සියලුම හිමිකම් ඇවිරිණි/முழுப் பதிப்புரிமையுடையது/All Rights Reserved

බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
මේල් මාකාණක් කල්විත් තිණෙක්කළම්
Department of Education - Western Province

වර්ෂ අවසාන ඇගයීම - 2023 (2024)
ஆண்டிறுதி மதிப்பீடு - 2023 (2024)
Year End Evaluation - 2023 (2024)

5874

ශ්‍රේණිය தரம் Grade	11	විෂය பாடம் Subject	Mathematics	පත්‍රය வினாத்தாள் Paper	I	කාලය காலம் Time	2 Hours

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

Index No :- .....

Certifed Correct

.....
Signature of Invigilator

Imporatant :

- This paper consists of 8 pages.
- 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.
- It is necessary to indicate the relevant steps and the correct units in answering the questions.
- Marks will be awarded as follows.
  In part A
  2 marks for each questions.
  In part B
  Ten marks for each questions.
- Blank papers can be obtained for scratch work.

For marking Examiner`s use only		
Part	Questions Number	Marks
A	1 - 25	
B	1	
	2	
	3	
	4	
	5	
Total		

..... First Examiner	..... Code Number
..... Second Examiner	..... Code Number
..... Arithmetic Checker	..... Code Number
..... Chief Examiner	..... Code Number

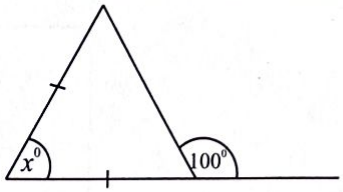
Part A

Answer all questions on this questions paper itself.

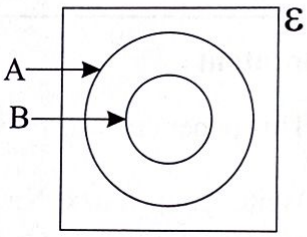
(01) Find the total interest has to pay in three months, if a person borrowed Rs 5000 at a monthly simple interest rate of 5%

(02) Simplify $\frac{3ax}{5y} \div \frac{6a}{xy}$

(03) Find the value of x , based on the information in figure.

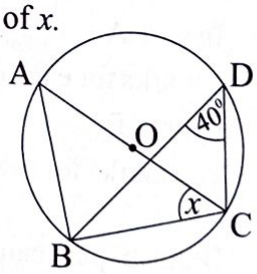


(04) Shade the region $A \cap B'$ in the given Venn diagram.



(05) Solve $\frac{x}{2} - \frac{x}{3} = 3$

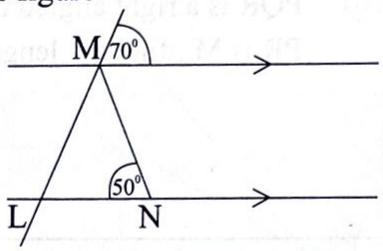
(06) The centre of the given circle is O. If $\overset{\wedge}{BDC} = 40°$ find the value of x.



(07) Find the inter quartile range of the given data set.
2, 4, 5, 5, 7, 7, 7, 8, 9, 10, 12

(08) Find the least common multiple of $4xy$, $3x^2$ and $6y^2$

(09) Find the magnitude $L\hat{M}N$ based on the information in the figure

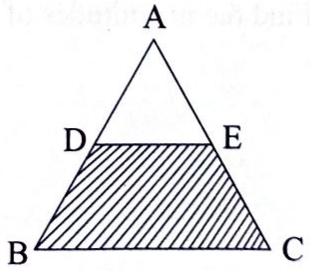


(10) Two fair tetrahedronal dice numbered from 1 to 4 are rolled simultaneously. Find the probability of getting the two odd numbers.

(11) If $\log_{10} a = -2$, write the value of a in positive index form.

(12) Solve $x^2 - 9 = 0$

(13) The length of a side of the ABC equilateral triangle given in the figure is 10cm. If the mid points of the sides AB and AC are D and E respectively, find the perimeter of the quadrilateral BCED.



