



MACRO VISION ACADEMY, BURHANPUR

Sample Paper

Class: XI (A)

Mathematics Stream

Time 2:00 Hrs. M.M.: 100

Office Use

Student's Name:- _____ Father's Name:- _____

City:- _____ Mobile No:- _____ Exam Date:- _____

Studying in Class:- _____ Appearing for Class:- _____ Board:- MP/CBSE/Other _____

Mathematics (50)	Physics (15)	Chemistry (15)	English (20)	OBTAINED MARKS (100)

Mathematics (50)		
❖	State Euclid's division lemma. Ans.	1
❖	Write the number of solutions of linear equation: $x + 2y - 8 = 0$ $2x + 4y = 16$ Ans.	1

❖	Write the value of k for which the quadratic equation $x^2 - kx + 4 = 0$ has equal roots. Ans.	1
❖	What is the distance between two parallel tangents of a circle of radius 4 cm? Ans.	1
❖	One card is drawn at random from a well shuffled deck of 52 cards. What is the probability of getting an ace? Ans.	1

❖	<p>The king, queen and jack of clubs are removed from a deck of 52 playing cards and the well shuffled. One card is selected from the remaining cards. Find the probability getting a heart. Ans.</p>	2
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❖	<p>If $AB \parallel CD$, find the value of x.</p> <div style="text-align: center;"> </div> <p>Ans.</p>	2
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❖	<p>Prove that :</p> $\frac{\sin \theta}{1 - \cos \theta} = \operatorname{cosec} \theta + \cot \theta$ <p>Ans.</p>	2
❖	<p>If the difference of mode and median of a data is 24, then find the difference of median and mean.</p> <p>Ans.</p>	2

❖	Find a point on the y-axis which is equidistant from the point A(6, 5) and B(-4, 3). Ans.	2
❖	Prove that $\sqrt{3}$ is an irrational number. Ans.	3

❖

Solve:

$$\frac{5}{x+y} - \frac{2}{x-y} = -1$$

$$\frac{15}{x+y} + \frac{7}{x-y} = 10,$$

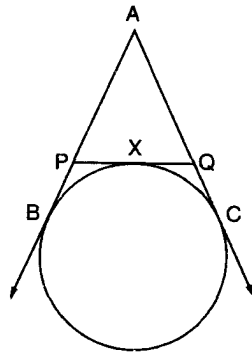
where $x+y \neq 0$ and $x-y \neq 0$.

Ans.

3

❖ If AB , AC , PQ are tangents as shown in fig and $AB = 5$ cm, find the perimeter of $\triangle APQ$.

3



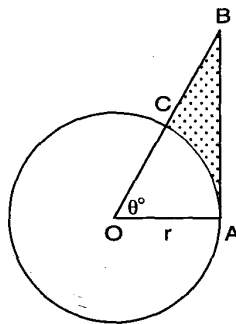
Ans.

❖	<p>A pole has to be erected at a point on the boundary of a circular park of diameter 13 metres in such a way that the difference of its distance from two diametrically opposite fixed gates A and B on the boundary is 7 metres. Is it the possible to do so? If yes, at what distances from the two gates should the pole be erected?</p> <p>Ans.</p>	5
❖	<p>The angles of elevation of the top of a tower from two points at distances a and b metres from the base and in the same straight line with it are complementary. Prove that the height of the tower is \sqrt{ab} metres.</p> <p>Ans.</p>	5

❖ Figure shows a sector of a circle, centre O, containing an angle θ° . Prove that:

➤ Perimeter of the shaded region is $r \left(\tan \theta + \sec \theta + \frac{\pi \theta}{180} - 1 \right)$

➤ Area of the shaded region is $\frac{r^2}{2} \left(\tan \theta - \frac{\pi \theta}{180} \right)$



5

Ans.

- ❖ Rachel, an engineering student was asked to make a model in her workshop, which was shaped like a cylinder with two cones attached to its two ends, using thin aluminium sheet. The diameter of the model is 3 cm and its length is 12 cm. If each cone has a height of 2 cm, find the volume of air contained in the model that Rachel made.
Ans.

5

Physics (15)

❖ ➤ Define potential difference between two points in a conductor.

Ans.
.....
.....
.....
.....

➤ Name the instrument used to measure the potential difference in a circuit. How is it connected?

Ans.
.....
.....
.....

