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Ministry of Education, Higher Education and Vocational Education

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General Certificate of Education (Ord. Level Examination), 2025 (2026) – Practice Test

Mathematics

32 – E I

02 hours

Name / Index Number……

.....
Signature of the Invigilator

Important:

- This paper consists of 8 pages.
- Answer all questions on this paper itself.
- Use the space provided under each question for working and writing the answers.
- It is necessary to write relevant steps and correct units.
- Marks will be awarded as follows:
  02 marks each for questions 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		

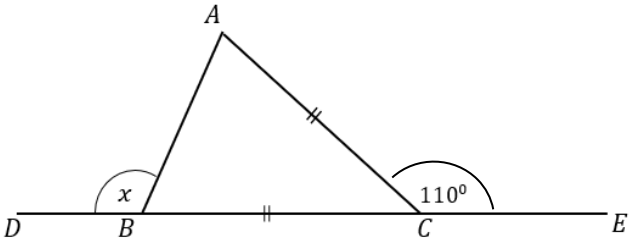
.....
Marked by

Part A

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

(01) Find the arc length of a sector shaped lamina with the radius 7cm and perimeter of 25cm.

(02) Using the information given in the figure, find the value of x.



(03) Solve : $2 - \frac{3}{x} = 4$

(04) If $log_2\ x = 0$ find the value of x.

(05) Complete the following theorem, using suitable geometric terms.

The …… angle formed by extending a side of a cyclic quadrilateral is equal to its interior …… angle.

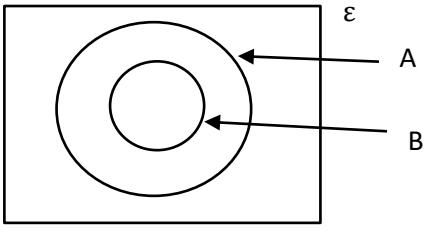
(06) Simplify : $\frac{1}{x} - \frac{x-1}{2x}$

(07) Using the information provided below, find the first approximation of $\sqrt{75}$.

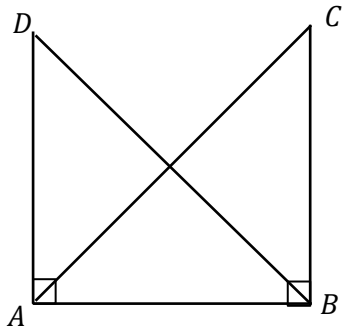
$8.5^2 = 72.25$ $8.7^2 = 75.69$

$8.6^2 = 73.96$ $8.8^2 = 77.44$

(08) In the given Venn diagram, if $n(A) = 15$ and $n(B) = 8$, then find $n(A \cup B)$ and $n(A \cap B^{/})$.



(09) In the given figure, $A\hat{D}B = A\hat{C}B$. Under which case the two triangles ABC and ABD are congruent?



(10) A certain person pays an annual income tax of Rs. 12 000. Calculate his total annual income, according to the following table.

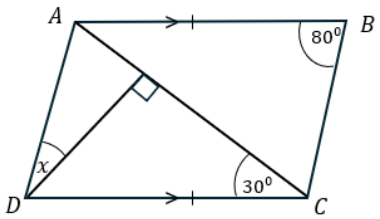
Annual Income	Tax Percentage
First Rs. 1 800 000	Tax free
Next Rs. 1 000 000	6%

(11) Find the Least Common Multiple of these algebraic terms $2x^2y,\ 3xy,\ 4x^2y$.

(12) Select the continuous data from the list below and mark them with "✓ ".

i.	Number of members in a family.	
ii.	Mass of a child	
iii.	Length of a piece of wire	

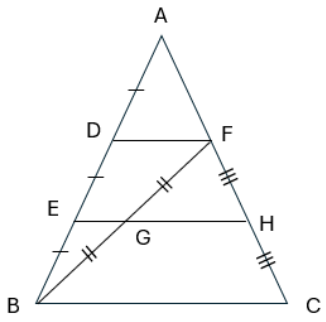
(13) Find the value of x, using the information given in the figure.