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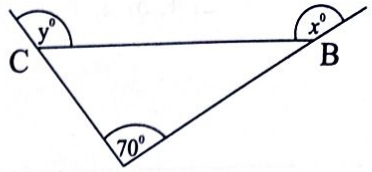
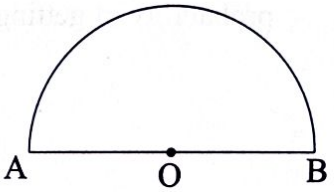
(14) Find the value of x+y based on the information in the figure.



(15) Find the gradient of the straight line which goes through the points (0,4) and (6,0)

(16) PQR is a right angled triangle. If $\hat{PQR} = 90°$, PR=10cm and the midpoint of the side PR is M , find the length of QM.

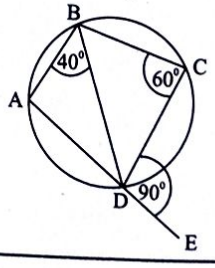
(17) The diagram shows a semi circular lamina with radius 14cm and the centre O. A cone with vertex O is made by folding it to coincide OA and OB. Find the curved surface area of the cone.



(18) Find the factors . $3x^2+2x-5$

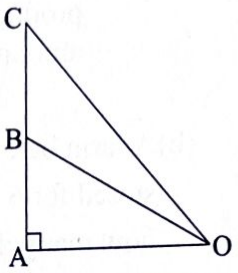
(19) The first term of a geometric progression is $\frac{1}{2}$ and the common ratio is 2. Find the 8^{th} term of it.

(20) The diagram shows a cyclic quadrilateral ABCD. The side AD is produced up to E . Find the magnitudes of $\hat{BAD}$ and $\hat{CBD}$ based on the information in the figure.



(21) The speed of the cyclist is 60kmh $^{-1}$. Find the time taken by him in seconds to cross a bridge which is 100m long.

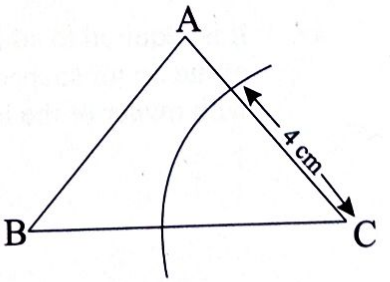
(22) A person observes a point B on a vertical post AC from the point O which is at a certain distance from the foot of the post. The angle of elevation of the point B from O is 30°.The angle of depression of the point O form the point C is 50° when observed from the top of the post. Mark the given information on the diagram .



(23) The curved surface area of a solid circular cylinder with radius 7cm is 440cm^2. Find the height of it. (Take the value of π as $\frac{22}{7}$)

(24) The assessed annual value of a house is Rs 300 000. The quarterly rates payable on this property is Rs 2250. Find the rates percentage charged by the council.

(25) An incomplete sketch is given to find a point which is equidistant to the sides AB and AC of the triangle ABC and 4 cm from the point C. Complete the sketch using the suitable constructions and mark the point.



Part B

Answer all questions on this question paper itself.

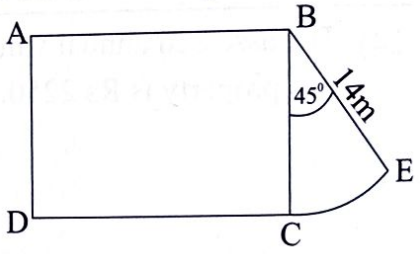
(01) (a) $\frac{3}{5}$ of the domestic milk consumption is imported milk powder and $\frac{1}{6}$ of milk consumption is produced by the local companies as milk powder.

i. What fraction of the milk is supplied as milk powder for domestic consumption.

ii. $\frac{3}{7}$ of the remaining milk requirement is fulfilled by the liquid milk which is produced by local companies and the rest is supplied by the domestically produced liquid milk. What fraction of the total milk consumption is the amount of liquid milk produced domestically.

(b) A farm belonging to a local liquid milk manufacturing company has enough food stored for 6 days to 50 dairy cows. After 2 days 10 cows are taken to another farm, how many days will the remaining food is sufficient ?

(02) A figure shows a land consisting of a rectangular plot of land ABCD and a sector shaped plot of land. The radius of the sector is 14m and the central angle is 45°.



i. Find the area of the sector.

ii. The area of the rectangular plot of land is four times the area of the sector. Find the length of the rectangle.

iii. If a fence is to be built around this land, find the length of the fence.

iv. It is required to add a rectangular plot of land that is of area equal to the area of the sector shaped land instead of the sector shaped land after discussing with owner of the land. Find the total length of the land.

