බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
மேல் மாகாணக் கல்வித் திணைக்களம்
Department of Education - Western Province

වර්ෂ අවසාන ඇගයීම
ஆண்டிறுதி மதிப்பீடு - 2022 (2023 March)
Year End Evaluation

ශ්‍රේණිය தரம் Grade	විෂයය பாடம் Subject	පත්‍රය வினாத்தாள் Paper	කාලය காலம் Time
10	Mathematics	I	02 Hours

Name / Index No : .....

.....
Signature of invigilator

Important :

- This paper consist of 8 pages.
- Write your **index number** 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 examinor's use only

Question number		Marks
A	1 - 25	
B	1	
	2	
	3	
	4	
	5	
Total		

.....
Marked by

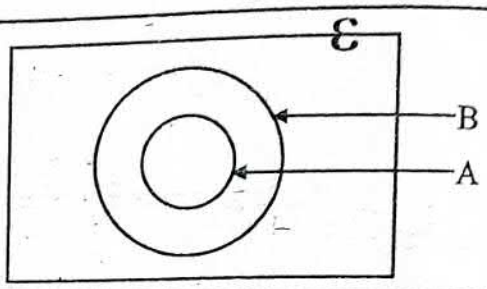
Part A

Answers all questions on this paper itself.

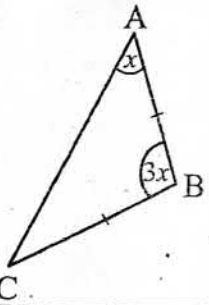
(01) A person got a loan of Rs. 50,000 with the simple interest rate 8% per annum. Find the interest amount should pay after 2 years.

(02) Find factors $49-x^2$.

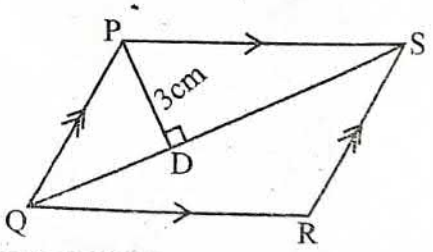
(03) Shade the region A' in the given Venn diagram.



(04) Find the value of x.

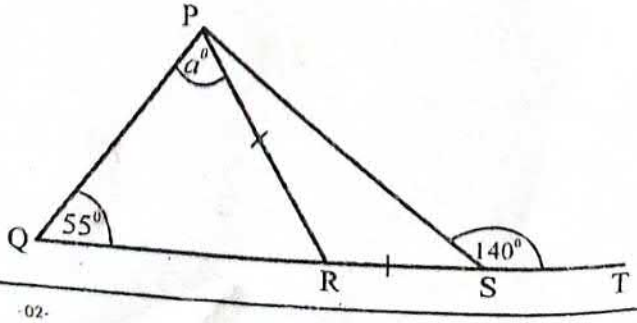


(05) In the given PQRS parallelogram QS = 8cm. Find the area of PQRS.



(06) If $5.5^2 = 30.25$, $5.6^2 = 31.36$, $5.7^2 = 32.49$, find the first approximation of $\sqrt{31}$

(07) Find the value of a.

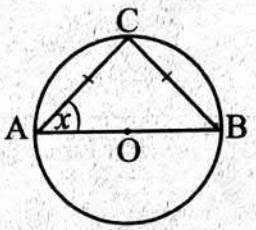


(08) Solve $(x-5)(x+2)=0$

(09) The length of cylindrical shaped a block of wood with the diameter 35cm is 1m. Find the curved surface area of it.
(Surface area of a cylinder with the radius 'r' and height 'h' is $2\pi rh$. Take $\pi=\frac{22}{7}$)

(10) Solve $\frac{4}{x}-1=7$

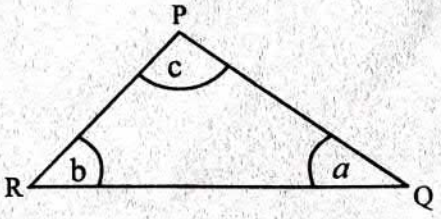
(11) Center of the given circle is O. Find the value of x.



(12) Select and underline the continuous data.
(a) Speed of a vehicle
(b) Distance between two cities.
(c) Number of letters received to an office during a day.
(d) Time spent to do studies by a student.