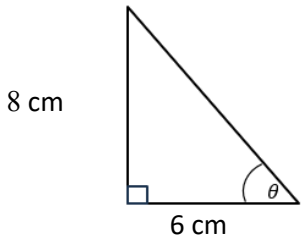
(14) The length of a prism with a cross-sectional area of $36cm^2$ is $12cm$. Calculate its volume.

(15) A custom duty of 8% is charged when importing a certain item. If the duty paid for an item is Rs. 40 000, find the value of the item before the custom duty was added.

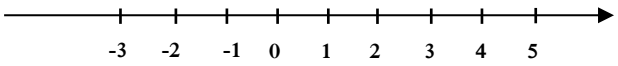
(16) In the given figure, $EG = 2cm$. Find the length of BC.



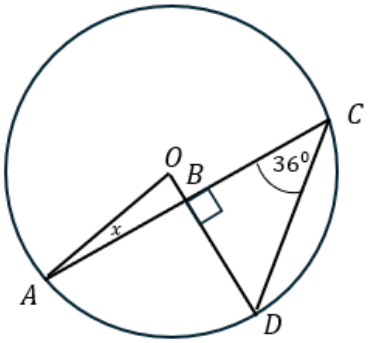
(17) If $\sin\theta = \frac{8}{10}$ then find the value of $\cos\theta$.



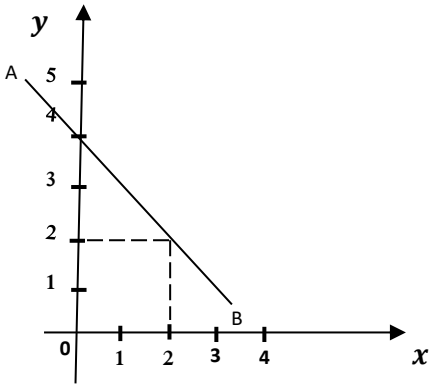
(18) Represent the integral solutions of the inequality $2x - 1 < 3$ on the given number line.



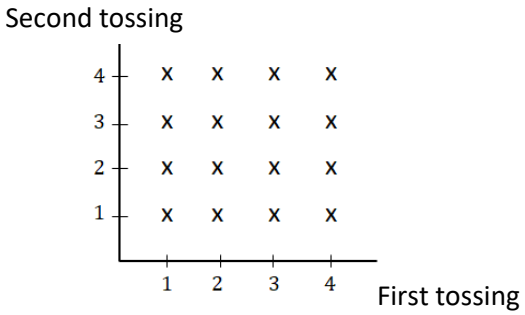
(19) In the given circle, the centre is O. Find the value of x.



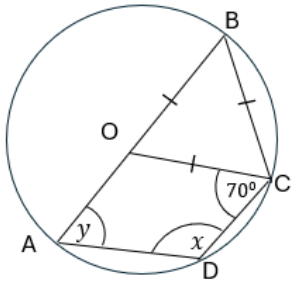
(20) Write the equation of the straight line AB shown on the coordinate plane.



(21) The sample space for tossing an unbiased tetrahedral die twice is shown in the grid. Encircle the event that the sum of the scores from the two tosses is 7 or more.



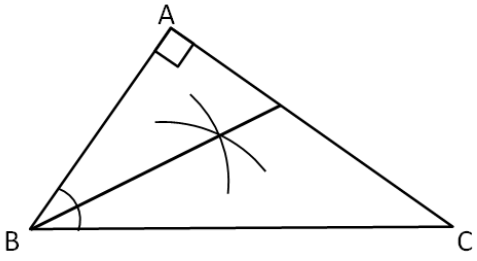
(22) AB is a diameter of a circle with centre O. Find the value of x and y.



(23) How long will it take for Pramith to reach a floor at 320 m height from the ground floor using an elevator traveling at a speed of $8m$ per second.

(24) If $A = \begin{bmatrix} 2 & -1 \\ 0 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 0 \\ -2 \end{bmatrix}$ are two matrices, find the matrix AB.

(25) ABC is a right angled triangular plate. A point P needs to be marked equidistant from all three sides. Using the knowledge of loci, mark the point P.



