 18 = 35

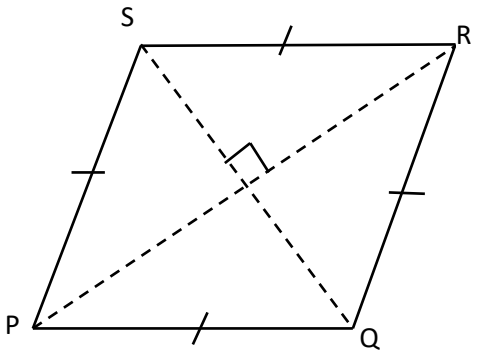
2. 3 Apio bought the following items from a market

2kg of rice at sh3, 200 per kg
$1\frac{1}{2}$ kg of meat at sh 8,000 per kg
500g at salt at shs 1,400 per kg
A sacket of cooking oil at shs 1,750

How much money did she spend altogether? (05marks)

| Item | Quantity | Rate | total |
|---|---|---|---|
| Rice | 2 kg | 3200 | 6400 |
| meat | 1 ½ kg | 8000 | 12000 |
| salt | 500g or ½ kg | 1400 | 700 |
| Oil sacket | 1 | 1750 | 1750 |
| **Total** | | | **20850** |

24. The diagram below shows a rhombus PQRS. The diagonal PR= 24cm and QS= 10cm



(a) Calculate the area of the rhombus (02marks)

Area = $\frac{1}{2}$ x $d_1$ x $d_2$ $\frac{1}{2}\ x\ 24\ x\ 10 = 120$

Or Area = $4(\frac{1}{2}(b\ xh)) = 4\ x\frac{1}{2}\ x\ 5\ x\ 12 = 120cm^2$

(b) Find the perimeter of he rhombus (04 marks

Applying Pythagoras theorem

(side)$^2$ = $5^2 + 12^2$ or side = $\sqrt{(5^2\ +\ 12^2\ )}$ = 13

Perimeter of rhombus = 4 x side = 4 x 13 = 52

25 (a) workout $\frac{3.9+3.6}{0.06\ x\ 0.5}$

$\frac{3.9+3.6}{0.06\ x\ 0.5} = \frac{7.5}{0.03} = \frac{7.5\ x\ 100}{0.03\ x\ 100} = \frac{750}{3} = 250$ (03marks)

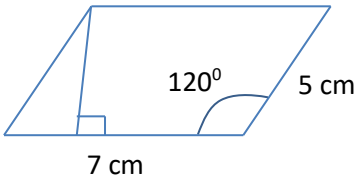
(b). Simplify: $3\frac{1}{3} \div 2\frac{2}{2}$ x $2\frac{2}{5}$ (03marks)

$3\frac{1}{3} \div 2\frac{1}{2}$ x $2\frac{2}{5} = \left[\frac{10}{3}\ \div\ \frac{5}{2}\right] x\ \frac{12}{5} = \frac{10}{3} x \frac{2}{5}\ x \frac{12}{5} = 3\frac{1}{5}$

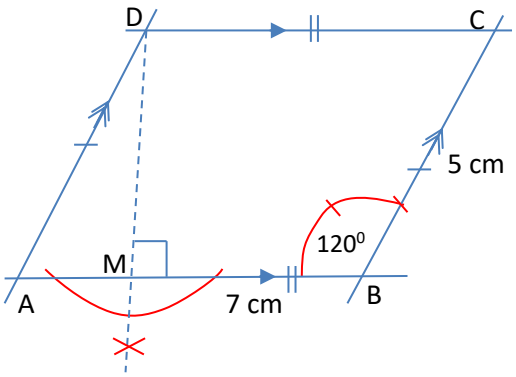
26 (a) Using a ruler, a pencil and pair and compasses only

(i) Construct a parallelogram ABCD such that line AB= 7cm
BA=5cm and angle ABC=$120^0$

Sketch




(ii) Drop a perpendicular from D to meet AB at M




(05mark)