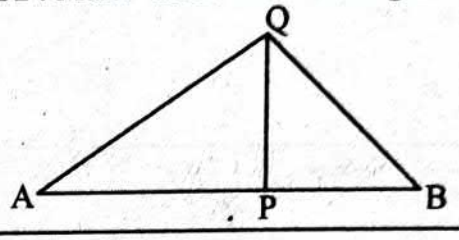
(13) Five men can finish $\frac{1}{4}$ of a work during 4days. How many days will it take to finish the complete work with 10 men?

(14) If $a+b=110^0$, $a+c=120^0$ in the given diagram find the value of $\hat{PQR}$



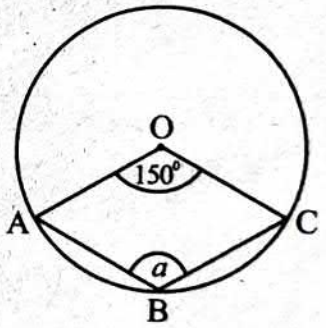
(15) Find the gradient of the line which passes through the points (2,1) and (3,1)

(16) In the given figure PQ is a light house and A and B are two boats. A person in the boat A observes the top of the light house Q with the angle of elevation is 25^0. A person who is at Q observes the boat B with the angle of depression 32^0. Mark these data on the given diagram. (Neglect the height of observers)



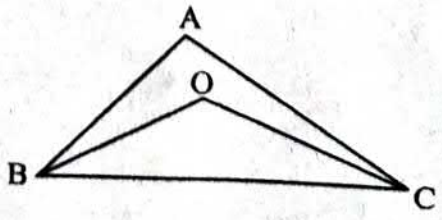
(17) Write the value of 'a' as a power of 3. $\log_3 a = 4$

(18) Center of the given circle is O. Find the value of a.



(19) If $5x - 4y = 9, x - 2y = 3$, find the value of $(x - y)$ without solving the equations.

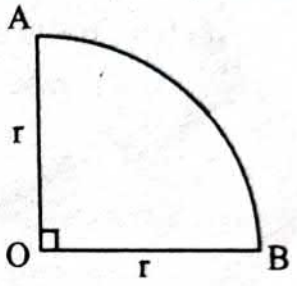
(20) In ABC triangle the bisectors of $A\hat{B}C$ and $A\hat{C}B$ meet at O. If $B\hat{A}C = 70^0$, find the value of $B\hat{O}C$



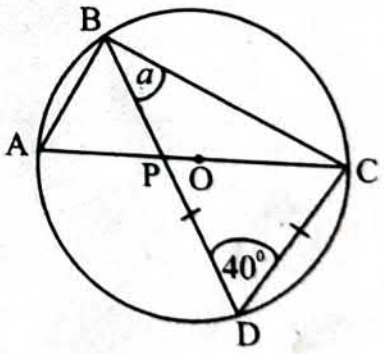
(21) Simplify $\frac{1}{3x^2} - \frac{7}{24x^2}$

(22) There are 6 identical cards in a box numbered as 1,1,2,2,4,4. When a card is taken out randomly write the probability of getting a card with a perfect square number.

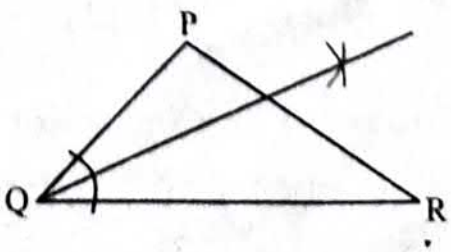
(23) The arc length of the given sector is 22cm. If the perimeter of the sector is 50cm, find the value of r.



(24) The centre of the given circle is O. If $\hat{BDC} = 40^0$ and PD = CD, find the value of a.



(25) This diagram shows an incomplete rough sketch of finding the location of D which is equidistance to sides PQ and QR and equidistance to the point P and Q. Complete the rough sketch using the remain constructions to find D which is located in the triangle. Mark the point D.



Part - B

Answers all questions on this paper it self.

(01) Samadara plucked mangoes from her garden and removed 10 spoiled mangoes from it. she kept $\frac{1}{4}$ of the mangoes which is suitable to use for her consumption. The rest is shared among her neighbors and her 3 brothers.

(i) What is the fraction of mangoes she shared from the mangoes which are suitable to use?

(ii) If she gave $\frac{2}{5}$ of shared portion to neighbors, what is the fraction of mangoes given to the neighbors?

