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වර්ෂ අවසාන ඇගයීම - (2025) ஆண்டிறுதி மதிப்பீடு - (2025) Year End Evaluation - (2025)

ශ්‍රේණිය தரம் Grade	11	විෂයය பாடம் Subject	Mathematics	පත්‍රය வினாத்தாள் Paper	I	කාලය காலம் Time	2 hours
නම பெயர் Name		විභාග අංකය சுட்டிகலக்கம் Index No.					

Name / Index No.:
Signature of invigilator

Important:

- This paper consist of 8 pages.
- Write your name correctly in the appropriate place on page one and page three.
- Answer all questions on this paper itself.
- Use the space provided under each question for working and writing the answer.
- It is necessary to write relevant steps and correct units.
- Marks will be awarded as follows:
02 marks each for questions 1-25 in part A
10 marks each for questions in part B

For marking examiner's use only		
Question number		Marks
A	1-25	
B	1	
	2	
	3	
	4	
	5	
Total		
Marked by		

Part A

Answer all questions on this question paper itself.

- The curved surface area of a right circular cylinder with base radius r and height h is $2\pi rh$.
- Where necessary, take the value of π as $\frac{22}{7}$.

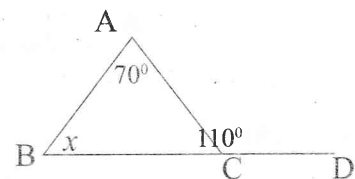
01. It is estimated that it takes eight days for 10 people to complete a task. How many people are needed to complete the same task in five days?

02. A motor car takes 4 hours to travel a distance of 120 kilometers at a uniform speed. Find the uniform speed of the motor car.

03. Write $125 = 5^3$ in logarithmic form.

04. Simplify $\frac{3}{x} - \frac{1}{3x}$.

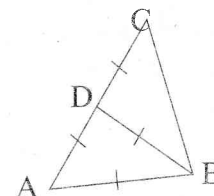
05. Find the value of x using the information given in the figure.



06. Find the least Common Multiple (LCM) of the following algebraic terms:

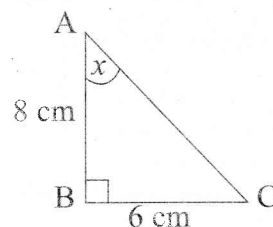
$$8a^2, 6ab$$

07. Find the value of $\angle ACB$ using the information given in the figure.



08. If $\epsilon = \{1, 2, 3, 4, 5, 6, 7, 8\}$ $A = \{1, 3, 7\}$ $B = \{2, 3, 6, 8\}$ find $n(A \cap B)$.

09. Write the value of $\cos x$ using the information shown in the figure.



10. A Value Added Tax (VAT) of 18% must be paid when purchasing an item worth Rs. 4 500. Find the amount of VAT that must be paid.

11. Matrices A and B are given by $A = \begin{pmatrix} 0 & 1 \\ 2 & 3 \end{pmatrix}$ and $B = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$. If the following statements are true, mark $\checkmark$ and false, mark $\times$ in the box given in front of the statement.

(a) A is a square matrix.

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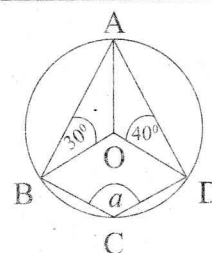
(b) The two matrices A and B can be added.

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(c) The order of matrix B is 1×2 .

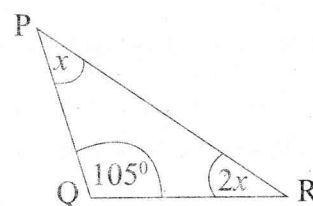
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12. O is the center of the circle. Find the value of a using the given information.



13. A page in a book of 110 pages is randomly turned. Write the probability that the page number is an even number starting with 7 and consisting of two digits.

14. Find the value of x using the information given in the figure.



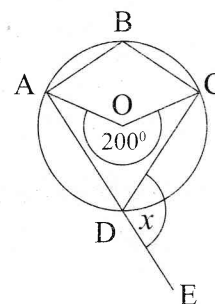
15. Find the curved surface area of a solid cylinder of radius 7 cm and height 20 cm.

