SECTION A: MATHEMATICS

PART I (24 marks)

Answer ALL questions in this part.

1. Divide 192 bricks in the ration 9:7. (3 marks)
2. Convert the recurring decimal 0.2727 into a fraction. (2 marks)
3. Simplify $\frac{9^4 \times 8^2 \times 7^1}{7^2 \times 8^4 \times 9^3}$ (3 marks)
4. A rectangular box with square ends has its length 10 cm greater than its width and the total length of its edges is 152 cm. Determine the width of the box. (4 marks)

SECTION A: MATHEMATICS

PART I (24 marks)

Answer ALL questions in this part.

1. Divide 192 bricks in the ration 9:7. (3 marks)
2. Convert the recurring decimal 0.2727 into a fraction. (2 marks)
3. Simplify $\frac{9^4 \times 8^2 \times 7^1}{7^2 \times 8^4 \times 9^3}$ (3 marks)
4. A rectangular box with square ends has its length 10 cm greater than its width and the total length of its edges is 152 cm. Determine the width of the box. (4 marks)

5. Determine the total surface area of a cuboid 2 m wide, 3 m high and 4 m long. (3 marks)
6. A contractor invested Ksh. 12 million at a compound interest of 16% for 5 years. Determine the total amount in 5 years. (3 marks)
7. Use mathematical tables to evaluate the following giving your answer in standard form:

$$\sqrt[3]{\frac{135.01}{6.858}}$$ (3 marks)

8. Determine the volume of a cone whose base diameter is 7 cm and height is 9 cm. (3 marks)

PART II (16 marks)

*Answer any **TWO** questions from this part.*

9. A hollow shaft 40 cm long has an outside diameter 4 cm and an insider diameter 2 cm. Determine:
   (a) the volume of metal making the shaft; (4 marks)
   (b) total surface area of the shaft. (4 marks)
10. Solve for x and y in the simultaneous equations:

$$4x - 18 = 3y$$
$$1 + x + 2y = 0$$ (8 marks)

0101/215 0202/215 0305/215
0103/215 0301/215 0401/215
0105/215 0302/215 0402/215
0106/215 0304/215 0404/215
0405/215

June/July 2018

PART II (16 marks)

*Answer any **TWO** questions from this part.*

9. Companies A, B, and C invest Sh. 800,000, Sh. 400,000 and Sh. 200,000 respectively in a business. A and B receive 20% and 10% respectively of the annual profits as salaries and the remainder is shared among the three in proportions of the capitals they invested. If the annual profit is Sh. 320,000, determine the amount each receives at the end of the year. (8 marks)

10. A square carpet is laid in one corner of a room, leaving uncovered floor 2 m wide along one side and 1 m wide along the other side. If the area of the room is 56 m^2, determine the dimensions of the carpet. (8 marks)

11. The heights in centimetres of 30 boys in a class were:

141	145	163	149	152	166	156	159	139	145
147	150	158	150	149	143	159	154	167	146
171	152	162	144	169	162	150	173	162	167

Starting with 135 cm and using class intervals of 11 cm:

(a) use tally and hence make a frequency table;

(b) calculate the average height of the boys from grouped data. (8 marks)

SECTION A: MATHEMATICS

PART I (24 marks)

*Answer **ALL** questions in this part.*

1. Divide 192 bricks in the ration 9:7. (3 marks)

2. Convert the recurring decimal 0.2727 into a fraction. (2 marks)

3. Simplify $\frac{9^4 \times 8^2 \times 7^3}{7^2 \times 8^4 \times 9^5}$ (3 marks)

4. A rectangular box with square ends has its length 10 cm greater than its width and the total length of its edges is 152 cm. Determine the width of the box. (4 marks)

5. Determine the total surface area of a cuboid 2 m wide, 3 m high and 4 m long. (3 marks)

6. A contractor invested Ksh. 12 million at a compound interest of 16% for 5 years. Determine the total amount in 5 years. (3 marks)

7. Use mathematical tables to evaluate the following giving your answer in standard form:

$$\sqrt[3]{\frac{135.01}{6.858}}$$

(3 marks)

8. Determine the volume of a cone whose base diameter is 7 cm and height is 9 cm. (3 marks)

PART II (16 marks)

