දකුණු පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
தென் மாகாணக் கல்வித் திணைக்களம்
Department of Education, Southern Province

දෙවන වාර පරීක්ෂණය - 2025
இரண்டாம் தவணைப் பரீட்சை - 2025 / Second Term Test - 2025

ශ්‍රේණිය / தரம் / Grade	Grade 11	MATHEMATICS I	කාලය / நேரம் / Time	2 hours

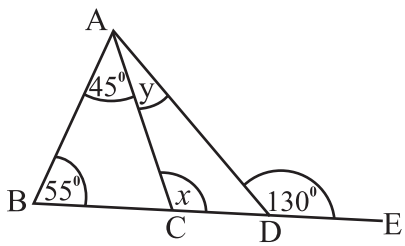
නම / பெயர் / Name ..... විභාග අංකය / சுட்டிலக்கம் / Index No. .....

* **Answer all question on this paper itself.**
* **2 marks for each correct answer for the questions in part A and 10 marks for each questions in part B.**

Part A

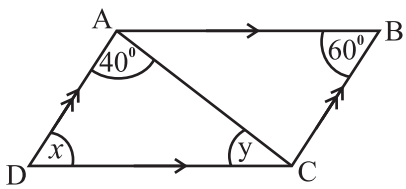
01. The monthly electricity bill of a certain household is Rs. 3 000. The value added Tax (VAT) of 15% is added to it.
    i) How much is the VAT ?
    ii) How much is the electricity bill with VAT ?

02. BCDE is straight line
    i) What is the magnitute of x ?
    ii) What is the magnitute of y ?



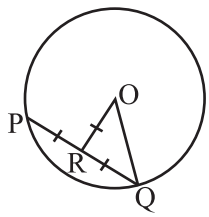
03. Find the LCM of the algebraic terms $4ab^2, 5ab, 10a^2$.

04. ABCD is a parallelogram. Find the value of x and y.



05. If $3.64 = 10^{0.5611}$, find the value of $\lg 3.64$.

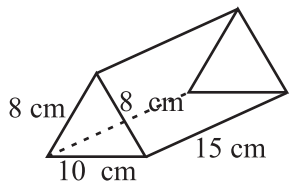
06. R is the mid point of chord PQ and OR = RQ. Find the value of $R\hat{O}Q$.



07. Simplify $\frac{8a^2b}{3} \div \frac{4a}{9}$.

08. A person who borrowed Rs. 5 000 at an annual simple interest rate of 8% . How long it took to pay the total interest Rs. 1 200 ?

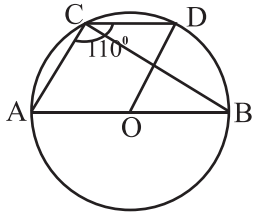
09. Draw a rough sketch with measurements of the two different faces of the given triangular prism.



10. i) Find the gradient and

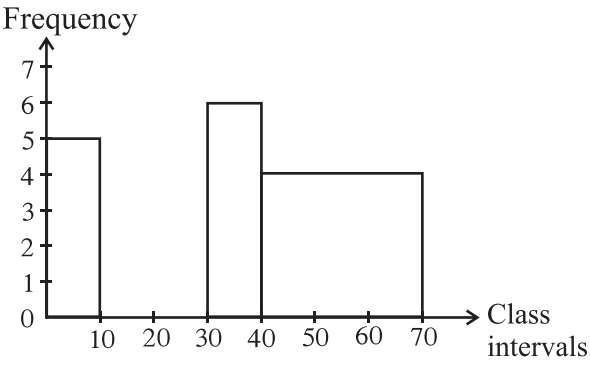
ii) Write the equation of the straight line passing through the point **(1, 2)** and **(0, 4)**.

11. AOB is a diameter of a circle with centre O. If $\hat{ACD} = 110^0$, Find the magnitude of $\hat{BOD}$.



12. Fill in the blank in the table and complete the histogram.

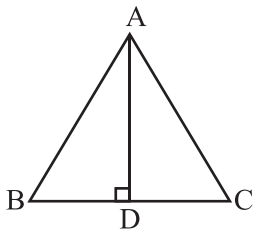
Class intervals	Frequency
0 - 10	5
10 - 30	8
30 - 40	7
40 - 70	.....



13. Write the remaining parts of that must be for ABD Δ and ADC Δ to be congruent, based on the following cases.

i) According to SAS.

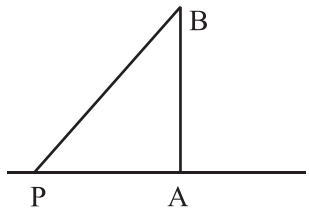
ii) According to RHS.