16. Solve: $x(x - 5) = 0$

17. Select and underline the discrete data.

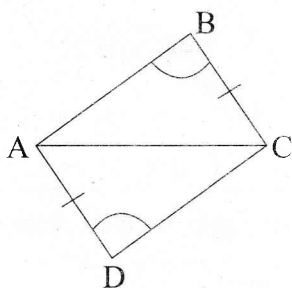
- (a) The number of letters a company receives within a day.
- (b) The number of families in a village.
- (c) The mass of a book.

18. O is the center of the circle. The points A, B, C, and D lie on the circle. The side AD is extended to E. Find the value of x using the given information.

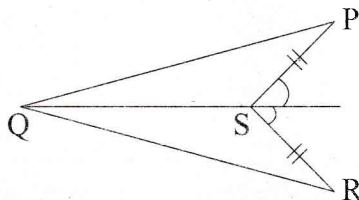


19. A customs duty of 30% is charged when an electrical appliance is imported. If the amount of customs duty paid was Rs. 9000, find the value of the appliance before paying the duty.

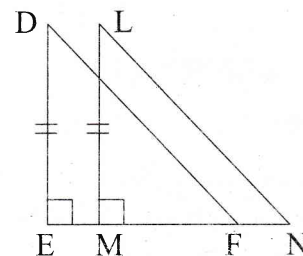
20.



(a)



(b)



(c)

In each of the diagrams shown below, equal sides and equal angles of the pairs of triangles are marked.

- (i) Which figure shows a pair of congruent triangles?
- (ii) Write the case congruency of that pair of triangles.

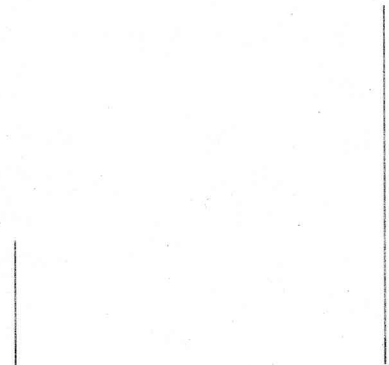
21. The gradient of a straight line is $\frac{1}{2}$. The straight line passes through the point (0, 1). Write the equation of the straight line.

22. Write the appropriate geometric words in the blanks.

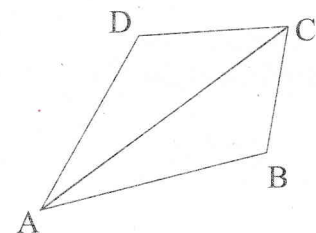
A line drawn through the of one side of a triangle to another side, bisects the remaining side.

23. Find the factors: $x^3 - 4x$

24. A boy standing on the ground 7 m away from the base of a vertical tree looks at the top of the tree, which is 10 m high from his eye level, the angle of elevation formed is 52° . Show this information on a rough sketch.



25. In the figure, AC bisects $\hat{BAD}$. A point P should be marked which is equidistant from the sides AD and AB, and 4 cm away from the side BC. Mark this point P on the given figure using knowledge of loci



Part B

Answer all the questions on this paper itself.

01. $\frac{2}{5}$ students in a primary school come to school by bus and $\frac{1}{4}$ by bicycle.

- (i) Express the number of students who come to school by bus and bicycle as a fraction of the total number of students.

Of the remaining students, $\frac{5}{14}$ come to school by three-wheeler.

- (ii) Express the number of students who come to school by three-wheelers as a fraction of the total number of students.

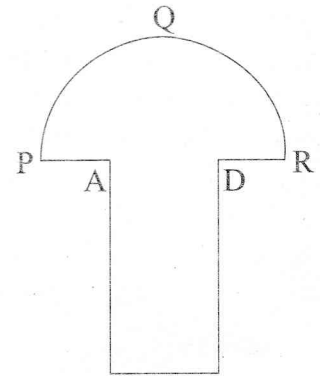
The remaining students use other method of transportation. The number of students using other method of transportation is 38 more than the number of students coming to school by three-wheelers.

- (iii) Find the number of students who come to school by other methods than buses.

02. A plot of land in a park is shown in the figure. It consists of a rectangular section ABCD and a semicircular section PQR with diameter PR = 28 m. AP = DR = 7 m.

- (i) Find the arc length of the semicircular section.

