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Answer all questions here itself. The part A consist of 25 questions, 2 marks per each question. The part B consist of 5 questions, 10 marks per each question.	
(01). The imported value of a refrigerator is Rs 80 000. If 20% of duty tax is added, Find the total amount should be paid.	
(02). Shade $(A \cap B)^{/}$ in the given ven diagram. A	
(03). Find the value of x. 65^{4}	
(04). Factorize $x^2 + 13x + 42$	
(05). Find the value of x	
(06).simplify $\frac{1}{2a} \times \frac{1}{a}$	







Answer all questions here itself, (01). The information , in a survey of fertilizer used by farmers of a certain farmers' society is as follows. * $\frac{4}{7}$ of farmers use chemical fertilizer. * $\frac{2}{3}$ of farmers who do not use chemical fertilizer use compost . * All the other farmers use Cow dung fertilizer .

(i). Write the number of farmers who do not use chemical fertilizer as a fraction. (1 mark)

(ii). Write the number of farmers who use compost fertilizer as a fraction from the total number of farmers . (2 marks)

(iii). Write the number of farmers who use cow dung fertilizer as a fraction from the total. (2 marks)

(iv). If the number of farmers who use cow dung fertilizer is 12, find the total number of farmers of the society (3 marks)

(v). If an allowance of Rs 3 000 is given for a farmer when use compost , Find the total expenditure for that. (2 marks)

(02).

Part B

(a) . The municipal council charges Rs 2100 as rate per quarter for a business place of annual assed value of Rs 140 000 .

(i). Find the annual rate amount

(ii). Find the percentage of annual rate

(b). The annual income of a person is Rs 1 150 000 and the method of calculating income tax for that income is as follows .

Amount (RS)	Percentage of income tax
500 000	Free of tax
500 000	4%
500 000	8%

(2 marks)

(2 marks)

(i). Find the income that the tax should be paid .	(1 mark)
(ii). Find the total amount should be paid as income tax	(5 marks)
(03). The Diagram shows how to arrange follower beds in a garden.	
ABCD is a rectangular shape plot of land . The semi circular part and right angled triangular part are used to grow flower plants . The shaded region is used to grow grass.	A 40m B
(i). If the radius of the semi circular part is 14 m , Find the arc length	D 16 m (3 marks)
(ii). Find the area of the semi circular part .	(2 marks)
(iii). Find the area of the triangular part of ACD.	(2marks)
(iv). Find the area of the region used to grow grass .	(3 marks)



(**05**). (a)



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(Chanter)	Grade	Third Term Test - 2022	
	10	Subject :- Mathematics II	
	School Name		
	Index Number	1 анционализиинистран	Time : 3 hrs 10 m

*. Select and answer 5 questions from part A and 5 questions from part B.

*. Each question carries 10 marks.

*. The volume of cylinder of radius r and height h is πr

Part A

(01). (a). Mr. Dasun borrowed a loan of Rs 160 000 from a financial institute on an annual simple interest rate for 5 years , then settled down the loan by paying Rs 272 000.

- (i). Find the total interest paid for 5 years .
- (ii). Find the interest for one year .
- (iii). What is the annual interest rate charged by the financial institute?

(b). When a duty of 40 % is charged on imported value for an imported electric item , its value is Rs 840 000. Find its imported value.

(02). An incomplete table is given below that can be used to draw the graph of the function

Х	-3	-2	-1	0	1	2	3
У	4	-1	-4		-4	-1	4

(a).

(i). Find the value of y , when x

(ii). Draw the graph taking the scale of 10 small divisions along both x and y axis on a graph paper.

(b).

- (i). Write the coordinate of the turning point .
- (ii). Write the roots of the function when y
- (iii). Write the range of x , when the function increases negatively .
- (iv). When the graph is moved 2 units upwards , write the function of new graph.

