



Mn / Sithyvinayakar Hindu College (National School – Mannar)

மன் / சித்திவிநாயகர் இந்துக்கல்லூரி (தேசிய பாடசாலை – மன்னார்)

First Term Exam – 2019
முதலாந்தவணைப்பரீட்சை- 2019

Grade -11
தரம் - 11

32 - Mathematics Paper – II
32 - கணிதம் வினாத்தாள் - II

Time – 3 Hour
நேரம் - 3 மணித்தியாலம்

Part – II

- Answer **ten** questions **select five questions** from **part A** and **five questions** from **part B**
- Each question carries 10 marks.
- The volume of solid cylinder of radius r is $\pi r^2 h$. The volume of solid right circular cone of base radius r and height h is $\frac{1}{3}\pi r^2 h$.

Part – A

01. A complete table of values of x and y prepared to draw the graph of function $y = a - x^2$

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

- i. Find the value of “ a ” using the table
 - ii. Using the scale of 10 small divisions as one unit along the x -axis and 10 small divisions as one unit along the y -axis, draw the graph of above function
 - iii. Write down the interval values of x for which the value of y increases positively
 - iv. Write down the coordinates of the turning point $y = 5 - x^2$
 - v. Write down the equation of the graph whose minimum value is -3 and which intersects the x -axis at the same point as that of the graph $y = -x^2$
02. a) When import a motor car worth 2000US dollars 20% charged as income tax,
- i. If the value of a US dollar is Rs.160, Find the value of the motor car in Sri Lankan rupees before income tax paid
 - ii. Find the income tax should be paid?
 - iii. Find the value of motor car after income tax paid?
 - iv. Find the selling price of the motor car if the motor car sold with 10% profit

03.

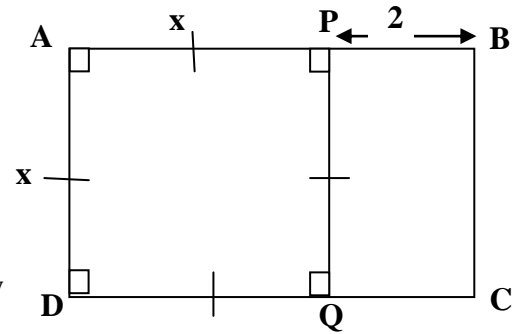
- i. Expand. $(x + 2)^3$
- ii. Simplify. $x^{\frac{5}{3}} \div \sqrt[3]{x^2}$
- iii. Simplify. $\frac{5ab}{x^2} \div \frac{a^2}{4xy}$
- iv. Solve. $\frac{2}{a-2} + \frac{1}{2(a-2)} = 1$

04. Solve the following simultaneous equation. $2x - y = 6$

$$x + 2y = 13$$

b) Area of rectangle ABCD is 63cm^2

- i. Write the re of ABCD in terms of x
- ii. Construct suitable quadratic equation and find the value of x by solving the equation



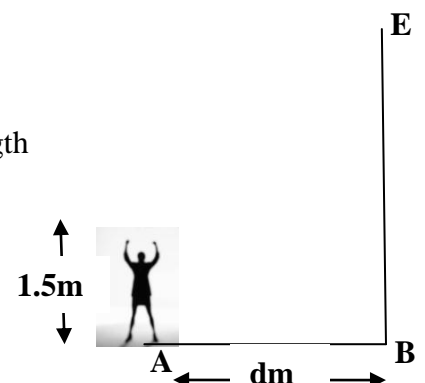
05. a)

Time (hours)	0	1	2	3	4	5	6	7
distance (Km)	0	5	10	15	20	20	20	25

- i. draw the distance time graph for the above information
 - ii. Find the speed of car for first 4 hours
 - iii. How much time car take rest
 - iv. Find average speed of the car
- b) How much times taken to a motor pump which pumps 200l per minute to fill a tank of capacity 6m^3 ?