14. The height of a cylinder with radius 14 cm is 20 cm. Find the area of the curved surface.

15. Find the factors of $2x^2 - x - 6$.

16. AB is a vertical pole on a level ground. The angle of elevation of B from P is 30^0. AB = 5 m. Mark all the data in the given diagram.



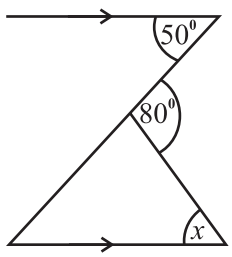
17. In a geometric progression the 4^{th} term is 54 and 5^{th} term is 162. Find its
    i) Common ratio

    ii) First term

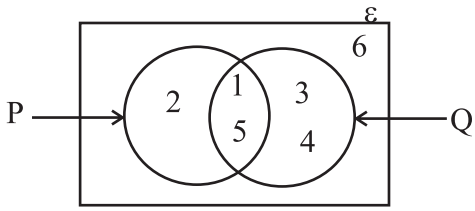
18. Find the probability of getting a prime number when a fair die numbered from 1 to 6 is tossed once.

19. Solve $2x^2 - 32 = 0$.

20. Find the value of x.

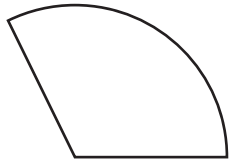


21. Write the element of $P' \cup Q'$.

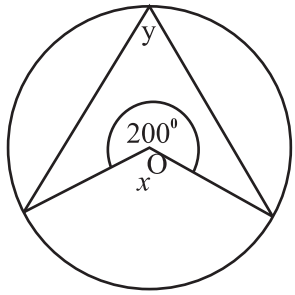


22. Solve $\frac{3}{4a} - \frac{1}{8a} = \frac{5}{16}$.

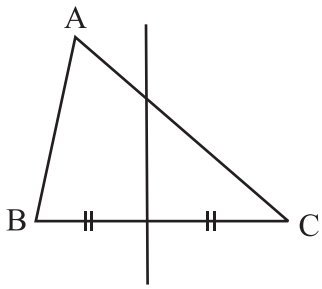
23. Perimeter and the arc length of the sector given is 86 cm and 44 cm respectively. Find its radius.



24. Find the value of x and y using the information given in the figure.



25. The figure shows the locus of a point that is equidistant from B and C. The point O lies on this loci such that is equidistant from CA and CB. Using the knowledge loci mark the point O.



Part B

*** Answer all the questions on this paper itself.**

01. After a group of women plucked tea leaves in a day, $\frac{4}{7}$ of the tea estate remained.

i) What fraction of the tea estate was plucked on that day ?

ii) If on the second day, $\frac{5}{8}$ of the remaining part was plucked, then what fraction of the entire estate was plucked on that day ?

iii) On the 3rd day 15 women were able to finish plucking the remaining tea leaves. Accordingly how many women's days are required to finish plucking the leaves on the whole land ?

iv) A woman plucks 20 kg of tea leaves per day and Rs. 200/ - is paid per 1 kg of tea leaves. Calculate the expected income that the state owner can earn from the tea leaves in one season after deducting 1% for the ripe leaves ?

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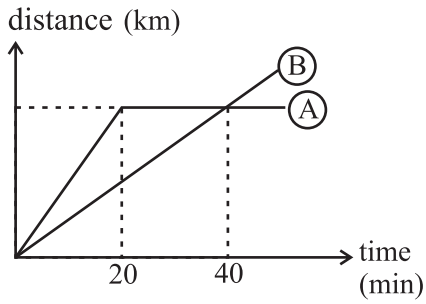
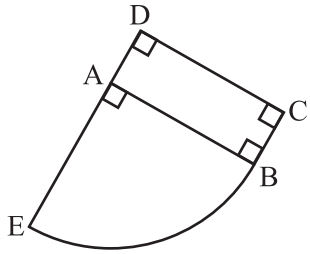
02. (a) The distance - time graph illustrates the motion of 2 vehicles A and B which start traveling at the same time from the same place along the same route. While vehicle **A** has traveled a certain distance and is stopped on the road, vehicle B passed vehicle A.



i) If the speed of the vehicle A is 60 kmh^{-1} , what is the distance from the starting point to the point where it stopped ?

ii) If the vehicle B passes the vehicle A, 20 minutes after vehicle A stops (stands still), find the speed of the vehicle A.