(iii) If the rest of the mangoes are shared among her brothers equally, what is the fraction of the number of mangoes given to a brother out of total number of shared mangoes?

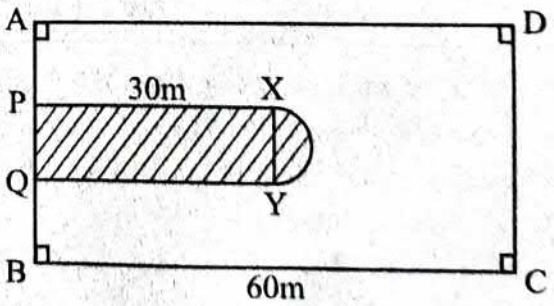
(iv) The number of mangoes given to a neighbor is 18 more than the number of mangoes given to a brother. Find the total number of mangoes plucked by Samadara from her garden.

(02) ABCD rectangular land is shown in the figure. Flowers are grown in the shaded portion and the grass are grown in the rest of the area. The area which is grown flower contain a rectangular part and a semi circular part with the diameter of 14m. AP = PQ = QB.

(i) Find the area of the semi circular part.

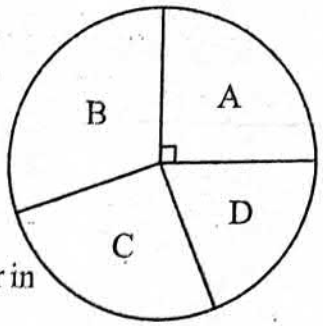
(ii) Find the area which is grown flower.

(iii) Find th area which is grown grass.



(iv) To build a fence around the area which grown flowers for the sake of security it is costed Rs. 5 000 for 1m. Find the cost have to spent to build the fence.

(03) A factory has four sections which are A, B, C and D. The total number of workers in the factory is 864. The given pie chart is drawn according to the number of workers in each section.



(i) Find the number of workers in section A.

(ii) If there are 264 workers in section C, find the angle of sector in section C.

(iii) The Number of workers in section B is thrice the number of workers in section D. Find the numbers of workers in section B and D separately.

(iv) According to the requirement of service of some workers in section B are transferred to the section D. The angle at the sector of section D after the above changes is 55° in a new pie chart According to that find the number of workers changed from section B to section D.

(04) (a) Nimal has a trading business within the administrative domain of a certain urban council. Rs. 750 has to be paid as quarterly rates for his business of assessed annual value Rs. 50 000 which lies within the limits of the urban council.

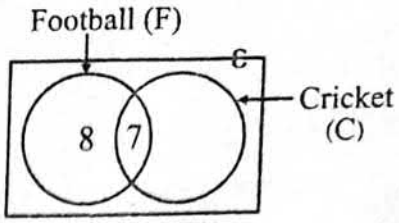
(i) Find the amount has to be paid as rates for a year.

(ii) Find the percentage that the urban council charges as rates.

(b) According to the given table Nimal pays Rs. 52 000 as income tax per annum. Find his annual income.

Annual Income (Rupees)		Tax percentage
First	500,000/-	0%
Next	500,000/-	4%
Next	500,000/-	8%

(05) (a) This incomplete Venn diagram shows the number of students who play football (F) and cricket (C) in a class.



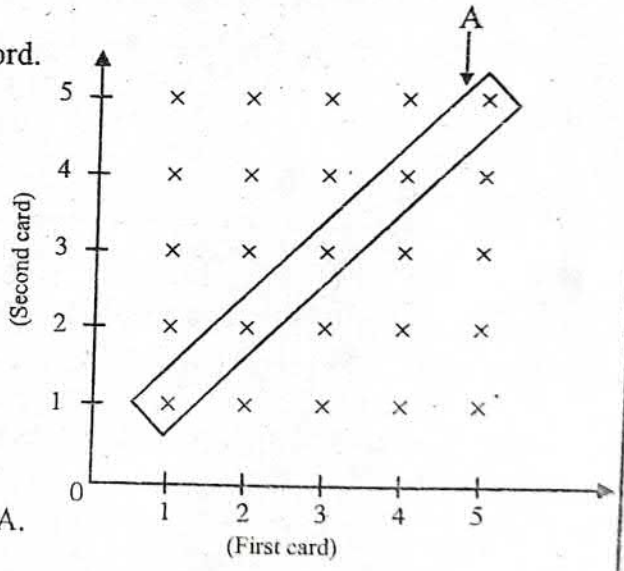
(i) How many students are participated for both games?