06. BE is a vertical post on a level ground. An observer is standing at point A dm away from the post. The height of the observer is 1.5m . The observer at the point A observes the top of the post with an angle of elevation 40° and the foot of the post with angle of depression 20°

- i. Represent the information in sketch diagram
- ii. Raw a scale diagram with scale 1cm represented by 50cm of actual length
- iii. Using the diagram, Fin the value of d and height of the post in meters.



Part – B

07. In a shop bars of soap are stacked on top of each other on rack in such a way that the bottom row has 24 bars, the row above that has 21 bars and row above that has 18 bars and so on

- Find the number of bars in the 8th row from the bottom?
- If the top bar has 3 bars of soap, find the total number of rows in a rack?
- Find the total number of soaps in the rack?
- If the bar of soap is 5cm height. Find the minimum height the rack should be to enable all the rows of soap to be place on it?

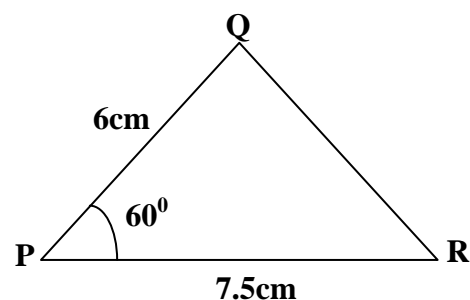
08. A distribution of marks obtained by 40 students at a test is given below

Class (Interval marks)	20-30	30-40	40-50	50-60	60-70	70-80
Frequency (No. of students)	3	6	11	8	7	5

- What is the modal class of the above distribution?
- Find the mean mark obtained by a student?
- If all who obtained more than 40 marks considered successful. Fin the percentage of students being successful in the test?

09. Using only straight edge with scale cm/mm an pair of compasses an showing the construction lines clearly

- Construct triangle PQS by considering the figure
- Construct the straight line go through S and parallel to PQ
- Construct a perpendicular to the parallel line you draw from Q.
Name the base of the perpendicular as R.
- What is the special name of the quadrilateral PQRS
- Measure and write down the length of RQ
- Find the area of the quadrilateral PQRS



10. There is a solid metallic cone of radius “a” and height 6 times of the radius

- Find the height of the cone in terms of a
- Find the volume of the cone in terms of π and a

A cylinder of base radius 2a and height h is made by melting the above cone without wastage

- Show that the height of cylinder $h = \frac{a}{2}$.
- Find the value by using logramathic table. $\sqrt[3]{21} \times 5.2^2$

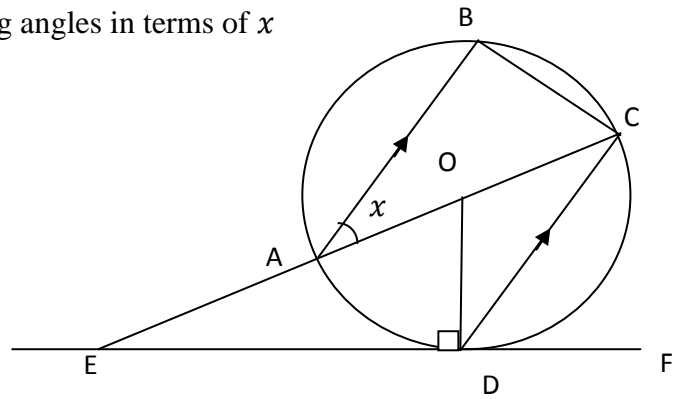
11. In the figure, O is the center of the circle AB and CD are parallel to each other

i. Find the magnitude of \widehat{ABC} Give reason for your answer

ii. If $\widehat{BAC} = x$ Find the magnitude of the following angles in terms of x

- 1) \widehat{ECD}
- 2) \widehat{EOD}
- 3) \widehat{EDC}

iii. Show that $\widehat{BCA} = \widehat{CDF}$



12. ABCD is a parallelogram, Diagonal AC and BD are intersect at O

- i. Show that $\triangle DOQ \cong \triangle POB$
- ii. P and Q are the points on AB and DC, show that midpoint of PQ is O
- iii. Show that $AP = QC$

