121
MATHEMATICS
TIME: 2½ HRS
OCTOBER/NOVEMBER 2015

KANDARA SUB-COUNTY SECONDARY SCHOOLS FORM 1 2015 JOINT EXAMINATION
KENYA CERTIFICATE OF SECONDARY EDUCATION (K.C.S.E)

MATHEMATICS
OCTOBER/NOVEMBER 2015
Time: 2½ hours

INSTRUCTIONS TO CANDIDATES

1. Write your name and admission number in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. This paper consists of **two** sections: **I** and **II**
4. Answer **all** the questions in Section **I** and any **five** questions from Section **II**.
5. Show all the steps in your calculations giving your answers at each stage in the spaces below each question.
6. Marks may be given for correct working even if the answer is wrong.
7. Candidates should check the question paper to ascertain that al the pages are printed as indicated and that no questions are missing.

FOR EXAMINER'S USE ONLY

SECTION I

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL
MARKS																	

SECTION II

QUESTION	17	18	19	20	21	TOTAL
MARKS						

GRAND TOTAL

1. Evaluate; (3 marks)

$$\frac{-6 \div 3 + 8 \times 2 - 5 \times 6}{-56 \div 7 \times 2}$$

2. Three similar wood bars of lengths 24cm, 30cm and 36cm are cut into equal pieces. Find the largest possible area of a square which can be made from any of the four pieces. (3 marks)

3. A tailor used $^5/_{12}$ of a roll of cloth for men's coats and ½ for boys trousers. Out of the remainder, he made 3 school dresses each taking 2¼ metres of cloth. How long was the roll of cloth at first.

(3 marks)

4. a) Write down 0.009673 to two significant figures. (1 mark)
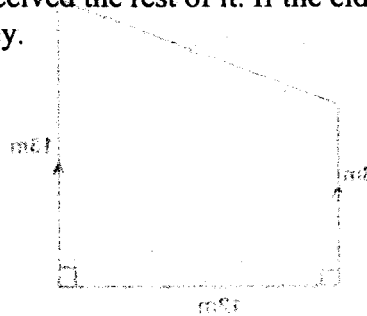
b) Simplify $\dfrac{1.98 \times 0.04}{1.8}$ (2 marks)

5. The area of a square is 27cm². Find its perimeter correct to 1 decimal place. (3 marks)

6. A certain sum of money was shared by three brothers as follow. The youngest received a quarter of it, the next got $^2/_3$ of the remainder, the eldest received the rest of it. If the eldest brother received sh 7800. What was the original some of money. (4 marks)

7. During a certain ceremony goats and chickens were slaughtered. The number of heads for both chicken and goats was 45. The total number of legs was 100. Determine the exact of goats and chicken slaughtered. (4 marks)

8. In a fundraising committee of 90 people the ratio of men to women is 7: 2. Find the number of women required to join the existing committee so that the ratio of men to women is 5:4. (3 marks)

9. The figure below represents a trapezium.
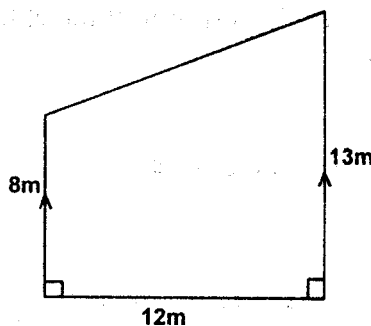
Determine;
a) area in hectares. (2 marks)

b) Its perimeter (2 marks)

10. Find the volume of concrete required to make a culvert of internal radius 0.35 metres, thickness 0.07 metres and length 2 metres. Give your answer to 3d.p in metres cubed. (3 marks)

11. Solve the equation;
$$\frac{y+3}{3} - \frac{y-3}{4} = \frac{1}{2}$$
(3 marks)

12. Draw a line segment AB of length 5cm. Divide AB into seven equal proportion. (3 marks)

13. The sum of the interior angles of a regular .polygon is 900. Find the number of sides the polygon has. (3 marks)

14. Water and alcohol are mixed in the ratio 3:5. Find the density of the mixture. If the density of water is $1g/cm^3$ and that of alcohol is $0.8g/cm^3$. (3 marks)

15. Convert $0.08\overset{..}{5}$ into fraction. (3 marks)

16. All prime factors between 0 and ten are written in descending order. What is the total value of the tenth digit. (2 marks)

17. Two business men Ochieng and Ounga contributed sh 128,000 and 112,000 respectively to start a business. They agreed to share the profits as follows, 30% shared equally, 30% shared in the ratio of contributed and 40% retained for running businesses. Their profits for the year 2008 was Ksh 86,400. Calculate;

a) The amount shared equally.   (3 marks)

b) The total amount received by each partner.   (5 marks)

c) The amount retained for running the business.   (2 marks)

18. A cyclist travels 24km N45°E from P to Q, then 20km due East from Q to R. Using a scale of
1cm = 5km.
a) Show the positions of P, Q and R.   (4 marks)

b) Find the distance and direction of R from P.   (2 marks)

c) State the bearing of P from R.   (1 mark)

d) Calculate the area enclosed by P, Q and R in km^2.   (3 marks)

19. a) Two pipes A and B running alone can fill a trough in 5 hours and ten hours respectively. A drainage pipe C can empty the full trough in 20 hours. Pipes A and B are turned on and left running for 1½ hours. The drainage pipe C is then opened and all the three left running. Find how much longer it takes to fill the trough. (6 marks)

b) It takes 25 workers 6 days working 8 hours a day to harvest maize in a farm. How many days would 40 workers working 6 hours a day take to harvest the maize? (2 marks)

c) If A: B = 3:2 and A: C = 5:1, find the ratio A:B:C. (2 marks)

