

20	024/Grade 10/2 <sup>nd</sup> Term Test/Mathematics I 2
	part A Answer all the questions on this paper only.
01.	Sithum received <b>Rs</b> . 33 as the balance from Rs. 200 note, after buying three pencils and one book which cost <b>Rs</b> . 92. Find the cost of a pencil.
02.	Simplify: $\frac{1}{x-2} - \frac{2}{2-x}$
03.	If the area of the triangle <i>ABC</i> is $36cm^2$ , find the length of the side <i>AB</i> . h h B 12cm <i>C</i>
04.	Simplify : $\frac{3}{7} - \frac{5}{7}$ of $\frac{2}{5}$
05.	In the collection of data 6, 3, 7, 8, 9, 4, 3, 8, 3, 5, 10, find, (i) mode
	(ii)median
06.	Food is sufficient for 10 students for 8 days in a hostel. If two students had to leave the hostel due to illness, for how many days will the food be sufficient for remained students ?
07.	Find the least common multiple of the two algebraic expressions $x^2 - 1$ and $(x+1)^2$
08.	Using the information given in the figure, find the values of <b>x</b> . $A \xrightarrow{\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$

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09.	Solve : $x^2 - 5x = 0$
10.	What is the profit percentage obtained when a commodity bought for <b>Rs</b> . 2000 and sold
	for <b>Rs</b> . 2500?
11.	A sketch of a hollow prism is formed by folding a cardboard strip is shown in the tigure.
	(1) What is the length of the cardboard strip ? 6cm 8cm
	10cm 12cm
	(ii) Find the outer surface area of the prism.
12.	A coins is tossed once.
	(i) Write the Sample space $S=\{$
	(ii) Find the probability of "occurring tail upward"?
13.	Using the information given in the figure,
	find the values of $x$ and $y$ .
	-y $x$
14.	What is the time will be taken by a Tap which flows water at a rate 40 <i>litres per minutes</i> , to
	fill an empty tank of capacity 2000 <i>litres</i> completely.
15.	E={Students of the grade 10 classes}
	A={Girls}
	B={Students in Grade 10 who do music}
	Express the shaded part in set notation and
	describe in words.

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20	2024/Grade 10/2nd Term Test/Mathematics I6							
		part B Answer all the questions on this paper only.						
01.	In a were rupe (i)	till, $\frac{1}{5}$ of the total number coins were 2 rupees coins. And the other remained coins = 5 rupee coins and 10 rupee coins. Out of the 5 rupee and 10 rupee coins $\frac{3}{8}$ were 5 es coins What is the fraction of the 5 rupee and 10 rupees of the total number of coins?						
	(ii)	What is the fraction of the 10 rupees of the total number of coins?						
	(iii)	State the ratio of the number of 2,5 and 10 rupees coins in simplest form						
	(iv)	If there were 400 coins in the till, what is the values of the 10 rupee coins?						
02.	Ave	hicle park made up of a semi circular sector and trapezium shape part <b>ABCD</b> is shown						
•	inth	e figure						
	(i)	Find the length of the arc <i>BC</i> $A = 50 m B$ 17.2 <i>m</i> 14 <i>m</i>						
	(ii)	Find the perimeter of the park. $D = 20m$ C						
	(iii)	Find the area of the semi circular part of the park.						
	(iv)	Calculate the area of the vehicle park.						
	(v)	It has been estimated that 14 <i>mandays</i> will required to lay concrete to the park. Calculate the number of days will taken by one man to lay concrete in an area of $61m^2$ plot of land.						

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03.	The	pie chart given in the figure shows how a
	certa	ann group of students in Grade 10 classes,
	(i)	What game is the favorite of the least number of students. Football
	(-)	
		Netball 43 120°
	(::)	Volley ball
	(11)	what is the total number of students in the group?
	(;;;)	Find the number of students who like Foot hall most
	(III)	Find the number of students who like Foot ball most.
	(iv)	If 12 students who select foot ball, selected netball last, then what is the magnitude
	(1)	the angle at the centre of the sector which represents the net ball?
04.	(a)	If <b>Rs</b> . 500 has to be paid quarterly by the owner of the house assessed for <b>Rs</b> . 40 000
	Ċ	for a year which lies within the limits of a certain rural council.
		(i) What is the assessment rate which should be paid for a year?
		(ii) What is the percentage that rural council charges as rates annually?
		(iii) If 10% discount is allowed when total taxes are paid as one installment in the
		beginning of the year, what is the total tax which should be paid with the
		discount?

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<ul> <li>(b) A Television worth Rs. 60 000 can be bought with 3 installment without an interest.</li> <li>(i) If 18% of the value of the Television is charged as VAT, what is the total amount</li> </ul>								
which should be paid for Television?								
(ii) What is the value of an installment?								
<b>05</b> .(a) In a bag there are 3 mango flavored toffees an in same size and shape. A toffee is drawn rando	d 5 wood app	ole flavored fo	offees which are					
(i) Write the Sample space(S) of all the possible	e outcomes of	this experim	ent.					
(ii) Find the probability of drawing a mango fl	avored toffee							
(iii)Find the probability of not drawing mange	flavored tof	ee.						
(b) The table represents the information about the number of employees of a particular Government office. According to the information given in the table find the								
probabilities of a selected employee be a	_	Male	Female					
(i) female officer	Officer	5	8					
	Clerk	32	58					
(ii) a male clerk								

\* Answer **ten** questions selecting **five** questions from part **A** and **five** questions from part **B**. \* Each question carries **10 marks**.

