

Muneef



**TAGORE INTERNATIONAL SCHOOL  
EAST OF KAILASH, NEW DELHI**

**REVISION TEST (2024 - 2025)  
MATHEMATICS  
CLASS - X  
SET- 2**

**Date: 11.11.2024  
No. of pages: 4**

**Duration: 1 hour 30 minutes  
M. Marks: 40**

**GENERAL INSTRUCTIONS**

1. All questions are compulsory
2. This question paper has 4 sections, A, B, C and D.
3. Section A has **5 MCQs** and **1 assertion and reasoning** carrying **1 mark** each.
4. Section B has **5 questions** of **2 marks** and **5 questions** of **3 marks**.
5. Section C has **1 case study-based** question of **4 marks**.
6. Section D has **1 long answer type** question of **5 marks**.

**SECTION -A**

1. If  $P(A)$  denotes the probability of an event A, then (1 mark)  
(a)  $P(A) < 0$                       (b)  $P(A) > 1$                       (c)  $0 \leq P(A) \leq 1$                       (d)  $-1 \leq P(A) \leq 1$
2. In a circle of radius 21 cm, an arc subtends an angle of  $60^\circ$  at the centre. The area of the sector formed by the arc is: (1 mark)  
(a)  $200 \text{ cm}^2$                       (b)  $220 \text{ cm}^2$                       (c)  $231 \text{ cm}^2$                       (d)  $250 \text{ cm}^2$
3. The class interval of a given observation is 10 to 15, then the class mark for this interval will be: (1 mark)  
(a) 11.5                      (b) 12.5                      (c) 12                      (d) 14
4. The probability that a non-leap year selected at random will contain 53 Sundays is (1 mark)  
(a)  $1/7$                       (b)  $2/7$                       (c)  $3/7$                       (d)  $5/7$
5. If we change the shape of an object from a sphere to a cylinder, then the volume of cylinder will (1 mark)  
(a) increase                      (b) decrease                      (c) remains unchanged                      (d) doubles

6. DIRECTION: In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option. (1 mark)

**Assertion:** Total surface area of the cylinder having radius of the base 14 cm and height 30 cm is  $3872 \text{ cm}^2$ .

**Reason:** If  $r$  be the radius and  $h$  be the height of the cylinder, then total surface area =  $(2\pi rh + 2\pi r^2)$ .

- a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.  
b) Both Assertion and Reason are true and Reason is not the correct explanation of Assertion.  
c) Assertion is true but Reason is false.  
d) Assertion is false but Reason is true.

### SECTION -B

7. To warn ships about underwater rocks, a lighthouse spreads red-coloured light over a sector of angle  $80^\circ$  to a distance of 16.5 km. Find the area of the sea over which the ships are warned. (2 marks)
8. A solid is in the shape of a cone standing on a hemisphere, with both their radii being equal to 1 cm and the height of the cone being equal to its radius. Find the volume of the solid in terms of  $\pi$ . (2 marks)
9. A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be (2 marks)  
(i) red?  
(ii) white?
10. A lot consists of 144 ball pens, of which 20 are defective, and the others are good. Nuri will buy a pen if it is good, but will not buy it if it is defective. The shopkeeper draws one pen at random and gives it to her. What is the probability that (2 marks)  
(i) She will buy it?  
(ii) She will not buy it?
11. A survey conducted on 20 households in a locality by a group of students resulted in the following frequency table for the number of family members in a household: (2 marks)

<b>Family size</b>	1 - 3	3 - 5	5 - 7	7 - 9	9 - 11
<b>Numbers of Families</b>	7	8	2	2	1

Find the mode of this data.

- 12 A brooch is made with silver wire in the form of a circle with a diameter 35 mm. The wire is also used in making 5 diameters which divide the circle into 10 equal sectors, as shown in the figure given below. Find: (3 marks)



- (i) the total length of the silver wire required.  
 (ii) the area of each sector of the brooch.
- 13 A box consists of 90 discs that are numbered from 1 to 90. When one disc is drawn randomly from the box, find out the probability that it has on it (3 marks)
- (i) a two-digit number  
 (ii) a perfect square number  
 (iii) a number divisible by 5.
- 14 A tent is in the shape of a cylinder surmounted by a conical top. If the height and diameter of the cylindrical part are 2.1 m and 4 m, respectively, and the slant height of the top is 2.8 m, find the area of the canvas used for making the tent. Also, find the cost of the canvas of the tent at the rate of ₹ 500 per m<sup>2</sup>. (3 marks)
- 15 A spherical glass vessel has a cylindrical neck 8 cm long and 2 cm in diameter; the diameter of the spherical part is 8.5 cm. By measuring the amount of water it holds, a student finds its volume to be 345 cm<sup>3</sup>. Check whether she is correct, taking the above as the inside measurements and  $\pi = 3.14$ . (3 marks)
- 16 The following distribution shows the daily pocket allowance of children of a locality. The mean pocket allowance is ₹18. Find the missing frequency  $f$ . (3 marks)

Daily pocket allowance (in ₹)	11 - 13	13 - 15	15 - 17	17 - 19	19 - 21	21 - 23	23 - 25
Number of children	7	6	9	13	$f$	5	4



**SECTION-C**

**CASE STUDY- BASED QUESTION**

- 17 In a coffee shop, coffee is served in two types of cups. One is cylindrical in shape with diameter 7 cm and height 14 cm and the other is hemispherical with diameter 21 cm.



Based on the above information, answer the following questions.

- (i) Find the area of the base of the cylindrical cup. (1 mark)
- (ii) What is curved surface area of the cylindrical cup? (1 mark)
- (iii) What is the capacity of the hemispherical cup? (2 marks)

**SECTION-D**

- 18 100 words were randomly picked up from a dictionary and the frequency distribution of the number of letters in the words was obtained as follows: (5 marks)

Number of letters	1-4	4-7	7-10	10-13	13-16	16-19
Number of words	6	30	40	16	4	4

Determine the median number of letters in the words. Also, find the modal size of the words.

East OR West  
Infinity is Best