- (ii) Flower trees are planted along the arc length of the semicircle starting from P and ending at R. The flower trees are planted with a distance of 2 m between each flower tree. Find the number of flower trees planted.



- (iii) Find the area of the semicircular section.

- (iv) The area of the rectangular section is twice the area of the semicircular section. Find the perimeter of the rectangular section.

03. Akalanka has invested money to purchase shares in companies A and B. The information about this is given below.

Company A

- The market price of a share is Rs. 40.
- The number of shares purchased is 250.
- The annual dividend paid per share is Rs. 12.

Company B

- The number of shares purchased is 400.

- (i) Find the amount invested in company A.

- (ii) Find the dividend income received by Company A at the end of a year.

The dividend income received by Akalanka from Company B is Rs. 600 more than the dividend income from Company A.

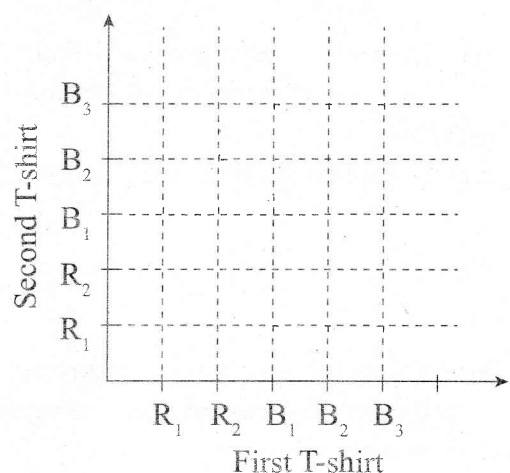
- (iii) Find the annual dividend paid per share by Company B.

- (iv) The dividend income received by Akalanka from Company B is 20% of the amount invested in that company. Find the market price of a share of Company B.

- (v) Find the amount he should invest in addition to Company A if he wants to earn the same income as he earned from both companies by investing only in Company A.

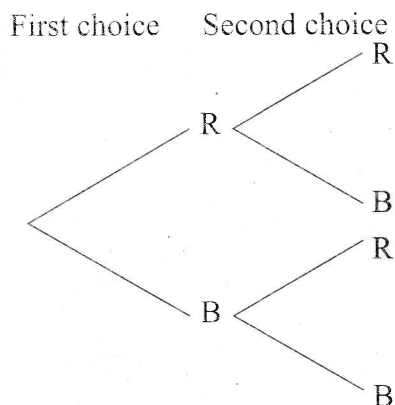
04. Madhura, a cricketer, wanted to choose two T-shirts to wear for practice one day. For this, he has 2 red T-shirts and 3 blue T-shirts of the same type and shape. The T-shirts are chosen at random.

- (i) Indicate the relevant sample space using "x" in the given grid. (R₁, R₂ denotes red T-shirts and B₁, B₂, B₃, denotes blue T-shirts.)
- (ii) Encircle the event of choosing two T-shirts of the two colors and write down its probability.



- (iii) The following tree diagram is given for choosing two T-shirts by Madhura. Complete the tree diagram by indicating the corresponding probabilities.

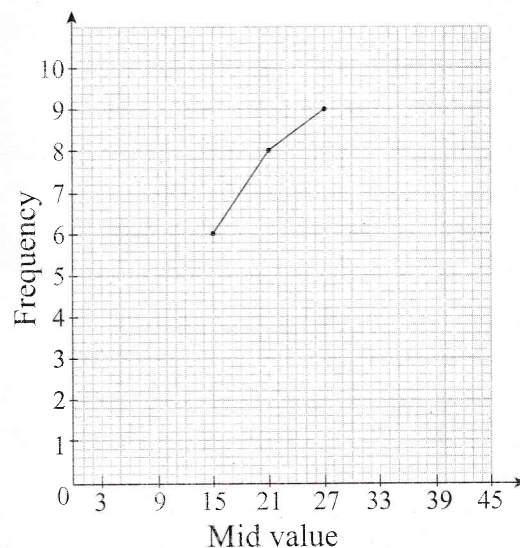
The red T-shirt is denoted by R and the blue T-shirt is denoted by B.



- (iv) Find the probability that at least one of the two T-shirts chosen by Madhura is red.

05. Using 32 continuous data, the following incomplete frequency distribution, the corresponding incomplete frequency polygon and the cumulative frequency curve have been prepared.