Part A

**01**. The frequency distribution containing information on the distance traveled by a taxi.

Distance ( <b>km</b> )	25	35	45	55	65	75
Number of days	7	10	15	8	6	4

- (i) What is the mode of the distribution ?
- (ii) Calculate the mean distance traveled in a day, of the distribution.
- (iii) If 10*km* can travel from 1 *litre* of fuel which cost *Rs.* 350, find the expenditure for fuel in a month.
- (iv) If *Rs*. 60 is charged for a 1*km* when it hire to travel a journey, estimate the income can received within a month.

**02**. An incomplete table prepared to draw the graph of the function  $y = x^2 - 3$  is given below.

X	-3	-2	-1	0	1	2	3
Y	6		-2	-3	-2	1	6

- (i) Complete the value table.
- (ii) Using a scale of ten small division as one unit along *x*-axis and ten small division as one unit along the *y*-axis, draw the graph of the above function.

Using the graph

- (iii) Write the equation of the symmetrical axis of the graph.
- (iv) Writ the coordinate of the turning point.
- (v) Write the interval of values of x for which function increasing negatively.
- (vi) What is the equation of the graph when graph of the function  $y=x^2-3$  is shifted upward by one unit along the *y*-axis.

## 2024/Grade 10/Second Term Test/Mathematics II 2 03. When a vehicle is imported, 40% of its value has to be paid as custom duty. (i) If it costs 20 000 American dollars to import a vehicle and the value of 1 American dollar is Rs. 220, what is that value of the vehicle in rupees.

- (ii) What is the value of vehicle with duty?
- (iii) If that person who imported the vehicle, sells the vehicle with a profit of 20%, what is the profit can be received?
- (iv) If the value of a American dollar increases by 10% due to floating of the Sri Lankan rupee, what is the new imported value of the vehicle ?
- **04.** *A*, *B*, *C* is a straight road which lies from South to North. Sagara is at *A* of this road. He can see his house with 60° bearing from *A*. He walks 40 *m* ahead to North and comes to the point *B*. From *B* he sees his house at the East.
  - (i) Mark a rough diagram to show the data above.
  - (ii) Draw a scale diagram to above information by representing 10m by 1cm.
  - (iii) Using the Scale diagram, find the shortest distance to Sagara's house from Road.
  - (iv) While walks towards the North direction further, at the point C the house can be seen with a bearing of  $140^{\circ}$ . Then what is the distance from the Point B to the point C.

**05**. The area of the *PQR* lamina is 60 square units.

(i) Show that the value of x satisfies the equation  $x^2+6x-112=0$ .



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Part B

- **07**. 50 iron rods are needed to create a grill design. The creator cut the first rod with 4*cm* and thereafter the other 49 iron rods with a length of 3*cm* longer than the previous one respectively.
  - (i) Write the lengths of the initial 4 iron rods he has cut.
  - (ii) Find the general term of the above pattern.
  - (iii) By using the general term find the length of the  $10^{th}$  rod.
  - (iv) In which iron rod has the length of 43*cm* ?
  - (v) Find the 12th term of the number sequence with the general term 5-3*n*
- **08**. Construct the following using the pair of compass and the ruler with the scale *cm/mm* and showing clear lines.
  - (i) Construct the triangle *ABC*, such that *AB*=8*cm*,  $A\hat{B}C$ =45° and  $B\hat{A}C$ =75°.
  - (ii) Construct the perpendicular bisector of the side *BC* and name the intersection of it with *AB* as *X*.
  - (iii) Construct the locus of the point to the sides *AB* and *BC* and name the intersection point of the that locus with the perpendicular bisector in part (ii) as *Y*.
  - (iv) Name an equal line segment to BY and write the theorem that is used to identify an equal side to **BY**.

**09**. (a) If  $log_{r} 3 = x$ ,

Write an expression to  $log_{e}$  75 in terms of **x**.

- (b) In certain Hotel, there is a water pool, the length 15.2 *meter*, breadth 10 *meter*. Ii is filled with water to a height of 208 *centimeters*. Find the volume of water in the pool, only using the logarithm table.
- **10.** (a) **ACB** is a straight line. If  $\hat{ACD} = 2 \hat{DCE}$  and  $\hat{FCB} = 2 \hat{ECF}$ , find the magnitude of  $\hat{DCF}$



(b) **PQR** is a traingle. The perpendicular drawn to **PR** at **P** meet the bisector of the angle  $P\hat{R}Q$  at **S**. Show that  $P\hat{Q}R + Q\hat{P}R = 2P\hat{S}R$ .

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