



Minuwangoda Education Zone

Second Term Evaluation - 2025

Grade - 11

Mathematics II

Name:

Time: 3 hours

- Answer 10 questions by selecting 5 questions from part A and 5 questions from part B.
- Each question carries 10 marks.
- The volume of a right cylinder with the radius of the base r and the height h is $\pi r^2 h$

PART A

Answer five (05) questions only.

01) Prasanna took a loan of Rs.600 000 to settle it as monthly installments within 2 years. Interest is calculated on reducing balance method with 12% annual interest rate. Calculate the value of a monthly installment. (M 10)

02) Following incomplete table is prepared to draw the graph of the function

$$y = -(x + 3)(x - 1)$$

x	-4	-3	-2	-1	0	1	2
y	-5		3	4	3	0	-5

- By showing the method find the value of y when $x = -3$. (M 1)
- By taking 10 small squares as unit along X axis and Y axis draw the graph of the above function.. (M 3)
- Write the coordinates of maximum point. (M 1)
- Write the interval of x when $y \geq 1$. (M 2)
- Write the solutions of the equation $-x^2 - 2x + 3 = 0$ from the graph. (M 2)
- Write the equation of the above function in the form of $y = -(x + a)^2 + b$. (M 1)

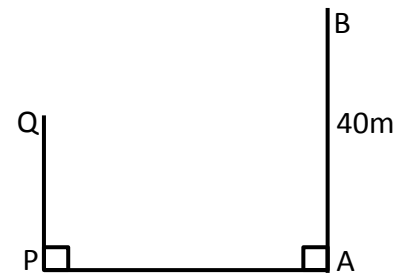
03) Following table shows masses of 50 fish. (2-4 means 2kg and 3kg)

Mass (kg)	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	12 - 14	14 - 16
No. of fish	5	8	10	12	7	5	3

- Write the mass of heaviest fish in kg? (M 1)
- Find the mean mass of one fish to the nearest whole numbers. (M 6)
- How many fish are there with masses below mean mass. (M 1)
- If cost of 1kg of fish is Rs.1400, Find the total income gained by selling all 50 fish. (M 2)

04) Following figure shows how the top of a building is seen from another 40m height building on flat ground.

When observing the top of the building Q from the foot of AB building A the angle of elevation is 40° . The angle of depression of Q from B is 25°

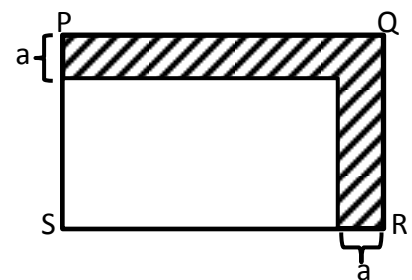


- Draw a sketch and mark the relevant measurements. (M 3)
- Draw a scale diagram by taking the scale of $1\text{cm} \rightarrow 8\text{m}$. (M 5)
- Find the height of the PQ building using the scale diagram. (M 2)

05)

- Solve $\frac{5}{2a-3} - \frac{1}{2a-3} = \frac{5}{a}$ (M 3)
- Supun has 35 coins from Rs.2 coins and Rs.5 coins. Value of Rs.2 coins is equal to the value of Rs.5 coins. Take number of Rs.2 coins as x and number of Rs.5 coins as y
 - Construct a pair of simultaneous equations. (M 2)
 - By solving above simultaneous equations find the number of Rs.2 coins and Rs.5 coins separately. (M 5)

06) PQRS is a rectangular shaped flower bed. Grass have been grown in 2 stripes with breadth "a" as shown in the figure by shading. PQ=12m and QR=8m. Area of unshaded rectangular shaped portion is 50m^2



- Show that a satisfies $a^2 - 20a + 46 = 0$.
- By solving above equation find the value of a accurate to one decimal place. (Take $\sqrt{6} = 2.45$)

PART B

Answer five (05) questions only.

07) Do the following constructions by using only cm/mm scale and a pair of compass and by showing relevant construction lines clearly.