Part B

❖ Answer all the questions on this paper itself.

01. A factory distributed $\frac{1}{5}$ of its daily production to the public sector and $\frac{1}{3}$ to the local private sector.

i. What fraction of the total production remains after distributing to the public and private sectors?

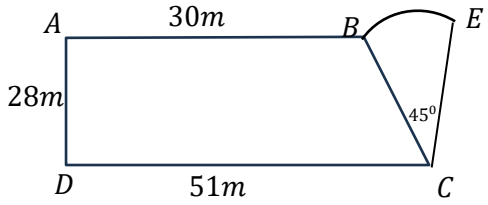
ii. From the remaining portion, $\frac{3}{4}$ is exported to the European market. What fraction of the total production is this?

iii. If the value of the production of factory after exporting to Europe is Rs. 210 000, find the total value of the production of factory of that day.

iv. 50 employees work 8 hours a day at this factory. On a certain day, 10 employees were absent due to illness. How many hours must the remaining employees work that day to complete the usual daily production?

02. The sketch shows a garden divided for two crops. ABCD is a trapezium shaped plot used for Turmeric and the sector BCE is used for Ginger.

i. If the perimeter of the Turmeric plot is 144 m, find the radius of the sector.



ii. Calculate the length of the curved boundary BE.

iii. Calculate by how much the area of the Turmeric plot exceeds the area of the Ginger plot.

iv. It is proposed to use a rectangular plot outside of this area for Aloe Vera cultivation, such that its area is $\frac{1}{3}$ of the Turmeric plot and AD as one of boundaries. Draw this plot on the diagram with measurements.

03. A person invests Rs. 10 000 to buy shares in a company when the marked price of a share is Rs. 40.

i. How many shares can he buy?

The company pays a dividend of Rs. 4 per share. After receiving the dividend at the end of the year, he sells all his shares. If the total amount he received is Rs. 250 less than his initial investment.

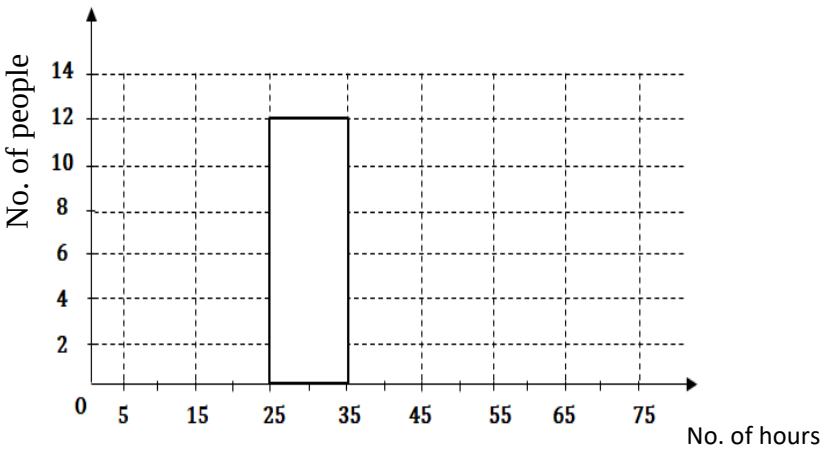
ii. Find the selling price of a share.

iii. He invests the total amount received from dividend and the sale of shares in a financial institute that pays 12% annual simple interest. Find the time taken to earn Rs. 2 340 as interest.

iv. If a tax of Rs. 117 is charged on his annual interest, what is the annual tax percentage charged?

04. Data was collected on the number of hours a group of people watched TV over a month. Below are an incomplete table for the angle at the centre of a pie chart and an incomplete histogram.

No. of hours	No. of people	Angle at the centre of the sector
5 – 15	4	36^0
15 – 25	6	54^0
25 – 35	.....	.....
35 – 45	10	90^0
45 – 65	.....	.....



i. Complete the blanks in the table using the given data.

ii. Which time interval represents the highest number of people watching TV?

iii. Complete the histogram using the information from the completed table.

