**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ADM NO: \_\_\_\_\_\_\_\_\_\_\_CLASS: \_\_\_\_\_\_\_\_\_\_**

**DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SIGN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**MATHEMATICS**

**FORM: 2**

**TERM 1 2025**

**OPENER EXAMINATION**

**INSTRUCTIONS: *Answer all the Questions* TIME: 1 HR 30 MIN**

 **SECTION I:30 MARKS**

1. Evaluate without using mathematical tables or calculator (3mks)

 ¾ + 2/5 ÷ 3/5 *of* 12/3

 (1 ¾ - 5/8) ×2/9

2. A tourist arrived in Kenya with US Dollars 3000 which he exchanged into Kenya shillings. He spent Ksh. 75000 on hotel accommodation and Ksh.42500 on travel and other expenses. He changed the remaining money into sterling pounds. Calculate how much money in sterling pounds that he remained with using the following rates. (Leave your answer to the nearest 1£) (3mks)

|  |  |  |
| --- | --- | --- |
|  | Buying (Kshs) | Selling (Kshs) |
| 1 US dollar ($) | 78.45 | 78.95 |
| 1 Sterling pound (£) | 120.27  | 121.04 |

3.Given the ratios A; B is 3;4 and B; C Is 2;3 express the ratio A; B; C in the simplest form. [2mks]

 4. Three cisterns flush after intervals of 24 minutes, 30minutes and 40 minutes respectively. The cisterns flash together at 10. 00pm.what time will they flush together again. (3mks)

5.The sum of interior angles of a regular polygon is a regular polygon is 1260o.find the number of sides of the polygon ang give its name (3mks)

6. Find the length of a square whose area is 0.0081m2  (3mks)

7. Solve the following simultaneous equations. (3mks)

3x + y = 10

x + 6 y = 5

8. A right-angled triangular prism has length 3m, breadth 2m and height 2.5m. If the mass of the prism is 3.4kg, find its density. (4mks)

9. A watch which loses a half-minute every hour was set to read the correct time at 0545h on Monday. Determine the time, in the 12-hour system, the watch will show on the following Friday at 1945h. (3mks)

10. Ann bought 24 trays of eggs at sh 225 each. Each tray contains 30 eggs. 54 eggs got broken during transportation. At what price must he sell each egg in order to realize a profit of 22%. Answer to the nearest 1 shilling. (3mks)

 **SECTION II:20 MARKS**

11.A surveyor recorded the following information in his field book after taking measurements in metres of a plot. The baseline is the straight-line AH = 300m.

|  |  |  |
| --- | --- | --- |
|  40 to F 120 to D |  H 250 200 180 100 A | 100 to G80 to C60 to B |
|  |  |  |

a) Using a scale of 1cm to represent 20m, draw an accurate diagram of the plot. (5mks)

b) Use your diagram to calculate the actual area of the field in hectares (5mks)

12.Four towns **R, T, K** and **G** are such that **T** is 84km directly to the north of **R** and **K** is on bearing of 295o from **R** at a distance of 60km. **G** is on a bearing of 340o from **K** and at a distance of 30km.

(a) Using the scale of 1cm to represent 10km make an accurate scale drawing to show the relative positions of the towns. (4mks)

(b)Find: -

 (i) The distance and the bearing of **T** from **K** (3mks)

(ii) The distance and the bearing of **G** from **T.** (3mks)