(ii) If 19 students play cricket how many students play cricket only?

(iii) There are 32 students in the class. Find the probability of a student selected randomly being not playing any of these two games.

(b) A box contains identical cards numbered as 1,2,3,4,5. One card is taken out randomly, its number is recorded and then put back in to the box. A card is randomly taken from the box again and number is recorded. The sample space given below for the above purpose drawn on a grid by Saman.

(i) Describe the incident A by word.



(ii) Find the probability of getting A.

(iii) If the event of "sum of both numbers on the card is 8 or greater than 8" is B mark the event B on the grid. Find P (B).

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மேல் மாகாணக் கல்வித் திணைக்களம்
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වර්ෂ අවසාන ඇගයීම
ஆண்டிறுதி மதிப்பீடு 2022 (2023 March)
Year End Evaluation

ශ්‍රේණිය தரம் Grade	10	විෂයය பாடம் Subject	Mathematics	පත්‍රය வினாத்தாள் Paper	II	කාලය காலம் Time	03 hours

- Write answers for 10 question by taking 05 questions from part A and 05 questions from part B
- Each question carries 10 marks.
- Volume of a right circular cylinder is $\pi r^2 h$ when the radius r and height h.

Part - A

Answer 05 questions only.

(01) A frequency distribution containing information on the number of water units used by 40 houses in a housing scheme during a month is given below.

No. of water units	6-10	10-14	14-18	18-22	22-26	26-30	30-34	34-38
No. of houses	2	3	5	6	9	7	5	3

(i) Write the model class of this distribution.

(ii) Find the mean number of water units used by a house during this period.

(iii) "The minimum numbers of water units wanted for this housing scheme is 852 for 30 days." Do you agree for the above statement? Give reasons.

(02) Gunasiri got a loan of Rs. 45 000 with the simple interest rate of 20% per annum. After 06 months he paid Rs. 25 000 from the loan and the interest amount for the total loan for 06 months.

(i) Find the interest amount for the first 06 months.

(ii) Find the total amount he paid after first 06 months.

(iii) He paid the rest of the loan and the relevant interest amount to finish the loan at the end of the year. Find the total amount he paid at the end of the year.

(iv) Find the profit or loss gain by Gunasiri by paying the loan in two occasions, without paying the total at once at the end of the year.

(03) An incomplete table containing x and y values suitable to draw the graph of the quadratic function $y=6-x^2$ is given below.

x	-3	-2	-1	0	1	2	3
y	-3		5	6	5	2	-3

(a) (i) Find the value of y when $x=-2$

(ii) Using the standard system of axes and a suitable scale, draw the graph of the given function on graph paper.

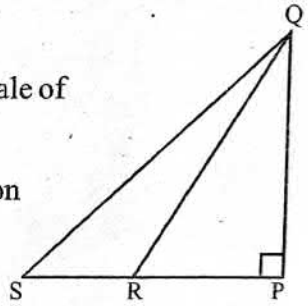
(b) Using the graph.

(i) Write the interval of values of x for which the function is positive

(ii) Write the solution of the equation $x^2=6$

(c) Write an equality and inequality between the graph you drew and the graph $y=x^2-6$

(04) This diagram shows PQ vertical tower which is on a flat ground and point R is 30m away from it. The angle of elevation of the point Q which is on the top of the tower from R is 52^0. A wire with the length of 60m is attached to Q from S where S is located in the same direction of R from P.



(i) Draw a scale diagram for above data by using the scale of 1cm represent 6m.

(ii) Find the height of the tower and the angle of elevation of the top of the tower from S.

(05) (a) Find the factors. $x^2(m-n)+y^2(n-m)$

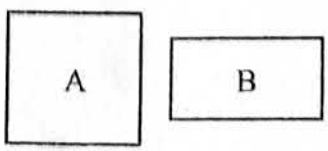
(b) The amount P had is half of the amount Q had. If Q gives Rs. 10 to P the amount they have is equal.

(i) By taking the amount P had as Rs. x and Q had as Rs. y build up a pair of simultaneous equation.

(ii) By solving it find the amount each P and Q had.