(03)(a) Sithuka invested Rs. 60 000 and bought shares in a certain company at the market price of Rs. 40 per share. The company pays annual dividends of Rs. 5 per share.

i. Find the number of shares he bought.

ii. Find the annual dividends income he received from this investment.

iii. At the end of the year, if he sold all the shares at the price of a share is Rs 50, find the capital gain he received.

(b) The amount of Rs 50 000 he received from selling the shares is deposited in a bank for 2 years which pays 8% annual compound interest. Find the total amount he received at the end of 2 years.

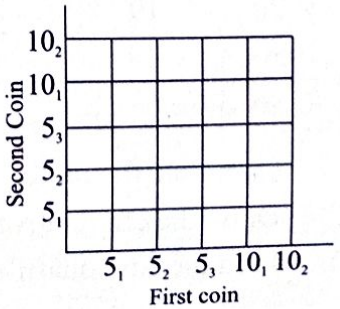
(04) (a) In a match consisting of two rounds, only those who win the first round can proceed to the second round . The probability of winning the game in first round is $\frac{2}{3}$. The probability of lossing the game in second round is $\frac{2}{5}$.

i. Draw a tree diagram relevant to both rounds and marks the probabilities on it.

ii. If one person selected randomly who participated for this game, find the probability of winning the both rounds by him.

iii. If 120 contestants enter the competition, how many contestants can be expected to lose in the second round.

(b) Vishmi has three Rs. 5 coins and two Rs. 10 coins. Vishmi randomly picks two coins from it and put them into a till.

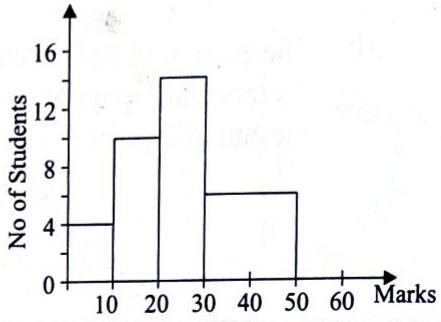


i. Represent the sample space relevant to the above event on the given grid with ' X '

ii. Encircle the event that both coins she put in the till are same value and find its probability.

iii. Find the probability of being that the value of the two coins she puts in the till is Rs 15

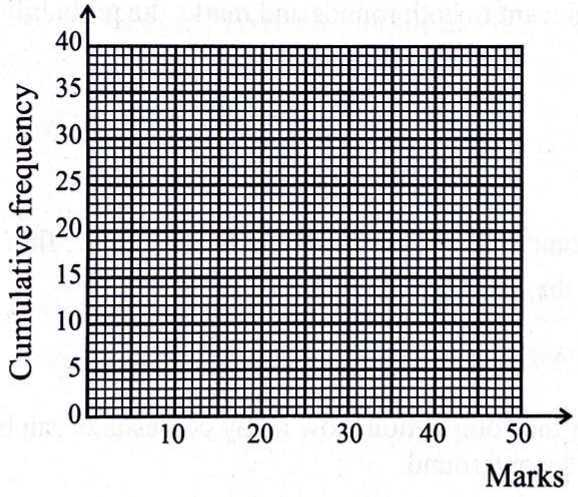
(05) (a) This histogram represents the information about the marks obtained by a group of students in a test carrying a total of 50 marks.



i. What is the total students participated for the test.

ii. Draw the frequency polygon on this histogram.

(b) In an incomplete frequency distribution prepared by using the above histogram is given below.



Class interval	Frequency (f)	Cumulative frequency
0-10	4	4
10-20	10	14
20-30	14	28
30-50	----------	----------

i. Complete the table

ii. Draw the cumulative frequency curve on the cartesian plan.

iii. Find the first quartile using the curve

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மேல் மாகாணக் கல்வித் திணைக்களம்
Department of Education - Western Province

වර්ෂ අවසාන ඇගයීම - 2023 (2024)
ஆண்டிறுதி மதிப்பீடு - 2023 (2024)
Year End Evaluation - 2023 (2024)

5874

ශ්‍රේණිය தரம் Grade	විෂයය பாடம் Subject	පත්‍රය வினாத்தாள் Paper	කාලය காலம் Time
11	Mathematics	II	3 Hours