Class Interval	Mid value x	Frequency f	Cumulative frequency c.f.
6 - 12	9	3	3
12 - 18	15		
18 - 24	21		
24 - 30	27		
30 - 36	33	4	30
36 - 42	36	2	32



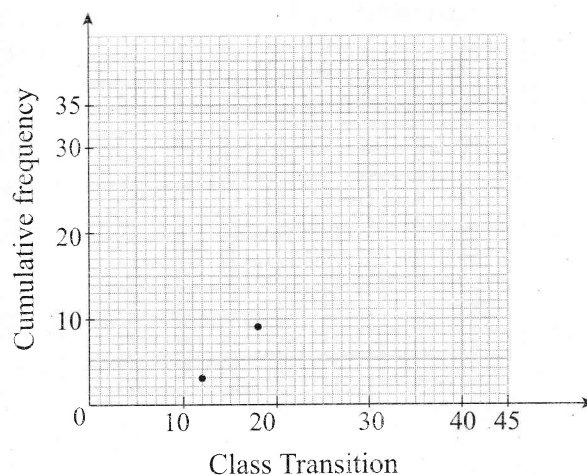
- (i) Complete the frequency table using the incomplete frequency polygon.

- (ii) Complete the frequency polygon.

- (iii) Complete the cumulative frequency column.

- (iv) Draw the cumulative frequency curve on the given system of axes. (Several points are marked)

- (v) Find the median of the data set with the help of cumulative frequency curve.



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 மேல் மாகாணக் கல்வித் திணைக்களம்
 Department of Education - Western Province

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වර්ෂ අවසාන ඇගයීම - (2025)
 ஆண்டிறுதி மதிப்பீடு - (2025)
 Year End Evaluation - (2025)

ශ්‍රේණිය தரம் Grade	11	විෂය பாடம் Subject	Mathematics	පත්‍රය வினாத்தாள் Paper	II	කාලය காலம் Time	3 hours
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Extra 10 minutes for reading

Use the additional reading time to read the question paper and select questions and decide which questions to prioritize when writing your answers.

- Answer 10 questions selecting five questions from Part A and five questions from Part B.
- Write the relevant steps and the correct units in answering the questions.
- Each question carries 10 marks.
- The curved surface area of a right circular cylinder is $2\pi rh$ when the radius r and height h .
- The volume of a right circular cylinder is $\pi r^2 h$ when the radius r and height h .

Part A
Answer only five questions.

01. Sisira is employed in a small industry that manufactures artificial flower bouquets. The frequency distribution below shows the number of flower bouquets he produced on each of the 50 days.

Number of Bouquets	14 - 18	19 - 23	24 - 28	29 - 33	34 - 38	39 - 43
Number of Days	7	10	12	11	7	3

- Write down the modal class.
- Find the mean number of flower bouquets produced per day.
- Sisira makes a profit of Rs. 40 by selling one of these flower bouquets. How many days will it take to earn a profit of Rs. 81 000 by working and selling the flower bouquets as above?

02. The incomplete table below shows the values of y corresponding to a few values of x for the quadratic function $y = x^2 - 4x - 1$

x	-1	0	1	2	3	-4	5
y	4	-1	-4	-5	—	-1	4

- Find the value of y when $x = 3$.
- Draw the graph of the quadratic function on a graph paper according to the above table of values, using a standard coordinate system and a suitable scale.
- Write down the coordinates of the turning point of the graph.
- On the same coordinate plane used in (ii) above, draw the graph of the straight line $y = x$.
- Shade the region $y \leq x$ on the same coordinate plane.

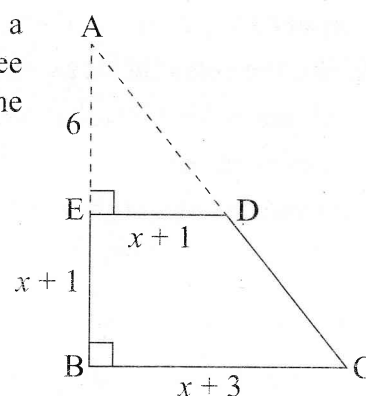
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03. (a) The following information is about the number of motor cycles and the number of motor cars parked in a car park on a certain day.
- The number of motor cycles parked on that day is 10 more than twice the number of motor cars parked.
 - Rs. 60 was charged for a motorcycle and Rs. 100 for a motor car.
 - The total income received from these two types of vehicles on that day was Rs. 16 000.
 - Let the number of motor cycles parked on that day be x and the number of motor cars be y .
- (i) Construct a pair of simultaneous equations involving x and y .
- (ii) By solving the pair of simultaneous equations written in (i) above, separately find the number of motor cycles and the number of motor cars parked on that day.

