

General Certificate of Education (Ord. Level) Model Examination, March 2020
Zonal Education Office - Akkaraipattu

Mathematics I

Two hours

Index No

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Important:

- Write your **Index Number** correctly in the appropriate places on **this page** and on **page three**.
- Answer **all** questions **on this paper itself**
- Use the space provided under each question for working and writing the answer
- Indicate the **relevant steps** and **correct units** when answering the questions
- Marks are awarded as follows
- **In Part A** – 2 marks for each question
- **In Part B** – 10 marks for each question

Part A

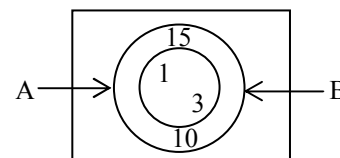
Answer all questions on this paper itself

1. Write the correct answer to fill the blank from the numbers given in the bracket

$$\sqrt{4} < \sqrt{7} < \sqrt{9} \quad (2.1, 2.6, 2.9)$$

$$2 < \underline{\quad} < 3$$

2. Find $n(A)$ according to the information on the given Venn diagram



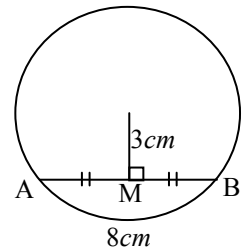
3. If $x^2 + bx + c = (x + 2)(x + 3)$ find b and c

4. A bag contains 4 blue cards and 2 red cards. A card is taken out random and its colour is recorded. Depict the sample space as a tree diagram

5. Find the marked price of an article with 15% profit which cost is Rs.1800

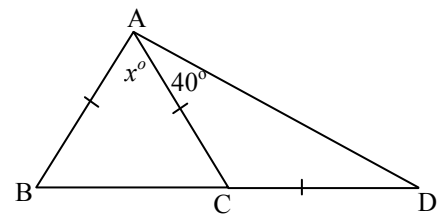
6. A certain task can complete by 3 men in 5 days. How many days needed to complete the twice of the particular task by 3 men?

7. The length of the chord AB is 8cm in a circle with center "O". If $OM = 3cm$ find the radius of the circle



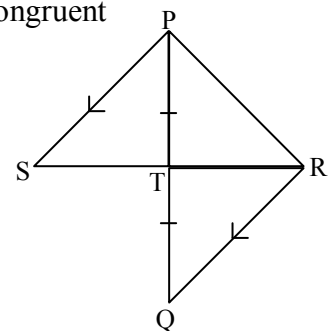
8. Simplify $\frac{3b}{2a^2} \times \frac{6ab}{ab^2}$

9. In the given diagram $AB = AC = CD$, find x using the given data



10. The assessed annual value of a house within the administrative domain of a certain municipal Council is Rs. 22 000, The quarterly rates payable on this property is Rs.275. Calculates the rates percentage charged by the council

11. Name a pair of triangle which are congruent and state the condition for congruent



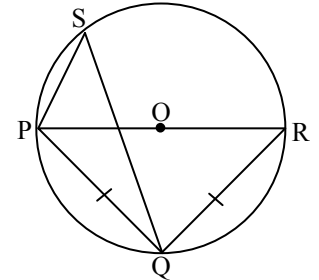
12. What is the total amount that has to be paid in two years to settle a loan of Rs. 200 000 taken at an annual simple interest rate of 12%.

13. If $2x + y = 9$ and $x + 2y = 2$ find $x - y$ without solving the equations

14. PR is a diameter of a circle with center is "O". The points P and Q are lie on the circle if $PQ=QR$ find the magnitude of

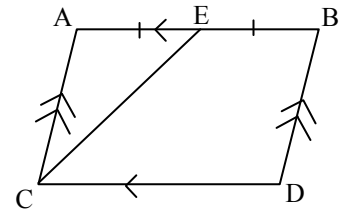
a. $\angle PQR$

b. $\angle PSR$



15. Area of the base of a cuboids shaped tank is 35cm^2 and its height is 40 cm , express its capacity in m^3

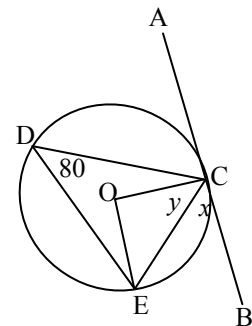
16. Write the ratio between the area of $\triangle AED$ and area of parallelogram ABCD using the given data on the diagram



17. Solve $\frac{1}{x} - 4 = \frac{1}{2x}$

18. calculate the surface area of a solid cylinder with base radius is a and the height is $3a$ in terms of a