Additional Reading Time - 10 minutes

- Answer 10 questions selecting 5 questions from part A and 5 questions from part B.
- Each questions carries 10 marks only.
- The volume of a cone of base radius r and height h is $\frac{1}{3}\pi r^2 h$
- Volume of a sphere with the radius as 'r' is $\frac{4}{3}\pi r^3$

Part A
Answer 05 questions only

(01) The price of a mobile phone is Rs. 60000 when it is buying for outright purchase. It can be bought by making a down payment of Rs. 12000 and paying the rest in 20 equal monthly installments of Rs. 2778. If the interest on the loan is calculated on the reducing loan balance, find the annual interest rate.

(02) An incomplete table of y values corresponding to several x values of the quadratic function $y = 4 - (x+1)^2$ is given below.

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

(a) i. Find the value of y when $x = 0$

ii. Using the standard system of axes and a suitable scale, draw the graph of the given quadratic function.

(b) Using the graph that you drew,

i. Write the equation of the axis of symmetry and the maximum value of the function.

ii. Write the interval of values of x on which the function is decreasing negatively.

(c) Find the value of $\sqrt{2}$ by considering the intersection point of graph and the straight line $y = 2$ to the nearest first decimal place.

(03) i. A is a square shaped lamina. B is right angled triangle and the length of a side with right angle is equal to the side of the square A. The length of the other side of right angle is 2cm more than it. The area of the square shaped lamina is $8cm^2$ more than the area of the triangular shaped lamina. Taking the side length of the lamina A as x, show that x satisfy the equation $x^2-2x-16=0$

ii. Taking $\sqrt{17}$ as 4.12 find the side length of the lamina A

iii. Show that the area of the triangular shaped lamina is given by 2.56×7.12

(04) (a) The amount of money Sahan had is equal to the twice of the money Vihaga had. When Sahan gave Rs. 50 to Vihaga, both of them have equal amount of money . Taking the amount of money Vihaga had as Rs y and the amount of money Sahan had as Rs.x. Construct a pair of simulataneous equations. Solve the equations and find the amount of money had Vihaga and Sahan had seperately.

(b) solve

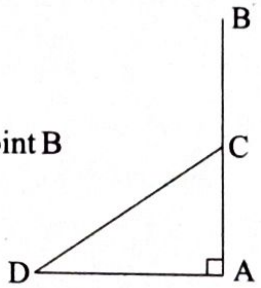
$$\frac{P}{2} - \frac{P+2}{3} = \frac{3}{4}$$

(05) The vertical post AB is situated on the horizontal ground. The angle of the elevation of point C in the middle of post AB, when seen from the point D which is 10m from the foot of the post AB is 53°

i. Copy the diagram and mark the given information on it.

ii. Find how far is point C from point A.

iii. Show that $A\hat{E}B > 60°$ if a wire 30m long is tied from the point B to a point E on the straight line AD.



(06) The units of water consumed in a month by 50 house holds receiving water from a community water project are shown in the table given below.

No of units	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45
Number of houses	4	5	8	12	10	8	3

i. Find the mean number of units of water consumed by a house per month.

ii. Taking 1 unit as $1000l$, find the mean quantity of water consumed by a house per day in litres.

iii. If the minimum water consumption of each house maintained in a month, show that the minimum of water consumption of all houses in a month exceeds 1250 units.

Part B
Answer 5 questions only

(07) An athlete is training for a marathon race on a track of 200m. In the first day he runs 2 rounds, In the second day he runs 5 rounds, third day he runs 8 rounds so on he does the practice as a pattern by increasing the number of rounds.

i. Find the number of rounds he run on the 7^{th} day after starting the training.

ii. After how many days he completes the 29 rounds .

iii. Find the total distance covered by a sportsman who has practiced 10 days continuosly in kilometers.

(08) Use only a straight edge with cm/mm scale and a pair of compasses for the following constructions.

i. Construct the triangle PQR such that $PQ = 7cm$, $\hat{QPR} = 60°$ and $QR = 6.5cm$.

ii. Construct a parallel line to PQ through R.

iii. Construct a circle which goes through the points Q and R and the centre is on that parallel line. Name the centre of the circle as O.

iv. Measure and write the radius of the circle.

v. Name the intersection point of the circle and the produced line RO as S and construct a tangent to the circle at S.

