## **MATHEMATICS**, Paper - I

(English version)

## (Parts A and B)

Time: 2 hrs. 45 min.]

[Maximum Marks: 40

## Instructions:

- 1. 15 minutes of time is allotted exclusively for reading the Question paper and 2.30 hours for writing the answers.
- 2. Part A answers should be written in separate answer book.
- 3. There are three sections in Part- A.
- 4. Answer all questions.
- 5. Every answer should be written visibly and neatly.
- 6.. There is an internal choice in section-III of Part- A.

Part - A

Time: 2.00 Hours

Marks: 30

## SECTION - I

 $(Marks: 4\times 1=4)$ 

**NOTE:** (i) Answer **all** the questions.

- (ii) Each question carries 1 mark.
- 1. Find the HCF of 60 and 100 by using Euclid division lemma.
- **2.** Write  $A = \{3, 9, 27, 81\}$  in set-builder form.
- 3. Find the value of k for which the pair of equations 2x + ky + 3 = 0, 4x + 6y 5 = 0 represent parallel lines.
- 4. Find the volume of right circular cone with radius 3 cm. and height 14 cm.

NOTE: (i) Write answers to all questions.

- (ii) Each question carries 2 marks.
- 5. Find the zeroes of the polynomial  $x^2 3$  and verify the relationship between the zeroes and the coefficients.
- 6. How many three digit numbers are divisible by 3?
- 7. A solid iron rod has a cylinderical shape. Its height is 11 cm and base diameter is 7 cm. Then find the total volume of 50 rods.
- 8. Find the roots of  $x + \frac{6}{x} = 7$ ,  $x \neq 0$ .
- 9. Length of a rectangle is 2 units greater than its breadth. If the area of the rectangle is 120 sq. units, then find its length.

**SECTION - III** 

 $(Marks: 4\times 4=16)$ 

NOTE:

- 1. Answer all the questions.
- 2. Each question carries 4 marks.
- 10. (a) Hari went to a bank to withdraw ₹ 2000. He asked the cashier to give the cash in ₹ 50 and ₹ 100 notes only. He got 25 notes in all. Can you tell how many notes, each of ₹ 50 and ₹ 100, he received?

OR

(b) How many spherical balls can be made out of a solid cube of lead, whose edge measures 66 cm. and each ball being 3 cm. in radius? 11. (a) Show that  $\sqrt{3}$  is irrational.

OR

(b) If  $A = \{x : x \text{ is a natural number}\}$ 

 $B = \{x : x \text{ is an even number}\}\$ 

 $C = \{x : x \text{ is an odd number}\}\$ 

 $D = \{x : x \text{ is a prime number}\}\$ 

then find  $A \cup B$ ,  $A \cap C$ ,  $B \cap C$  and  $B \cap D$ . What do you notice?

12. (a) The sum of the reciprocals of Rehman's age, (in years) 3 years ago and 5 years from now is  $\frac{1}{3}$ . Find his present age.

OR

- (b) If the sum of first 7 terms and 15 terms of an A.P. are 98 and 390 respectively, then find the sum of first 10 terms.
- 13. (a) Solve the quadratic polynomial  $p(x) = x^2 x 6$  by graphical method.

OR

(b) The perimeter of a rectangular plot is 32 m. If the length is increased by 2 m. and the breadth is decreased by 1 m., the area of the plot remains the same. Find the length and breadth of the plot. (Use graph)

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