20. A swimming pool is 50m long and 30m wide. It is 2M deep at its shallow end and 15m deep at its deeper end.

a) Find the volume of water when the pull is full. (3 marks)

b) A circular pipe of radius 7cm is used to empty the pool. Water flows through at a rate of 6m per second. Calculate the time it would take to empty the pool to the nearest minutes. (3 marks)

c) On a certain dry season 100 families wanted to use water to irrigate of their flowers/ If each family used an average of 270 litres a day. How long will they take to finish the water when the pool is full. (4 marks)

21. Electricity consists of a standing charge and an additional amount which depends on the number of watts used.

The table below shows the amount payable for various number of watts used.

Number of watts (W)	10	20	30	40	50	60
Amount (Ksh)	90	110	130	150	170	190

a) Using 1cm to represent sh 10 along the y-axis and 1cm to represent 5 watts along the X-axis draw the graph of amount paid against the number of watts (W) used.   (4 marks)
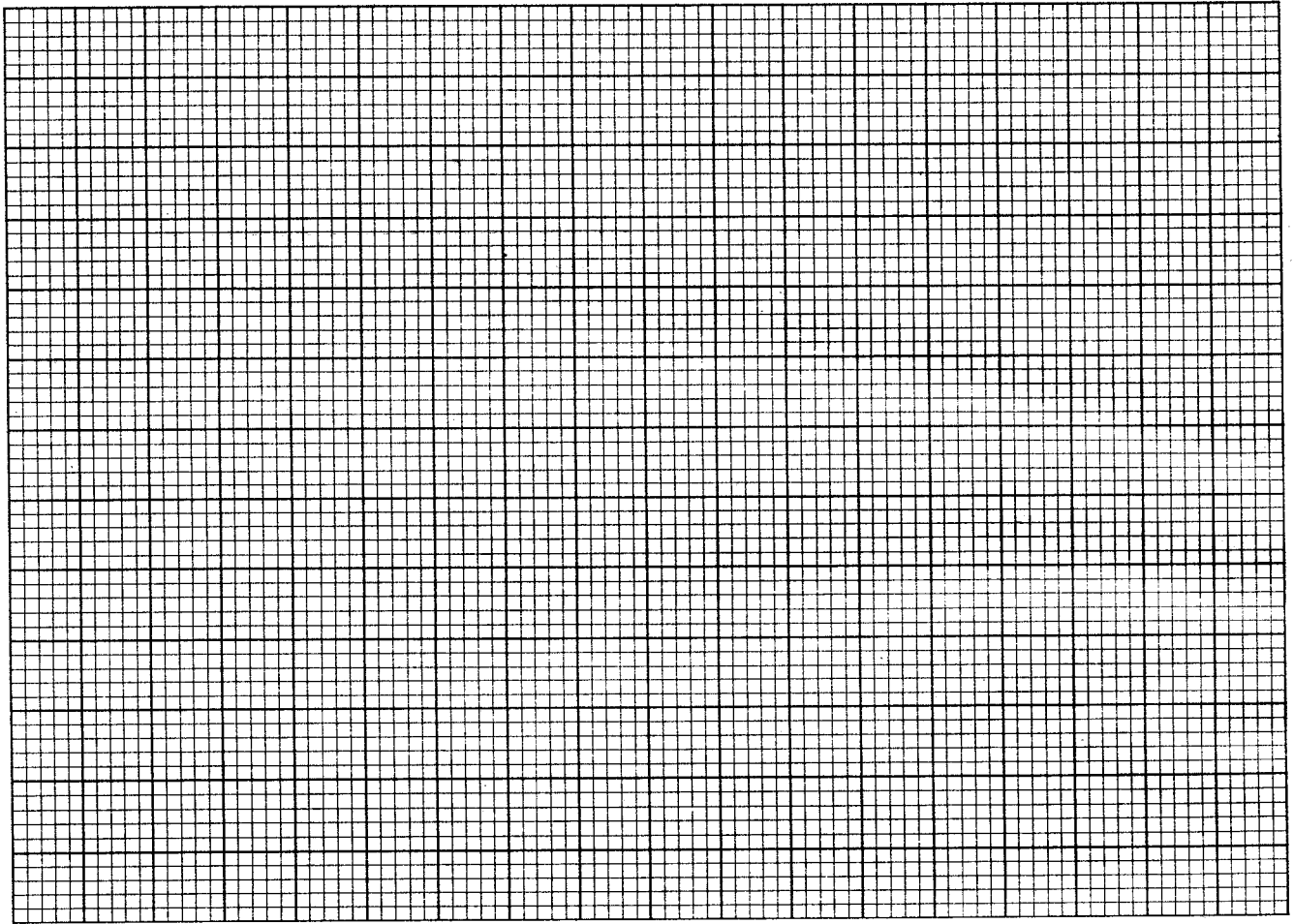
b) Use your graph to find the payment for the consumption of;
   i) 47 watts   (1 mark)

   ii) 28 watts   (1 mark)

c) The consumption for the payment of:
   i) Sh 80   (1 mark)

   ii) Sh 145   (1 mark)

   iii) Sh 180   (1 mark)

d) The standing charge.   (1 mark)