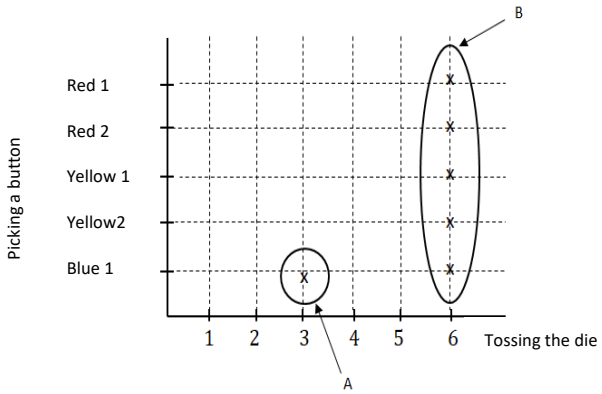
iv. Draw the frequency polygon using the histogram.

05. a) A group of friends is playing a game. First, one person must roll an unbiased die numbered from 1 to 6. Then, they must randomly pick a button from a bag containing identical one blue, two yellow and two red buttons. An incomplete grid for this is given below.

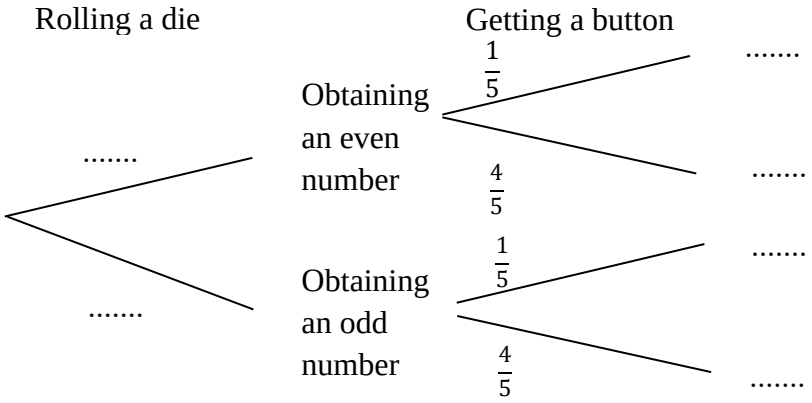
i. Complete the given grid representing the sample space.

ii. Describe the events A and B shown on the grid.

iii. Find the probability of getting an odd number on the die and a red button.



b) To win the game, one must get an even number on the die and a blue button. An incomplete tree diagram is shown below.



i. Complete the blanks in the tree diagram.

ii. Malaka participated in this game. Find the probability that Malaka wins the game.

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Ministry of Education, Higher Education and Vocational Education

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General Certificate of Education (Ord. Level Examination), 2024 (2025) – Practice Test

Mathematics -	32 – E II	Three hours

Additional reading time – 10 minutes	**Use additional reading time to go through the question paper, select the questions and decide on the questions that you give priority to in**

Instructions:

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

Part A

Answer only five questions.

01. Study the two cases, A and B, given below. Calculate the annual interest charged or given in each case, and find which case involves a higher rate of interest.

Case A

Rs. 100,000 was deposited in a bank, and at the end of two years, the total amount in the account was Rs. 121,000. The interest was calculated and credited to the account using the compound interest method.

Case B

Purchasing an item with a cash price of Rs. 100,000 by making a down payment of Rs. 20,000 and paying the balance in equal monthly instalments of Rs.3,750 each over a period of two years. In this case, the interest is calculated using the reducing balance method.

02. A total of 100 marks are allocated for an IQ paper consisting of 50 questions, with each question carrying equal marks. Amadhi, who answered this question paper and scored 8 marks more than Samadhi. The number of questions Samadhi answered correctly is 26 less than half of three times the total number of questions Amadhi answered correctly.

(i) Construct a pair of simultaneous equations by taking the total number of questions correctly answered by Amadhi and Samadhi as x and y respectively.

(ii) By solving the pair of simultaneous equations, find the number of correct answers given by Amadhi and Samadhi separately.

(iii) The sum of the marks obtained by Uvindu and Samadhi is less than 150. By taking the number of questions correctly answered by Uvindu as P, construct an inequality and solve it to find the maximum marks Uvindu can obtain.