(b) A flower bed consisting of a rectangle ABCD and a sector ABE is shown in the figure.



i) If the area of the rectangular part ABCD is 70 m^2 and BC = 5 m, find the radius at the sector ? (AB)

ii) Find the area of the entire flower bed.

03. (a) A 40% customs duty must be paid on an imported mobile phone costing US $200.

i) If the price of 1 US dollar is Rs. 300, what is the import price in rupees ?

ii) Find the amount of customs duty that has to be paid for the mobile phone.

iii) If this mobile phone was sold for Rs. 105 000. Calculate the profit percentage earned.

(b) In an urban council area which charges 6% as rates, the quartely tax amount payable for a house is Rs. 450. Find the assessed annual value of the house.

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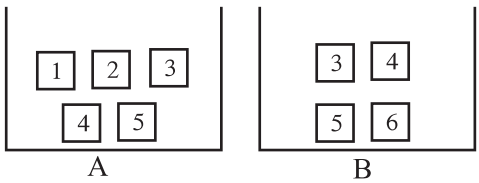
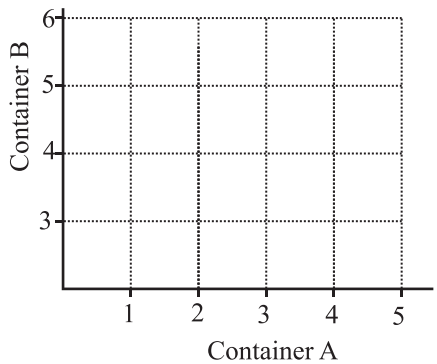
04. (a)



The cards in a container A are red in colour and are numbered as 1, 2, 3, 4 and 5. The cards in a container B are blue in colour and are numbered as 3, 4, 5 and 6. All the cards are identical in shape and size Dilini randomly picks one card from each container. Mark all the possible outcomes with a × in the grid below.

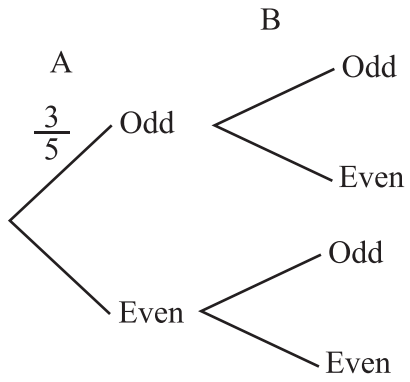


In the grid encircle the outcomes where the,

i) Same number is obtained from both events.

ii) Sum of the 2 numbers obtained is less than to 6 and write the probability of each event seperately.

(b) The following is an incomplete tree diagram showing the event of drawing cards from containers A and B.



i) Complete the tree diagram by indicating the corresponding probabilities.

ii) Find the probability of getting even number in both events.

iii) Find the probability that the product of two numbers is an odd number.

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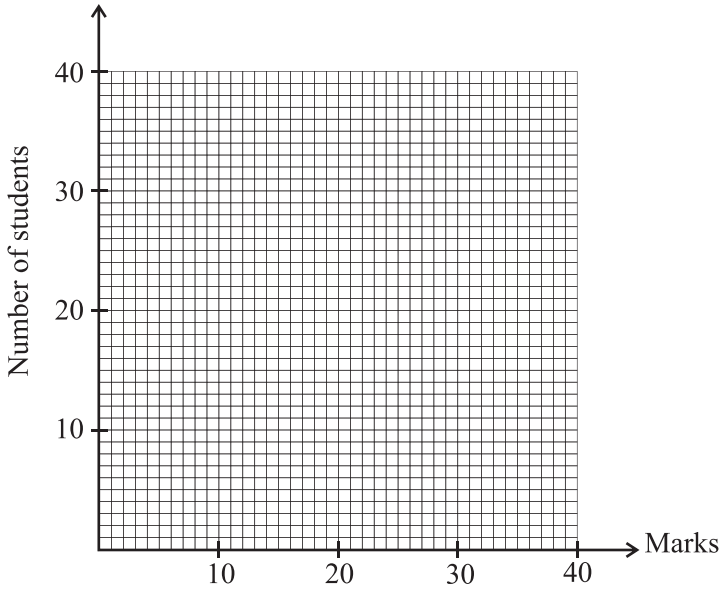
05. (a) i) An incomplete frequency table showing information about students scores in an assessment with a total of 50 marks is given below. Complete the table and draw the cumulative frequency curve.

Class Intervals	Number of students	Cumulative Frequency
0 - 10	5	5
10 - 20	7	12
20 - 30	.....	26
30 - 40	9	.....
40 - 50	5	40



ii) Find the interquartile range of the marks.