19. Find the value of x and y using the data in the diagram



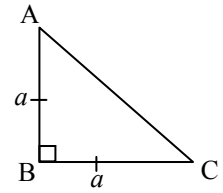
20. Write the gradient and intercept of the function $3y - 4x = 6$

a. Gradient

b. Intercept

21.

a. Find AC in terms of "a" using the given data on the diagram



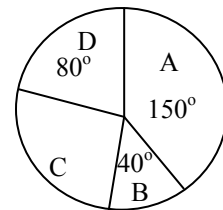
b. Find the magnitude of $\angle BAC$

22. Represent the inequality $-3 \geq x > 2$ on a number line

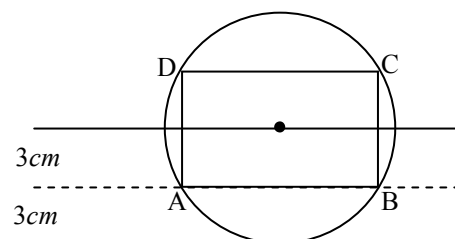
23. The pie chart shows the information regarding the marks of 720 students in a mathematics test

- A – Scored 18 – 25
- B – Scored 25 - 30
- C – Scored 30 – 40
- D – Scored greater than 40

Find the number of students those who scored 30 - 40



24. Sketch the locus of a point which is 3cm away from chord AB and 4 cm away from D, in a circle with radius 5cm in the given diagram



25. Find the LCM of $3a^2, 5ab^2$

Part B
Answer all questions on this paper itself

01. A father kept $\frac{1}{5}$ of his land for himself and gave $\frac{1}{2}$ of the remaining land to his daughter. He shared the remaining portion of the land among his 3 sons equally.

i. What fraction of the whole land was shared among children?

ii. What fraction of the whole land did the daughter get?

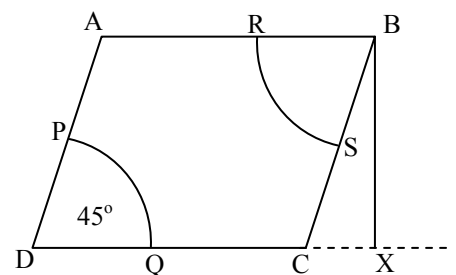
iii. What fraction of whole land was remained to be shared among the three sons?

iv. If a son gets 30 hectares, find the total area of land?

v. If the value of the portion of the land of the father is 4.5 million, What is the value at the land given to a son?

02. The metal plate ABCD shown here is a parallelogram. To make the badge ARSCQPA, a sector with angle 45° is cut and removed from that.

i. Find the area of PQD.



If the area of ARSCQP is 406cm^2 ,

ii. Find the perpendicular height BX at the parallelogram ABCD.

iii. Find the length of PQ.

iv. If the 13 small stones can be stud on the perimeter at ARSCQPA, within how many cm can a stone be stud?

03. a. There are three red pens and Two blue pens in a box 'P'. A pen was taken from the box and again put in the box and another pen was selected.(**With Replacement**) Consider this experiment.

i. Show the sample space in a grid

Use it to find the probabilities of the following events

ii. Both pens being the same colour

iii. The first pen being red?

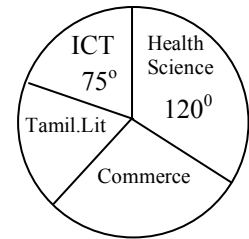
b. In another box 'Q' there is two red pens and one blue pen. A pen was taken from box 'P' and after marking its color it was put in the box 'Q'. Again a pen was taken from box 'Q'.

i. Draw the relevant tree diagram

ii. Find the probability of getting only a blue pen in both instances.

04. The pie chart shows the data obtained in a school related to basket subjects. Study the following pie chart and answer the following questions.

- i. If the number of students who like Tamil Literature is half of the number of students who like Health science, what is the sector of angle for Tamil literature?



- ii. If the number of students who like Health science and Tamil Literature is 40, Find the total number of students.

- iii. What is the sector of angle of the students who likes commerce subject?

- iv. 5 students, who took ICT, shifted to agriculture subject. Show it in a new pie chart.

- v. What is the ratio of the number of students who study commerce and ICT?

05. Mano, who import car from Japan, imported a car worth Rs. 80000000 and paid 40% of it as custom duty for a car.

i. How much was paid custom duty for a car?

ii. What is the value of a car after the custom duty is paid?

iii. At what price should the car be sold to make 20% profit?

iv. The annual assessed value of the land, where Mano's shop is Rs. 20000000, and the municipal council charged annual rates of 5%. Calculate the rate does Mano pay for a year?