(b) If $(m+5)^3 = m^3 + Am^2 + 75m + B$, find the values of A and B .

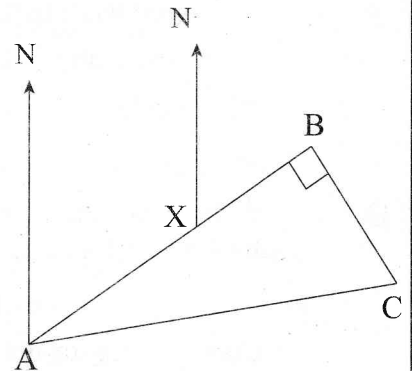
04. From a right-angled triangular shaped metal sheet ABC , a right-angled triangular metal sheet AED was cut and removed. (See the diagram) The lengths of the line segments are indicated in the figure in centimeters.



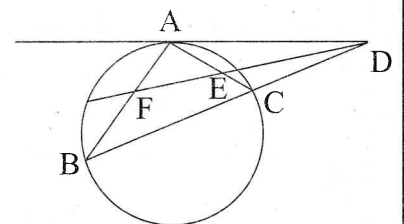
- (i) Obtain a quadratic equation in terms of x .
- (ii) Show that $BE = \sqrt{12}$ and hence show that the area of the removed section (AED) is greater than 10 cm^2 . (Take the value of $\sqrt{3}$ as 1.73)
05. (b) Wire pieces are cut to be fixed to a wire frame such that the length of the first piece is 5 cm and the length of the last piece is 105 cm. The total length of the cut pieces is 1430 cm. The lengths of the above pieces form an Arithmetic Progression.
- (i) Find the number of cut wire pieces.
- (ii) Find the common difference of the progression.
- (b) Find the sum of the first 8 terms of the Geometric Progression 3, 6, 12, ... using the formula.
06. A right circular cylindrical metal rod with radius 3 cm and height 10 cm is melted to form 30 hemispheres each with radius r . A volume of 2.6 cm^3 of metal is wasted during this process. (Take the value of π as 3.14.)
- (i) Calculate the volume of metal cylindrical rod and hence show that $r^3 = \frac{280}{62.8}$.
- (ii) Using logarithm tables, find the value of r to the nearest whole number and hence find the surface area of one of the formed hemispheres.

Answer only five questions.

08. (a) The points A, X, B and C shown in the figure are on the same horizontal ground.
- The bearing of B from A is 042° .
 - $AC = 20$ cm, $\hat{ABC} = 90^\circ$, $BX = 10$ m
 - $\hat{BAC} = 35^\circ 25'$

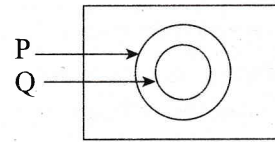


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11. (a) The following information was revealed from a survey conducted on the popularity of two TV channels, P and Q, among 110 people.

- 85 people liked P.
- 48 people liked only P.
- All the people who liked Q also liked P.



- Copy the given Venn diagram onto your answer sheet and correctly include the above information in it.
- Find the number of people who liked both channels.
90 out of the above 110 people were employed. 20 of them liked neither of the two channels. The number of employed people who liked only one channel was 40.
- Copy the above Venn diagram again. Take the set of employed people as G and include it appropriately in the Venn diagram. Find the number of people belonging to each region and write them in the corresponding regions.
- How many of the surveyed people who are employed liked both channels?
- Shade the region representing the unemployed people who liked both channels.

12. (a) Write down three conditions that a quadrilateral must satisfy to be a parallelogram.

- (b) In the given figure, $AB = ED$, $BE = CD$, and $BE \parallel CD$.

Copy the figure onto your answer sheet and include the given information on it. Prove that the bisector of $\hat{BAD}$ is AC.