(03). (a). Solve —

(b). Decorations of 2 bulbs and decorations of 4 bulbs can be seen in a function . The total number of bulbs is 200 . Twice of the number of decorations of two bulbs is 75 more than the number of decorations of 4 bulbs . Taking the number of decorations of 2 bulbs as x and the number of decorations of 4 bulbs as y ,

build up a pair of simultaneous equations. Solve it and find the number of decorations of 2 bulbs and 4 bulbs separately.

(04). Information about the age of candidates for a certain computer course are given below. (age is rounded off to the nearest whole number)

Age (years)	16 - 18	19 - 21	22 - 24	25 - 27	28 - 30	31 - 33
Number of candidates	5	8	3	4	4	6

(i). What is the model class?

(ii). Find the mean age of a candidate to the nearest whole number

(iii). If the candidate of more than 18 years and less than 28 years are selected to the course,

(a). Find the number of candidates selected .

(b). Find the percentage of that candidates from the total number of candidates.



(06). A person who stands at a point A on a horizontal plane observes the top of a tower at the angle of elevation of 40° . when 50 m moved towards the tower from the point A , the top of the tower is observed at the angle of elevation of 60° (consider that the tower and A , B points lie on the same horizontal plane)

- (i). Represent the above information in a rough diagram .
- (ii). Using a suitable scale draw a scale diagram.
- (iii). Using the scale diagram find,
- (a). The height of the tower

(b). The distance from the bottom of the tower to the point B to the nearest whole number .

(iv). Measure and write the magnitude of the angle of elevation when the top of the tower is observed from the point C which is 25 m away from the bottom of the tower by using a protractor.

Part B

(07). First 3 rows of a design prepared using flowers and leaves for a pillow cover is given below.

(i). Show that the flowers are arranged in the design in an Arithmetic progression and find the common difference .

(ii). Show that the n th term is $T_n = 3n - 2$

(iii). Find the number of flowers should be used for 13 th row.

(iv). If the design consist of 19 rows, Find the total number of flowers.

(v). According to the answer of (iv) find the number of leaves should be used ?

(08). Use a cm / mm scale straight edge and a pair of compass and by showing construction lines clearly, construct the following.

(i). Draw the triangle ABC such that AB = 7 cm, $B\hat{A}C = 60^{\circ}$ and AC = 6.5 cm

- (ii). Construct a perpendicular bisector of AB
- (iii). Construct a perpendicular bisector of BC
- (iv). Name the intersection point of two perpendicular bisectors as O.
- (v). Draw a circle by taking O as the center and OA as the radius .
- (vi). Measure and write the radius.

(09). Water is filled by the height h in the following cylindrical shape vessel of height 12 cm and diameter of the cross section is 7 cm. Area of the cross section of the prism is 7 cm² and the height is 11 cm. When the prism is sunk in the water of cylinder, if it is filled completely with water, find the height of water level before sink the prism.





(10). ABCD is a parallelogram . In the triangle ABE , AB = AE . The midpoint of BE is F and the lines AD and BE meet at F.

Ε

D

F

В

- (i). Prove that $\triangle ABF \equiv \triangle DEF$
- (ii). Show that ABDE is a rhombus .

(11) .(a) Show that the angles in the semi circle right angles using the theorem of "The angle subtended at the center is twice the angle subtended at the circumference by the same arc"

- (b). The center of the circle is o.
- (i). Find the value of $A\hat{B}D$, giving reasons.
- (ii). Prove that the triangle AOD is an equiangular triangle .
- (iii). If BC = 5 cm and AB = 12 cm, Find the radius of the circle.



С

(12).
$$\varepsilon = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$$

A = $\{1, 4, 8, 9\}$
B = $\{1, 3, 5, 7, 9\}$
(i). Indicate the above data in the given Venn diagram .
using the Venn diagram
(ii). Describe the set B in words

- (iii). Find $n (A \cup B)$
- (iv). Express the set $\{6, 2\}$ in set notation .

(v). Find the probability of taking a number from the universal set , being a square number .