03. A coconut oil machine produces coconut oil using x kilograms of copra per hour. In the production of coconut oil, a profit of Rs. $\left(\frac{x}{5}+2.6\right)$ can be earned from 1 kg of copra. If the producer earns a total profit of Rs. 90 per hour, construct a quadratic equation of the form
$ax^2+bx+c=0$ using the above information. By solving it, find the number of kilograms of copra used by the trader per hour (to the first decimal place). If the producer works 8 hours a day for 25 days a month, calculate the total monthly profit. (Take $\sqrt{1969}=44.37$)

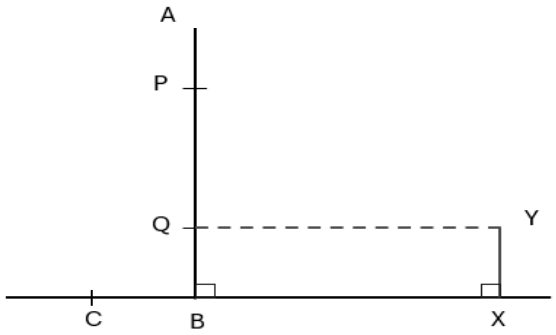
04. (a) The following is an incomplete table of the quadratic function of $y=2+2x-x^2$.

x	-2	-1	0	1	2	3	4
y	-6	-1	2	3	……..	-1	-6

(i) Find the value of y when $X=2$.
(ii) Draw the graph of the function on graph paper, taking 10 small squares as one unit along both the the x-axis and y-axis.

(b) Using your graph;
(i) Find the roots of the function $2+2x-x^2=0$.
(ii) Write the range of x values where the function is decreasing in the range of $-6\leq y\leq -1$
(iii) Write the function obtained when the above function is displaced by two units vertically upwards in the form of $y=b-(x-a)^2$. (Here a and b are integers)

05. The figure shows a vertical coconut tree AB and a tower XY situated on horizontal ground. A man climbing the coconut tree and stops for a while at point Q, which is at a height equal to the height of the tower from the foot of the tree. He then climbs a further 12 m up the tree and stops at point P. From that position, he observes the top of the tower (Y) at an angle of depression 58°.



i. Copy the given figure and mark the given data on it.
ii. Using the trigonometric tables find the distance between the coconut tree and the tower to the nearest first decimal place.
iii. A wire tied at point P is attached to the point C on the ground such that it is pulled tight. If the length of PC is 25m and the height of the tower is 9m, show that the angle of elevation of P from C is greater than 57^0.

06. The following grouped frequency distribution was prepared based on information obtained by measuring masses of a group of 60 members in a certain age group, to the nearest kilogramme.

Class intervals (Mass - kg)	44-48	49-53	54-58	59-63	64-68	69-73	74-78	79-83
Frequency (No. of members)	8	10	11	9	8	7	4	3

(i) Write the modal class?

(ii) By taking mid value of the modal class as the assumed mean or by using any other method, find the mean mass of a member of this group.

(iii) There were 45 males in this group, and the mean mass of a male was found to be 62.32 kg. Accordingly, find the mean mass of a female in this group.

(iv) A scientific study has found that individuals with a mass greater than 60 kg have a higher risk of heart disease. Accordingly, who is at a higher risk of heart disease in this group, the male or the female? Give reasons.

Part B

Answer only five questions.

07. To create a grill design, pieces of wire must be cut according to the lengths of the following patterns. The lengths are given in centimeters.

Pattern A - 2, 5, 8, 11, ...

Pattern B - 1, 2, 4, 8, ...

20 pieces from Pattern A and 12 pieces from Pattern B are required.

(i) What types of progressions are represented by the patterns A and B shown above?

(ii) When the pieces for each pattern are cut, find separately the lengths of the longest wire pieces obtained from Pattern A and Pattern B.

(iii) Find the 11^{th} term of Pattern A and determine which term of Pattern B is equal to that value.

4m long wires are used to cut these wire pieces.

(iv) Show that two wires are sufficient to create Pattern A.