(b) If the above information is to be represented in a pie chart, find the central angle that should represent the students who scored 0 - 20 marks.

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தென் மாகாணக் கல்வித் திணைக்களம்
Department of Education, Southern Province

දෙවන වාර පරීක්ෂණය - 2025
இரண்டாம் தவணைப் பரீட்சை - 2025 / Second Term Test - 2025

ශ්‍රේණිය / தரம் / Grade	Grade 11	MATHEMATICS II	කාලය / நேரம் / Time	3 hours

නම / பெயர் / Name ..... විභාග අංකය / சுட்டிலக்கம் / Index No. .....

Instructions

* Answer ten 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.
*

Part A

* **Answer five questions only.**

1. Anuradha takes a loan of Rs. 200 000 at an interest rate of 20% compounded annually and he invests that amount to buy shares in a company which pays annual dividend of Rs.9 per share, at the market price of Rs.40 per share. After receiving dividends for a year, he sold all his shares. After paying back the loan amount and interest from the money he received, he was left with Rs. 57 000. At what price per share did he sell the shares?

2. An incomplete table showing the y – values corresponding to several x – values of a quadratic function of the form $F(x) = (x + p)(x-1)$

a) i) By considering the symmetry of the quadratic function, fill in the blanks in the table.

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

ii) Using the standard system of axes and a suitable scale , draw the graph of the quadratic function according to the table given above.

b) i) Find the values of p

ii) Write the coordinates of the minimum point of the graph and there by write the quadratic function in the form of $y = (x+a)^2 - b$.(Here a and b are constants)

iii) Write the intervals of values of x on which the function is decreasing negatively.

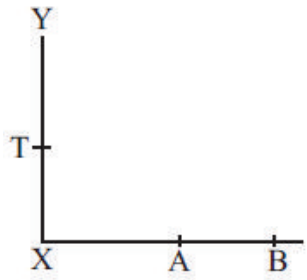
3. A vertical pole XY and two statues are located on a flat horizontal ground. The base points of the two statues, A and B and the pole X are collinear. The angle of depression from the top Y of the pole , to the point A is 65^0 and the angle of depression to the point B is 40^0.

i) Copy the given figure in your answer script and include the given information in it.

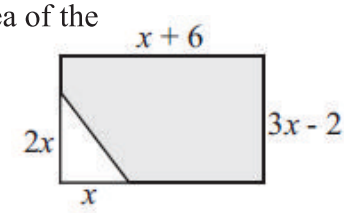
ii) Draw the scale diagram according to the scale 1:600

iii) Using the scale diagram, Find the distance between two statues A and B.

iv) An observer at point A observes an antenna located at point T on the pole. If XT = 42 m, measure and write the angle of elevation from the point a to point T. (ignore the height of the observer)



4. The breadth and length of a rectangular sheet are (3x -2) and (x+6) respectively. As shown in the figure a right angled triangular part is removed from one corner. The lengths of the two sides included in the right angle are x and 2x. The area of the remaining (shaded) part is 44 m^2



i) Show that x satisfies the equation $x^2 + 8x - 28 = 0$. Take the value $\sqrt{11} = 3.32$, Find the suitable value of x to the nearest cm.

ii) Find the length and breadth of the original sheet.

5. i). A parcel contains X number of books and pens are four times of number of books. The pens and books are distributed among Y students in the class. When the books are distributed 3 per student, 11 books remain. When pens are distributed. 14 per persons,2 pens are not enough.
Construct a pair of simultaneous equations and by solving them , find separately the number of books in the parcel and the number if students in the class.

ii). Solve the inequality $3 (5n - 4) \geq 108$ and find the smallest integral value

6. The following information was obtained about 30 schools with less than 50 students in a certain district.

Number of students in a school	1-7	8-14	15-21	22 -28	29-35	36-42	43-49
Number of schools	1	2	5	7	6	5	4

i) Find the mean number of students in a school to the nearest whole number.

ii) If each student in these schools is given a financial aid of Rs.6000, What is the expected total amount spend for this?

iii) If it is planned to closed 8 schools with the lowest number of students amoung these schools, What is the maximum number of students a school can have to be selected for closure ?

iv) What is the difference between the maximum and minimum number of students that can be in these 30 schools?

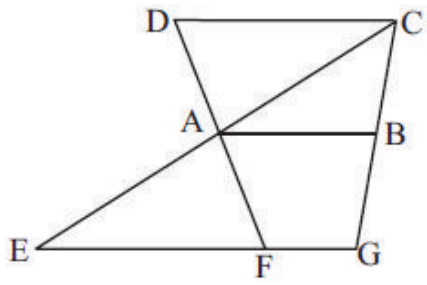
Part B

Answer five questions only.

