



GUNDECHA EDUCATION ACADEMY, KANDIVALI (E).
FINAL ROUND OF ASSESSMENT- 2021-2022

CLASS: X

MATHEMATICS

DATE: 14.02.2022

Reading Time: 10 minutes

MARKS: 40

Writing Time: 1½ hrs.

Students are required to follow the instructions mentioned below:

- i. Write the answers on Perforated Sheets / Full-scape Papers
- ii. Use a black/blue ball-point pen for writing the answers.
- iii. Write your full name, Class, Subject and Date on the top of every Answer Paper.
- iv. Write the Page No. on the top of every Answer Paper in the form of 1/5, 2/5, 3/5 etc.
- v. Once all the questions are attempted, the student should scan the answer sheets and convert the same into a single PDF File with the answer sheets in sequence.
- vi. All the scanned pages should be only in one PDF file and named as 'Your Name Class Batch Subject Date'. "**NAME XB MATHEMATICS 140222**".
- vii. For example, if Shreya Chopra is submitting her Economics paper, then her pdf file name must be named as "**SHREYA CHOPRA XB MATHEMATICS 140222**".
- viii. Finally, students are requested to attach the papers in the Edu sprint + app and submit the same within 15 minutes after the writing time gets over.

*Attempt all questions from Section A and any three questions from Section B.
The intended marks for questions or parts of questions are given in brackets []
This Paper consists of 6 printed pages.*

SECTION A

(Attempt all questions from this Section.)

Question 1

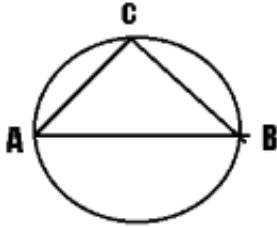
Choose the correct answers to the questions from the given options. (Do not copy the question, Write the correct answer only.)

[10]

- i. The reflection of the point P (-2, 3) in the y axis is
 - a) (2, 3)
 - b) (2, -3)
 - c) (-2, -3)
 - d) (-2, 3)

- ii. The radii of two circular cylinders are in the ratio 5:3. The ratio of their volumes are
 - a) 8: 5
 - b) 16: 15
 - c) 25 : 9
 - d) 13: 8

- iii. In the figure given below, AB is a diameter of the circle. If $AC = BC$ then $\angle CAB$ is equal to
- 30°
 - 60°
 - 90°
 - 45°



- iv. If P (-1, 1) is the mid- point of line joining A(-3, b) and B (1, b+4), then the value of b is
- 1
 - 1
 - 2
 - 0
- v. $\frac{\operatorname{cosec}^2 A}{1+\cot^2 A}$ is equal to
- 0
 - $\operatorname{Cosec} A$
 - 1
 - $\operatorname{Cot} A$
- vi. Construction of a cumulative frequency distribution table is useful in determining the
- Mean
 - median
 - mode
 - all the three measures
- vii. The slope of line perpendicular to the line passing through the points (2,5) and (-3,6) is
- $-\frac{1}{5}$
 - 5
 - 5
 - 15

- viii. The curved surface area of cylinder is 5500 cm^2 and the circumference of the base is 110 cm. height of the cylinder is
- 14 cm
 - 50 cm
 - 35 cm
 - 15 cm
- ix. The marks scored by 16 students in a class test are: 3, 6, 8, 13, 15, 5, 21, 23, 17, 10, 9, 1, 20, 21, 18, 12. Find its lower quartile.
- 5
 - 6
 - 13
 - 18
- x. Which of the following cannot be the probability of an event?
- $\frac{3}{4}$
 - $\frac{3}{5}$
 - 1.001
 - 0.6

SECTION B

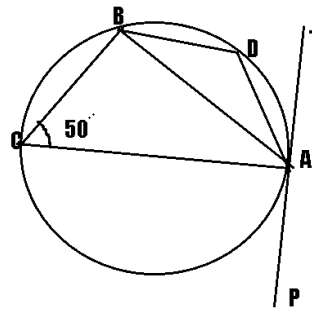
(Attempt any three questions from this Section.)