(06) A is a square and B is a rectangle. These statements are given below about A and B

- Length of a side of A is (x) cm.
- Length of a side of B is 4cm less than the length of a side of A. Width of B is $(x-6)$ cm.
- Area of A is 3 times of the area of B.



(i) Show that x satisfies the equation $x^2-15x+36=0$

(ii) By solving the equation in (i) find the value of x.

Part - B

Answer 05 questions only.

(07) A student cut a wire for an activity such that the length of the smallest wire with 12cm and the difference between two consecutive rest of wires with 5cm.

(i) Find the length of the piece of 10^{th} wire.

(ii) Which piece of wire gives the length 42cm?

(iii) Find the length of wire needed to cut 25 pieces of wires.

(08) Use only a pair of compass, a straight edge with cm/mm scale for the following constructions. Show the constructed lines clearly.

(i) Construct the triangle ABC such that AB = 7cm, BC = 9cm and $A\hat{B}C = 60^0$

(ii) Construct the perpendicular bisectors of the sides AB and BC. Name the intersecting point of bisectors as O.

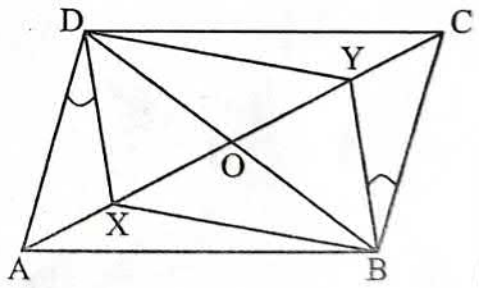
(iii) Construct the circle with the centre as O and radius as OA.

(iv) Join CO and extend it to meet the circle at M.

(v) By joining the suitable points using straight lines identify a right angled triangle and name it. Give reasons for your answers.

(09) (a) Write properties of a parallelogram.

(b) ABCD is a parallelogram. Diagonals are intersecting at O. X and Y points are on AC such that $A\hat{D}X = C\hat{B}Y$ show that DXBY is a parallelogram.



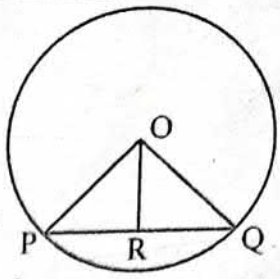
(10) (a) If $A = \frac{12.74 \times 2.98}{16.37}$ find the value A to the nearest 2^{nd} decimal point using logarithmic tables.

(b) The length of the base of one side of the square based cuboidical shaped metal block is "a" units and height is "h" units. It is melted and made 8 cylinders with the diameter of "a" units and height with "$2a$" units without any wastage. Show that $h = 4\pi a$

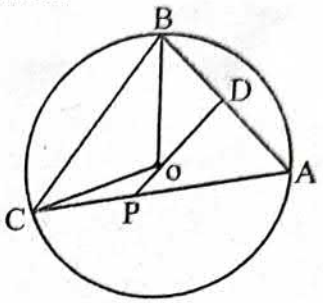
(11) (a) Centre of the given circle is O. If PR = RQ

(i) Show that PRO Δ ≡ QRO Δ

(ii) Show that OR and PQ perpendicular.



(b) Centre of the circle is O and A, B and C points are on the circle.
Mid point of AB is D. Show that $A\hat{P}D = O\hat{C}B$

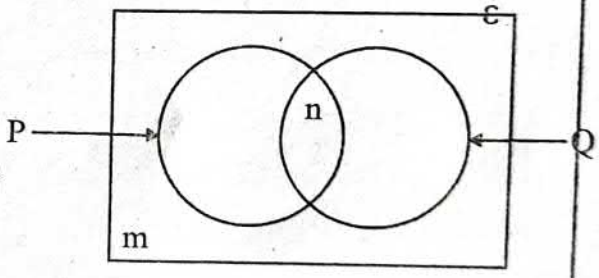


(12) (a) Sunil tossed an unbaised one rupee coin and two rupees coin at once.

(i) Represent all possible out comes on a tree diagram.

(ii) Using the tree diagram find the probability of getting head at least from one coin.

(b) This Venn diagram shows information about children who are members of a children's society.



ε = {Members in the children's society}

P = {Boys in the children's society}

Q = {Grade 10 students in the children's society}

(i) Describe the region represented by the letter 'm' in words.

(ii) Write the region represented by the letter 'n' in set notation.

(iii) By copying the Venn diagram on your answer script, shade the region $P' \cap Q$.