3

	<p>➤ A current of 2 A passes through a circuit for 1 minute. If potential difference between the terminals of the circuit is 3 V, what is the work done in transferring the charges?</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p>	
❖	<p>➤ Draw magnetic field lines of a bar magnet.</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>➤ "Two magnetic field lines never intersect each other". Why?</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>➤ An electric oven of 1.5 kw is operated in a domestic circuit (220 V) that has a current rating of 5 A. What result do you expect in this case? Explain.</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p>	3
❖	<p>What is a windmill? With the help of a diagram, describe in brief the construction and working of a windmill. Give uses of wind energy.</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	3
❖	<p>A 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. Give the location of image and magnification. Describe what happens to the image as the needle is moved farther from the mirror.</p>	3

	<p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
❖	<p>➤ What will be colour of the sky in the absence of atmosphere?</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>➤ Why are the traffic light signals (or danger signals) of red colour?</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p>	3
Chemistry (15)		
❖	<p>Define the following with example:</p> <p>➤ Displacement reaction</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>➤ Redox reaction</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>➤ Corrosion</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p>	3
❖	<p>State reason for the following statements:</p> <p>➤ Tap water conducts electricity whereas distilled water does not.</p> <p>Ans.</p> <p>.....</p> <p>.....</p> <p>.....</p>	3

	<p>➤ Dry hydrogen chloride gas does not turn blue litmus red whereas dilute hydrochloric acid does. Ans.</p> <p>➤ During summer season, a milk man usually adds a very small amount of baking soda to fresh milk. Ans.</p>	
❖	<p>Write the names and symbols of two most reactive metals. Explain by drawing electronic structure how any one of the two metals react with a halogen. Ans.</p>	3
❖	<p>➤ Why does carbon form largest number of compounds? Ans.</p> <p>➤ Why are some of these called saturated and other unsaturated compounds? Ans.</p> <p>➤ Write the names of the following compounds</p> <p>i) $CH_2 - CH_2 - Br$ Ans.</p> <p>ii) $CH_3 - CH_2 - CH_2 - CH_2 - C \equiv C - H$ Ans.</p>	3
❖	<p>An element 'X' has mass number 35 and number of neutrons 18. write atomic number and electronic configuration of 'X'. Also write group number, period number and valency of 'X' Ans.</p>	3

(English 20)

5

❖ Read the passage given below and answer the questions that follow:

The Amazon is the world's largest tropical rainforest. It is roughly the size of the continent of Australia and covers an area of nearly 2.8 million square miles. The Amazon rainforest gets its life from the majestic Amazon River which runs through the heart of the region. Amazon is also the second largest river in the world. The rainforest is simply the drainage basin for the river and its tributaries. The vast forest consists of four layers, each featuring its own ecosystems and specially adapted plants and animals.

The forest floor is the lowest region. Since only two percent of the sunlight can filter through the top layers to the understory very few plants grow there. The forest floor, however, is rich with rotting vegetation and bodies of dead animals which quickly break down and get integrated into the soil as nutrients. Tree roots stay close to these available nutrients and decomposers such as millipedes and earth worms use these nutrients for food.

The understory is the layer above the forest floor. Much like the forest floor, only about 2 to 5 percent of the sunlight reaches this shadowy realm. Many of the plants in the understory have large, broad leaves to collect as much sunlight as possible. The understory is so thick that there is very little air movement. As a result, plants rely on insects and animals to pollinate their flowers.

The layer above the understory is the canopy. This is where much of the action in the rainforest occurs. Many plants growing in this layer have specially adapted leaves with drip tips. Drip tips allow water to flow off the leaves and thus prevent mosses, fungi and lichens from infecting the leaves. Leaves in the canopy are very dense and filter about 80 percent of the sunlight. The canopy is where the wealth of the rainforest's fruits and flowers grow.

Answer the following questions.

➤ Which is the world's second largest river?

Ans.
.....

➤ How important is the Amazon River for Amazon rainforests?

Ans.
.....

➤ Why do very few plants grow in the understory of the rainforests?

Ans.
.....

➤ Why is there very little air movement in the understory?

Ans.
.....

➤ What is the layer above the understory called?

Ans.
.....

3

❖ Ecotourism means responsible travel to natural areas conserving the environment and improving the well-being of local people. The Ecotourism society of India works towards making India a preferred ecotourism destination. Write a letter to the Editor suggesting ways to strengthen ecotourism in our country. You are Vikram Singh Rathore.

❖	<p>Change the following sentence passive voice.</p> <p>➤ The post master brought a letter .</p> <p>Ans.</p> <p>➤ The poet had composed a poem.</p> <p>Ans.</p>	2
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ROUGH WORK