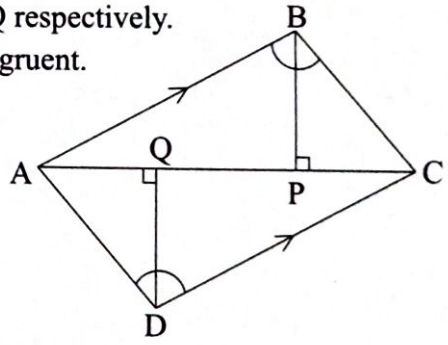
(09) (a)Write a requirment that a quadrilateral must satisfy to be a parallelogram.

(b)In a quadrilateral ABCD, $\hat{ADC} = \hat{ABC}$ and AB // CD. The perpendiculars drawn from points B and D to AC are BP and DQ respectively.

i. Show that triangles ABC and ADC are congruent.

ii. Show that ABCD is a parallelogram

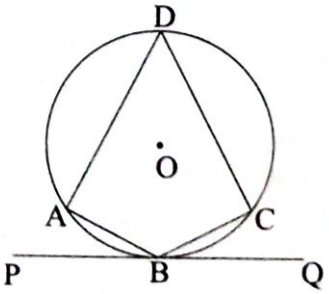
iii. Show that $BP = DQ$



(10) ABCD is a cyclic quadrilateral in the given figure. The tangent drawn to the circle is PBQ. The centre of the circle is O.

i. Show that $\hat{ADC} = \hat{ABP} + \hat{CBQ}$

ii. If AB = CB , show that $\hat{AOC} = 4\hat{CBQ}$



(11) (a) A solid hemisphere with radius a cm is melted and made a cone with radius $\frac{a}{2}$ cm and height h cm without any wastage of the metal. Show that the height of the cone $h = 8a$.

(b) Simplify using the logarithms table.

$$\frac{(3.47)^2 \times 0.525}{\sqrt{1.761}}$$

(12) (a) There are 200 students in grade 11 of a mixed school. Out of that 110 students are girls. 30 of the girls studying music and 45 are studying information technology. An incomplete Venn diagram given below to represent the given data.

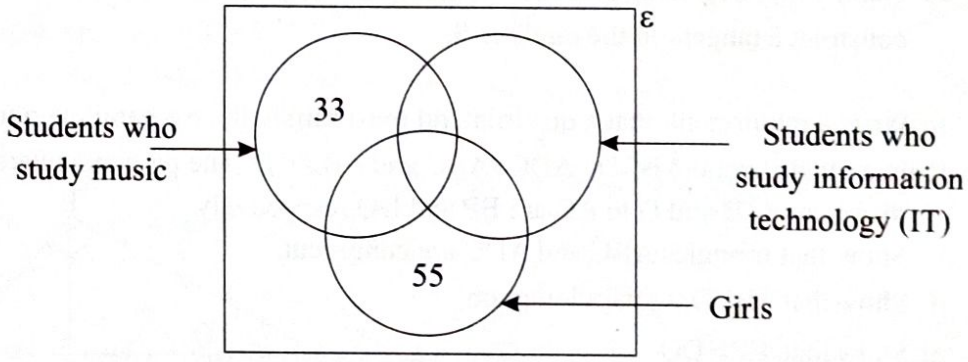
i .Copy the incomplete Venn diagram given in the figure and include the above given information in it.

ii. How many girls study both the above subjects.

iii. Shade the region which shows boys studying IT.

iv. If the total number of students studying IT is 78, find the number of boys who are not studying either music or IT.

v. Find the probability of a girl studying at least one of the above two subjects.



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ඕනෑම පොතක් ඉක්මනින්
නිවසටම ගෙන්වා ගන්න

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පෙර පාසලේ සිට උසස් පෙළ දක්වා සියළුම ප්‍රශ්න පත්‍ර,
කෙටි සටහන්, වැඩ පොත්, අතිරේක කියවීම් පොත්, සඟරා
සිංහල සහ ඉංග්‍රීසි මාධ්‍යයෙන් ගෙදරටම ගෙන්වා ගැනීමට

www.LOL.lk වෙබ් අඩවිය වෙත යන්න