Minuwangoda Education Zone

Second Term Evaluation - 2023

Grade - 09

Mathematics I/II

Name: …… Time: 2 hours

Part I

- **Answer all the questions on this paper itself.**
- **Each questions carries 02 marks.**

1) Write the first two terms of the number pattern, where the general term is $T_n = 2n - 3$

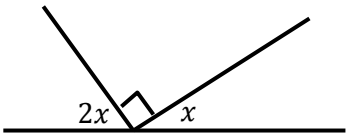
2) Express 70%
   i. as a fraction
   ii. as a decimal number

3) Convert the binary number 101011_{two} in to base ten.

4) A discount of 10% is offered when selling a washing machine of marked price Rs.53000. Find the selling price.

5) Round off 3.296 to the nearest second decimal place

6) Find the value of x

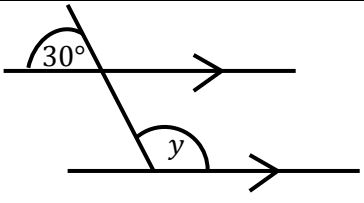


7) If $x = \frac{1}{2}$ and $y = 1$, Find the value of the expression $2x + 3y$

8) Simplify $(x - 3)(x + 5)$

9) Factorize $4 - x^2$

10) Find the value of y



11) Write 0.00265 in scientific notation.

12) The length, breadth, height of a water tank are 2m, 1.2m and 1m respectively. Find its capacity in litres.

13) Simplify and express the answer in its simplest form $\frac{1}{6}+\frac{3}{10}\ of\ \frac{2}{3}$

14) Solve $\frac{x}{3}+5=7$

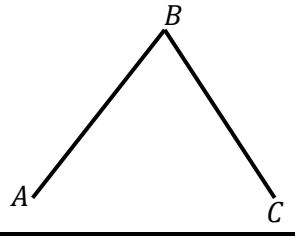
15) Write down the suitable number for x

7 : 3 = x : 9

16) In a map drawn to a certain scale 15m is represented by 3cm. Find the distance represented by 8cm.

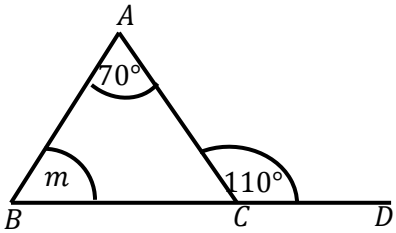
17) Fill in the blanks to indicate the order in which the keys need to be pressed to find the value of $(1.34)^2$ using a scientific calculator.

18) Construct the locus of the points equidistant from the lines of AB and BC.



19) Write with positive indices $\frac{x^{-2}}{2y^{-1}}$

20) Find the value of m



Part II

- **Answer the first question and other 04 questions only.**
- **First question carries 16 marks and other questions carry 11 marks each.**

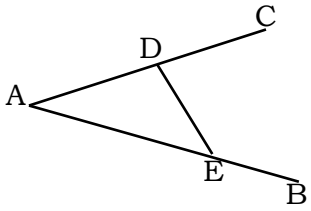
01)

(a) Answer the following questions recalling the activity that you have done to identify the relationship between interior angles and exterior angles.

i. Draw a figure of a triangle and represent interior angles and exterior angles on it

ii. What is the conclusion that you arrived regarding the above activity.

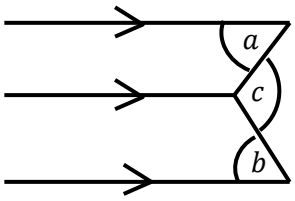
iii. Write down a relationship between the angles by using the above conclusion and the following figure.



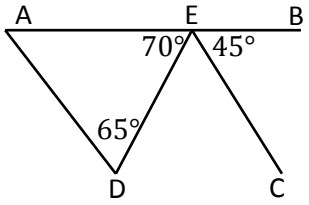
iv. If $D\hat{A}E = 30°$ and $C\hat{D}E = 80°$. Find the value of $D\hat{E}B$

(b)

i. Write down a relationship between the angles a, b and c. Mention the method that you have used to get the answer.



ii. Based on the information in the figure, state whether AD and EC are parallel.



02)Tharushi who runs a readymade garment shop buys a frock which is worth Rs.7 500 and marks its selling price as Rs.10 000.

i. Find the profit she expect.

ii. Express it as a percentage.

iii. When selling the frock, a discount of 5% is offered by Tharushi to the customer.

a) How much is offered as the discount to the customer.

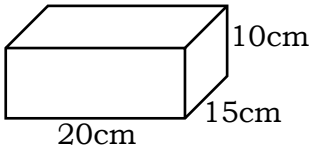
b) How much needs to be paid to buy the frock.

03)

i. The length, breadth and height of the cuboid shaped container in the figure are 20cm, 15cm and 10cm respectively. Express its capacity

a) in cubic centimeters

b) in liters



ii. A drink is prepared by mixing 750ml of fruits juice and 1.5l of water. Find the height of the mixture filled in the container.

iii. It is expected to sell this drink by filling in to the glasses of capacity 225ml each. Find the number of glasses needed to sell all this drink in the container.

iv. If there glasses of drink are sold at Rs.135. Find the amount of money by selling 5 glasses of drink.

04)

a) Simplify and write the answers with positive indices

i. $a^{-1} \times a^{-3}$ ii. $\frac{(x^{-2})^3 \times (y^2)^3}{x(y^{-2})^3}$

b) Factorize

i. $16x^2 - 1$ ii. $x^2 - 10x + 25$

05)

(a)

i. Draw a straight line segment of length 6cm and name it as AB.

ii. Construct the locus of points which are equidistant from the points A and B.

(b)

i. Construct the triangle ABC of $AB = 7cm, A\hat{B}C = 30°$ and $BC = 6cm$.

ii. Construct a line perpendicular to AB form C. Name it as CD.

iii. Measure and write the length of perpendicular line CD

06)

(a) Sithmi travelled to her grand father's house. Which is 30km away from her house. She travelled $\frac{3}{5}$ of the journey by bus, $\frac{1}{3}$ of the journey by three-wheeler and the rest by walking.

i. What is the fraction she travelled by bus and three-wheeler of the total distance.

ii. Find the distance she travelled on foot.

(b) Simplify and write the answer in the simplest form.

i. $\frac{1}{4} + \frac{5}{12} \times \frac{3}{5}$ ii. $\left(1\frac{1}{4} - \frac{1}{12}\right) \div 2\frac{1}{3}$

07)

a) Solve the following pair of simultaneous equations.

$3a + b = 8$

$2a - b = -3$

b) Solve the following simple equation.

$\frac{x}{2} + \frac{2x}{3} = 14$

c) Make l the subject of the formula $s = \frac{n}{2}(a + l)$