(v) Calculate the minimum number of wires required to create this design.

08. Use only a straight edge with a mm/cm scale and a pair of compasses for the following geometric constructions. The construction lines should be drawn clearly.

(i) Construct the triangle ABC such that $AB = 5cm, A\hat{B}C = 90^0 and\ BC = 6cm$.

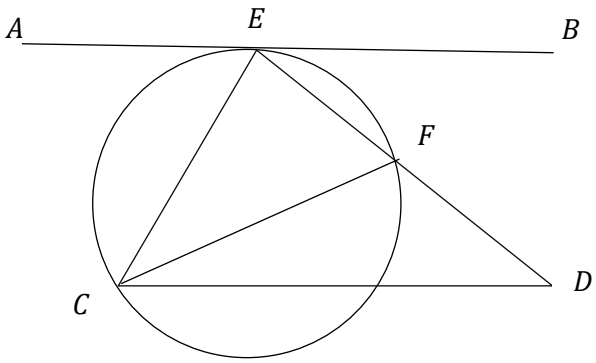
(ii) Mark the point D such that $AD = DC$ and $BC = BD$ then complete the quadrilateral ABCD.

(iii) Construct a line through D parallel to AC. Name the point where it meets the produced line as E. By joining the necessary points, name a triangle that is equal in area to the quadrilateral ABCD.

(iv) Construct the circumcircle of the triangle ABC.

(v) Construct a tangent to the circle at point C.

09. In the figure, points C,E and F lie on the circle. The tangent drawn to the circle at point E is AB. The line drawn through C parallel to AB meets the produced line EF at D.



(i) Copy the given figure and include the above information in it.
(ii) Prove that triangle CEF and triangle CED are equiangular.
(iii) Prove that $CE^2 = EF.ED$

10. (a) The radius of a right cone is $r = \sqrt{\frac{332.7}{11}}\,cm$. Using logarithms, find the radius of the cone to the first decimal place.

(b) A hemispherical metal block with a diameter of 21 cm is melted to make 21 identical cones, with the same radius mentioned above and height of 3 cm. The remaining metal is dropped in to a cuboid shaped water container, which has a base area of $143cm^2$ and with half-filled water. Show that the water level in the container rises by 3 cm. (Assume that the water in the container does not overflow.)

11. Below are some details regarding the recruitment for the Government Executive Service following a competitive examination held for graduates.

- The examination is held in two stages. Only those who pass the first stage can sit for the second stage.
- A General Knowledge (G) paper is given for the first stage. For the second stage, candidates must sit for two papers, such as Intelligence Test (I) and Language Proficiency (L).
- To pass the second stage, a candidate must pass both papers within that stage.

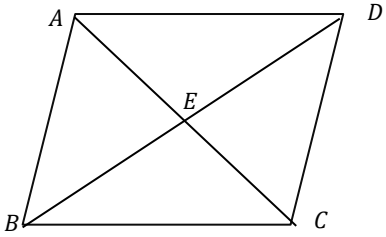
(i) Draw a suitable Venn diagram to represent this information.
(ii) If those who pass both the first and second stages are called to the final interview, shade the region representing them.
(iii) Sunimal is a candidate who passed the first stage and sat for the second stage. He passed the Intelligence Test (I) but failed the Language Proficiency (L) paper. Write the region Sunimal belongs to using set notation.

From a certain district, 240 candidates sat for this competitive examination. Out of them, 150 passed the first stage. 30 people passed the Intelligence Test (I) and 20 people passed the Language Proficiency (L) test. The number of people who passed both papers in the second stage is 6.

(iv) By including this information in the Venn diagram or by any other method, find the probability that a candidate who sat for the exam passed both stages.
(iv) How many candidates sat for the second stage but did not pass at least one of the subjects?

12. (i) Write down 4 situations where a quadrilateral can be a parallelogram.

(ii) In quadrilateral ABCD, AB $\nparallel$ AD. The diagonals AC and BD bisect $B\hat{A}D$ and $A\hat{B}C$ respectively. If $BE = ED$, prove that ABCD is a rhombus.



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