7. Use only a straight edge with a cm/mm scale and a pair of compasses for the following geometric constructions. The construction lines should be clearly drawn.
   - i) Construct the triangle ABC such that AB = 7cm , $A\hat{B}C = 90^0$ and AC = 10cm.
   - ii) Construct the perpendicular bisector of AC and name the intersection point of it and AC as O.
   - iii) Construct a circle with center O and passes through point A.
   - iv) Mark the point D where the perpendicular bisector intersects the circle on the side AC opposite to where B is located.
   - v) Find the magnitude of $A\hat{C}D$ giving reasons for your answer.

---

8. AB // DC in the figure given. A is the mid point of CE and B is the mid point of CG.
   - i. Copy the diagram and insert the data. Write the two Relationships that are relevant to the mid point theorem
   - ii. Show that DC // EG
   - iii. Show that ADC and AEF are congruent.
   - iv. Show that EDCF is a parallelogram.
   - v. Join all the vertices and name a triangle which is equal in area to the triangle ABC by giving reasons.



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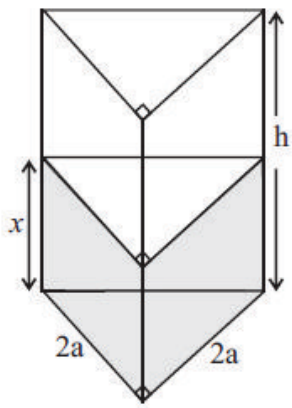
9. (a) A right rectangular prism with the dimensions shown in the figure is filled with water up to a height *x*. When a sphere is immersed in the prism, the water overflows(not exceed)

   Show that the radius of the sphere r is given by r = $\left\{\frac{3a^2(h-x)}{2\pi}\right\}^{\frac{1}{3}}$

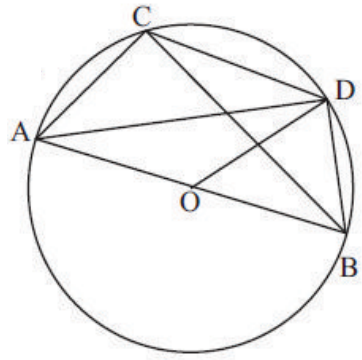


(b) If M = $\frac{0.365 \times \sqrt{37.92}}{1.85}$ Find the value of M using logarithm table to the nearest first decimal place,

---

10. 26, 30, 34 denote the number of seats in 3 consecutive rows in a theatre.
    - i. Write number of seats in next two rows.
    - ii. If the total number of seats in first 3 rows is 42. Find the number of seats in the first row,
    - iii. How many seats are there in the 15th row.
    - iv. In which row contains 90 seats?
    - v. There are 22 row in the theatre. Find the total number of seats in the last three rows.

11. AB is the diameter of a circle with centre O. If CD=BD and $B\hat{C}D = a°$ find the values of the following angles using a



i. $B\hat{O}D$

$A\hat{C}D$

$C\hat{B}D$

$O\hat{A}D$

$C\hat{A}D$

ii. Show that AC // OD

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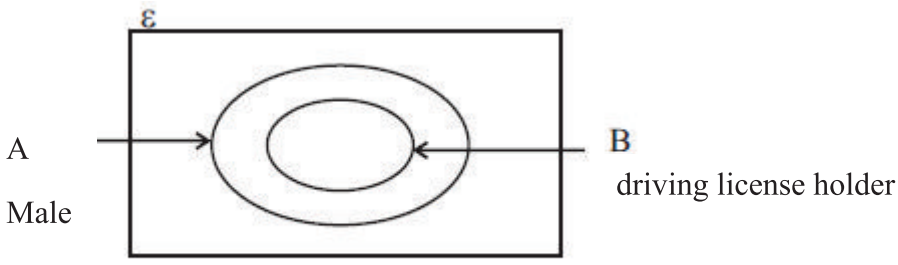
12. The information about 60 people recruited in the first round as sales promotions officer for a private institution is shown in the figure below.



i. Write the relationship between set A and B using set notation.

ii. From these selected 48 are male and 30 of them are driving license holders. Copy the above venn diagram and insert the above data.

iii. Find the number of women selected for the first round.

iv. Later 10 more sales promotion officers were recruited to this institution , all of them are driving license holders and 4 of them are women. By considering all 70 recruited officers, draw a venn diagram to represent set A and B. Write the elements regarding to each area.