*Answer any **TWO** questions from this part.*

9. A hollow shaft 40 cm long has an outside diameter 4 cm and an insider diameter 2 cm. Determine:

   (a) the volume of metal making the shaft; (4 marks)

   (b) total surface area of the shaft. (4 marks)

10. Solve for x and y in the simultaneous equations:

$$4x - 18 = 3y$$
$$1 + x + 2y = 0$$

(8 marks)

11. Table 1 shows the duration of telephone calls in minutes and their frequency through an exchange.

Table 1

Duration (minutes) (x)	0	1	2	3	4	5	6	7	8	9	10
Frequency (f)	2	2	11	20	14	9	9	7	3	2	1

(a) Determine the:

(i) mean;
(ii) mode;
(iii) median. (5 marks)

(b) Draw a histogram for the data. (3 marks)

SECTION B: SCIENCE

PART I (24 marks)

*Answer **ALL** questions from this part.*

12. Name **two** precision instruments for measuring length. (2 marks)

13. Sketch and label the section through a dry cell. (4 marks)

14. Differentiate between work and energy. (3 marks)

15. State the **two** laws of reflection. (3 marks)

16. Outline **two** factors affecting speed of sound. (3 marks)

17. Distinguish between distance and displacement. (3 marks)

18. A uniform metre rule is pivoted at its centre. If a mass of 100 g is placed at the 25 cm mark, determine the position of an 80 g mass that would balance the rule. (3 marks)

19. State **three** factors affecting the rate of conduction of heat. (3 marks)

I am Sorry !!!!!

PART II (16 marks)

*Answer any **TWO** questions from this part.*

9. Figure 1 shows a sector of a circle. Calculate the area of the shaded region.

(Take $\pi = \frac{22}{7}$) (8 marks)

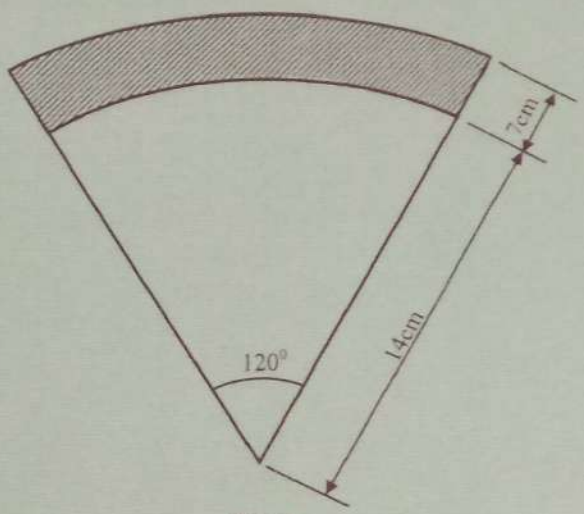

Fig. 1

10. Solve the following set of simultaneous equations:

$3x + 4y - 18 = 0$

$5x + 6y - 28 = 0$ (8 marks)

11. (a) A cone has a height of 12 cm and the length of its slant side is 13 cm. Calculate the diameter of the base. (5 mark

(b) Make g the subject of the formula:

$T = 2\pi\sqrt{\frac{L}{g}}$ (3 mar

SECTION A: MATHEMATICS

PART I (24 marks)

*Answer **ALL** the questions in this part.*

1. Evaluate $24 \div 3 + 4 \times 5 - 8 \div 4 \times 10 + 1$. (3 marks)

2. The mean height of five girls was found to be 148 cm. When a sixth girl joined the group the mean height was reduced by 3 cm. Determine the height of the sixth girl. (3 marks)

3. Solve for x in the equation: (3 marks)

   $(3^{2x})^2 = 3^4 \times 3^8$.

4. Using mathematical tables, evaluate: (3 marks)

   $$\frac{456 \times 398}{271}$$

5. Solve for x in the equation: (3 marks)

   $x^2 + 3x - 54 = 0$

6. A 72 hectare farm is to be shared among three persons (A, B and C) in the ration 2:3:4. Calculate the size of each share. (3 marks)

7. Dan bought a cow at Ksh 18,000 and sold it at Ksh 21,000. Determine the percentage profit he made. (3 marks)

8. Using mathematical tables, evaluate: (3 marks)

   $$\frac{1}{0.125} + \frac{1}{1.25}$$