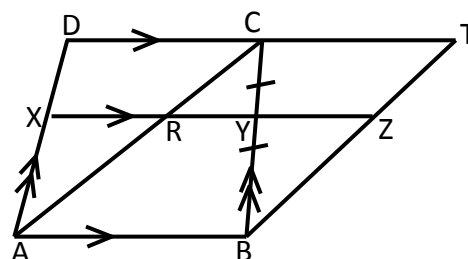
- i. Construct triangle KLM such that $KL = 5\text{cm}$, $\angle KLM = 60^\circ$ and $LM = 4\text{cm}$. (M 3)
- ii. Complete parallelogram KLMN such that N lie on parallel line drawn to KL through M (M 2)
- iii. Write the theorem that you used to do the construction in (ii) above. (M 1)
- iv. Construct the locus of points which is equidistant to M and N. Name the intersecting point of that locus with MN as T. Draw a semi - circle in the opposite direction of K such that T is the center and TN as radius. (M 3)
- v. Find the value of $\angle MTN$. (M 1)

08) 61, 63, 65, 67, is an arithmetic progression.

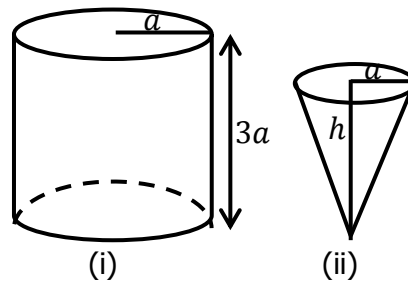
- i. Find the common difference. (M 1)
- ii. Find 10th term of this pattern. (M 3)
- iii. Find the sum of first 10 terms (M 3)
- iv. By using the answer you obtained above, find the sum of first 10 terms of the arithmetic progression 6.1, 6.3, 6.5. (M 1)

09) ABCD is a parallelogram. The line DC is extended up to T such that $DC=CT$. Y is the mid point of BC. A line drawn through Y and parallel to DT intersect AD, AC and BT at X, R and Z respectively

- i. Prove that ABTC is a parallelogram
- ii. Show that $BZ=ZT$
- iii. Prove that $2XZ=3AB$



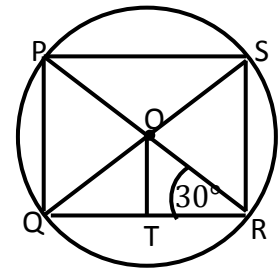
10)



A solid cone with radius a and height h is shown in figure (ii). Figure (i) shows a cylinder with radius a and height $3a$. Volume of the cylinder is 5 times as the volume of the cone.

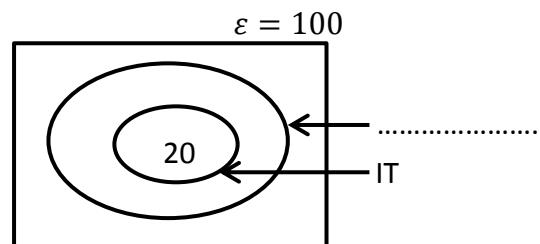
- Show that $h = \frac{9a}{5}$. (M 3)
- If radius of the cone is 7.5cm and height is 10.5cm find the volume of the cone accurate to one decimal place by using logarithms table. (Take $\pi = 3.14$) (M 7)

11) P, Q, R, S are 4 points on the circle with radius O $\angle RPQ = 30^\circ$ and $OT \perp QR$.



- Write T is the mid point of QR , by giving reasons. (M 2)
- Find the values of $\angle PRS$ and $\angle OQR$ separately. (M 2)
- Show that $\triangle OSR$ is an equilateral triangle (M 3)
- Prove that Area of $\triangle OQT = \frac{1}{4}$ of Area of $\triangle QRS$ (M 3)

12) From 100 A/L students in a certain school, 65 are studying science subjects. From that 20 students are studying IT as a subject. There are another 65 A/L students who are studying other streams except science.



- Include above values in to the Venn diagram.
- Find the number students who are studying science but not IT
- 5 IT students who are doing science gave up science subjects and joined to another stream. Find the number of science students who are doing IT now.
- Draw a suitable Venn diagram and include new information according to the above changes.