(c) Measure the line ……cm

27. The time- table below shows how a pupil spent has time one Saturday

***Use it to answer the question that follow***.

| ITEMS | ACTIVITY |
|---|---|
| 7:00am - 10:30 am | Digging |
| 10:45am -12:45 p.m | Washing |
| 1:00p.m -2:45 p.m | lunch& Resting |
| 3:00p.m -4:30 p.m | Playing |
| 5:00p.m -7:30 p.m | Reading |

(a) How long did he take playing? (03marks)

4.30pm -3.00pm = 1h30mins

(b) It he dug his maize garden at a rate of 2 rows in every 30 minutes, find the number of rows he dug that day. (03marks)

Time taken digging = 10.30am – 7.ooam = 3hour 30minutes

= (3 x 60 + 30) minutes

= 210 minutes

30minutes are required to dig 2row

∴ 210 minutes are required to dig $\frac{210\ x\ 2}{30} = 14\ rows$

28. The exchange rate for Kenya shillings (K shs) to Uganda shillings (Ug.sh) and the united state dollars (US$) to Uganda shillings are shown below.

K shs 1 =Ug. shs 30

US$1= Ug. sh2,580

(a) How man united states dollar will one get from 21,500 Kenya shillings?

First convert Kenya's shillings into Uganda shillings

1 Kshs. = 30 Ug. Shs

∴ 21, 500 Kshs = 21,500 x 30 Ug. Shs. = 645000 Ug. Shs.

Then convert Uganda shillings into US Dollars

1 Ug. Shs. buys $\frac{1}{2850}$

∴ 645000 buy $\frac{1}{2850}\ x\ 64500 = 250\ US\ dollars.$

(b) If the cost a new bicycle is 90 united states dollars, how much would this be in Uganda shillings.

(02marks)

1 US Dollar is sold 2,580 Ug. Shs.

∴ 90 US Dollar cost 90 x 2580 = 232200 Uganda shillings

29. At Kampala Bus Park, buses travelling to Arua and Mbarara leave after very 40munites and 50 munities respectively. The first buses to the town leave together at 6:00am. At what time will buses to the two towns leave Kampala together again? (04marks)

The lowest common multiple is the duration of time before the bus can leave together again. It is obtained by finding the prime factor

| | | |
|---|---|---|
| 2 | 40 | 50 |
| 2 | 20 | 25 |
| 2 | 10 | 25 |
| 5 | 5 | 25 |
| 5 | 1 | 5 |
| | 1 | 1 |

2 x 2 x 2 x5 x 5 = 200minutes or 3hrs 20mins

The buses will leave together after 3hr 20min at

6.00 + 3.20 = 9.20 hour

30. (a). The mean of the number 7, 9, 5, x + 2 and 6 is 8

Find the valve of x (03marks)

$Mean = \frac{sum\ of\ numbers}{total\ number}$

$8 = \frac{7 + 9 + (x+2) + 6}{5}$ = $8x5 = x + 29$

X = 11

(b). In bag there are 15 pens. Out of these 4 are red and the rest blue. What is the, probability that pen picked at random from the bag is blue?

(02marks)

Red pens = 4

Blue pens = 15 – 4 = 11

$Probability = \frac{11}{15}$

31 Nanziri has two children, a son and a daughter. If the son is half her age, the daughter third her age and the total age of the two children is 30 years.

(a) Find Nanzari age (03mark)

Let Nanziri's age be X

The age of son = $\frac{1}{2}X$

The age of daughter = $\frac{1}{3}X$

But, $\frac{1}{2}X + \frac{1}{3}X$ =30

$\frac{3X+2X}{6} = 30$

X = 36 year

(b) How old is the daughter? (03marks)

Daughter's age = $\frac{1}{3}M$

= $\frac{1}{3}\ x\ 36$

= 12years

32. A school wants fence a circular flower garden of diameter 14 m using poles placed at intervals of 80cm.

(a) How many poles are needed to fence the flower garden?

(Take π= $\frac{22}{7}$) (03marks

Circumference = πd = $\frac{22}{7}$ $x$ 14 = 44m or 4400cm

No of pole = $\frac{4400}{80}$ = 55poles

(b) If each pole costs shs.3,000, how much money will the school spend on the poles? (02marks)

Amount spent on poles = 3000 x 55 = 165000/=

END