Question 2

- a) In what ratio is the line joining P (5, 3) and Q (-5, 3) divided by the y- axis? Also find the coordinates of the point. [2]
- b) A lot of 20 bulbs contains 4 defective bulbs. One bulb is drawn at a random from the lot. What is the probability that this bulb is
- defective
 - not defective. [2]
- c) Two men on either side of a temple 75m high observed the angle of elevation of the top of the temple to be 30° and 60° respectively. Find the distance between two men. [3]

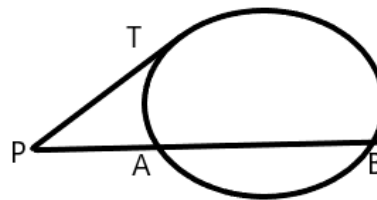
- d) In the given figure, PAT is tangent at A. If angle ACB = 50°, find
 (i) angle TAB
 (ii) angle ADB.

[3]



Question 3

- a) If PB = 9 cm, AB = 5 cm, find PT. [2]



b) $\frac{1}{1+\sin A} + \frac{1}{1-\sin A} = 2\sec^2 A$ [2]

- c) A right circular cone is 36 cm high and radius of its base is 18 cm. It is melted and recast in to a cylinder of radius 12 cm. find the height of the cylinder. [3]

- d) The monthly income of a group of 280 employees in a company is given below:

Monthly Income (Rs)	6000 – 7000	7000 – 8000	8000 – 9000	9000 – 10000	10000 – 11000
No of employees	20	45	65	90	60

Using a graph paper, draw an ogive for the above distribution. Use your ogive to estimate the median. [3]

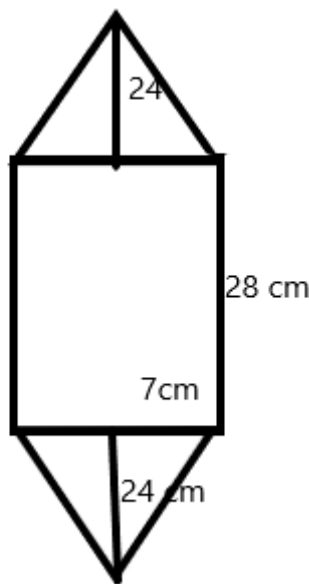
Question 4

- a) Find the equation of a line passing through (3, -2) and perpendicular to the line $3x - y = 5$. [3]

- b) Find the mean for the following distribution. Give your answer to one decimal place. [2]

Class interval	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No of employees	2	6	9	4	2

- c) In the given figure, there are two cones and one-cylindrical part. The radii of two cones and cylinder is 7 cm. if heights of the two cones and cylinder be 24 cm, 24 cm, 28 cm respectively, find the total volume of the solid. [3]

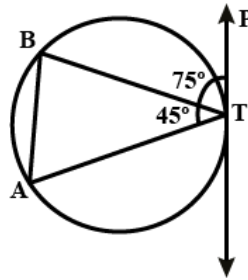


- d) Use graph paper for this question. Take 2 cm = 1 unit on both axes. Plot the following points: A (2,2), B (2, -2), C (0, -1) and D (0,1).
 (a) Reflect the points A and B on y-axis, name it as A'B' and Write down the coordinates of A' and B'.
 (b) Name two points which are invariant under the above reflection.
 (c) Name the polygon A'B'CD. [3]

Question 5

- a) Prove that: $\cot^2 A - \cos^2 A = \frac{\cos^2 A}{\tan^2 A}$ [2]

- b) In a given figure PT is a tangent to a circle. If $\angle BTA = 45^\circ$ and $\angle PTB = 75^\circ$. Find $\angle ABT$. [2]



- c) The coordinates of two points P and Q are (1, 4) and (2, -1) respectively, find the:
 (a) Slope of line PQ
 (b) Equation of line PQ
 (c) Coordinates of the point where the line PQ intersects x-axis. [3]
- d) Draw a histogram to the following distribution and hence find the mode. [3]

Height (cm)	145 – 155	155 – 165	165 – 175	175 – 185	175 - 195
No of persons	5	35	25	15	20

Question 6

- a) In a game of cards numbered 1 to 30, one card is drawn at a random. Find the probability that a card drawn is
 (a) Divisible by 6
 (b) A prime number [2]
- b) The three vertices of a parallelogram are (3, 4), (3, 8) and (9, 8). Find the fourth vertex. [2]
- c) From the top of a cliff of 400 m high, a man observes the angles of depression of two boats A and B on the same side of the cliff as 30° and 45° respectively. If the foot of the cliff and the two boats are in the same horizontal line, find the distance between the two boats, A and B. Give your answer to 3 significant figures. [3]
- d) If the mean of the following distribution is 22, then find the value of p. [3]

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	12	16	6	p	9