

MATHEMATICS: PAPER - 1**Time: 2.45 Hrs.****Marks: 40****PARTS - A & B****Instructions:**

1. Read All questions
2. Part A answer 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 Visibility and neatly.
6. There is internal choice in section - III.

PART - A**Time: 2.15 Hrs.****Marks: 30****SECTION - I****4x1=4 M****Note: 1. Answer all questions****2. Each questions carries 1 Mark.**

1. Check whether - 3 and 3 are zeroes of polynomial $x^2 - 9$ or not?
2. Write the following sets in the set-builder form.
 - (i) {3, 6, 9, 12}
 - (ii) {5, 25, 125, 625}
3. Age of Sita is five times to age Geetha. Represent the line equation to data.
4. Find the volume of a metallic sphere of radius 21 cm.

SECITON - II**5x2=10M****Note: 1. Answer all questions.****2. Each question Carries 2 marks.**

5. Write $2 \log 3 + 3 \log 5 - 5 \log 2$ as a single logarithm.
6. Find two numbers whose sum is 27 and product is 182.
7. Solid cylinder of brass 8m height and 4m diameter is melted and recast into a cone of diameter 3m. Find the height of the cone.
8. Find a quadratic polynomial, the sum and product of whose zeroes are -3 and 2, respectively.
9. Check whether the following equations are consistent or inconsitent.

$$2x - 3y = 8$$

$$4x - 6y = 9$$

Note: 1. Answer all questions:

2. Choose any one from each question. Each question carries 4 Marks.

10(a). Solve the following system of equations using the method of elimination.

$$x + y = a + b, \quad ax - by = a^2 - b^2$$

(or)

10(b). How many spherical bullets can be made out of a solid cube of lead whose edge measures 44cm, each bullet being 4cm is diameter.

11(a). Find the 12th term of a G.P. whose 8th term is 192 and the common ratio is 2.

(or)

11(b). The difference of squares of two numbers is 180. The squares of the smaller number is 8 times the larger number. Find the two numbers.

12(a). Without actually performing division, state whether the following rational numbers will have a terminating decimal form or a non-terminating, repeating decimal form.

i) $\frac{11}{12}$

ii) $\frac{23}{2^3 5^2}$

iii) $\frac{64}{455}$

iv) $\frac{77}{210}$

(or)

12(b). $A = \{1, 2, 3, 4\}$, $B = \{1, 2, 3, 4, 5, 6, 7, 8\}$ then find $A \cup B$, $A \cap B$ what do you notice about the result.

13(a). Draw the graph of the given polynomial and find the zeroes. Justify the answers.

$$p(x) = x^2 - 6x + 9$$

(or)

13(b). Check whether the following equations are consistent or inconsistent. Solve them graphically.

$$2x + y - 6 = 0$$

$$4x - 2y - 4 = 0$$

PARTS - B**Time: 30 Min****Marks:10****Instructions:**

1. Answer all the question in Part-B
2. Each question has 4 options. Write the capital letter in indicating the answer in the given brackets.
3. Marks are not awarded for over writing answer.
4. All questions carry equal marks.

Note: 1. Answer all the questions in Part-B.**2. Each Question carries 1/2 Mark.****SECITON - IV****20x1/2=10M**

14. The LCM of a^2b^3c , ab^4c^2 and a^3bc^3 is ()
 a) abc b) $a^3b^4c^3$ c) $a^3b^3c^3$ d) $a^6b^8c^6$
15. $\log_{10}^{10000} =$ ()
 a) 1 b) 2 c) 3 d) 4
16. $n(A)13, n(A \cup B) = 22, n(A \cap B) = 3$ then $n(B) =$ ()
 a) 12 b) 13 c) 14 d) 5
17. The roots of the quadratic equation $x^2 - 7x + 10 = 0$ ()
 a) 5, -2 b) -5, 2 c) 5, 2 d) -5, -2
18. If the roots of $x^2 + kx + 49 = 0$ are equal then K = ()
 a) ± 4 b) ± 7 c) ± 14 d) ± 8
19. If $a_1 = 9$ and $r = \frac{1}{3}$ in a G.P. then $a_7 =$ ()
 a) 3^{-2} b) 3^{-3} c) -3^4 d) 3^{-4}
20. The square of any positive integer is of the from ()
 a) $3P$ b) $3P+1$
 c) $3P+2$ d) $3P$ or $3P+1$ or $3P+2$
21. If α, β are zeroes of $ax^2 + bx + c = 0$ then $\alpha^2\beta + \alpha\beta^2$ ()
 a) $\frac{bc}{a^2}$ b) $\frac{-bc}{a^2}$ c) $\frac{b+c}{a}$ d) $\frac{c-b}{a}$
22. The pain of linear equation $a_1x + b_1y + c_1 = 0, a_2x + b_2y + c_2 = 0$ is linearly dependent if ()
 a) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ b) $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ c) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ d) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

23. Which of the following is a quadratic equation ()

a) $x^3 + 6x^2 + 1 = 0$ b) $4x^2 - \frac{1}{3x^2} = 0$ c) $x + \frac{1}{x} = 3$ d) $x^2 + \frac{1}{x} = 0$

24. If α, β, γ are the roots of $ax^3 + bx^2 + cx + d$ then $\alpha\beta\gamma$ ()

a) $\frac{b}{a}$ b) $\frac{-c}{a}$ c) $\frac{-d}{a}$ d) $\frac{d}{a}$

25. The common difference of the progression $a-b, a, a+b \dots$ is ()

a) $-2b$ b) $-b$ c) b d) $2b$

26. The ratio of radii of two spheres is 7:8 then the ratio of their total surface area is ()

a) 8:7 b) 64:49 c) 49:64 d) 7:8

27. The decimal form of $\frac{32}{1000}$ is ()

a) 0.32 b) 0.032 c) 3.2 d) 0.0032

28. If a cylinder and cone are of the same radius and height then the number of cone full of oil can fill the cylinder is ()

a) 1 b) 2 c) 3 d) 0

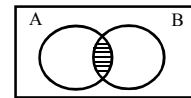
29. To find the quantity of earth taken out to dig a well we find ()

a) Volume of cone b) TSA of cone
c) Volume of cylinder d) TSA of cylinder

30. Drum in the shape of a ()

a) Frustum b) Cone c) Cylinder d) Hemisphere

31. The shaded part of the diagram represents ()

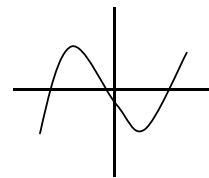


a) $A-B$ b) $B-A$ c) $A \cup B$ d) $A \cap B$

32. A pair of linear equations represent two coincident lines then the number of solutions of the system is ()

a) 1 b) 2 c) 4 d) infinite

33. The number of zeroes of the polynomial representing the figure is ()



a) 1 b) 2 c) 3 d) 4