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T. B. C. : AS – 2

Test Booklet Series

Serial No.

05189

A**TEST BOOKLET**
SPECIAL RECRUITMENT OF A. S. O.
MATHEMATICS**Time Allowed : 1 Hour****Maximum Marks : 100****: INSTRUCTIONS TO CANDIDATES :**

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1. For any two positive integers r and s , $\text{HCF}(r, s) \times \text{LCM}(r, s) =$
 - (A) $r \times s$
 - (B) $r \times r - s$
 - (C) $r + s \times s$
 - (D) None of the above

2. $5 - \sqrt{3}$ is :
 - (A) Rational
 - (B) Irrational
 - (C) Rational and irrational both
 - (D) None of the above

3. Let p be a prime number. If p divides m^2 , where m is a positive integer then :
 - (A) p does not divide m
 - (B) mp is always an even number
 - (C) p divides m
 - (D) None of the above

4. $8\sqrt{15} \div 2\sqrt{3} =$
 - (A) $3\sqrt{5}$
 - (B) $4\sqrt{5}$
 - (C) $4\sqrt{3}$
 - (D) $4\sqrt{15}$

5. The value of $4725 - 2879$ by rounding each number to the nearest hundred is
 - (A) 1900
 - (B) 1846
 - (C) 1800
 - (D) None of the above

6. Raj completes $\frac{1}{6}$ of his project in $3\frac{1}{2}$ days. How long would he take to complete the whole project ?
 - (A) 21 days
 - (B) $7/12$ days
 - (C) $7/3$ days
 - (D) 18 days

7. If the HCF of 210 and 55 is expressible in the form $210 \times 5 + 55y$ then $y =$
 - (A) 19
 - (B) 5
 - (C) 55
 - (D) -19

8. In a school there are two sections — Section G and Section H of class X. There are 90 students in Section G and 144 students in section H. Determine the minimum number of books required for their class library so that they can be distributed equally among the students of Section G or Section H.
 - (A) 18
 - (B) 720
 - (C) 90
 - (D) 144

9. The product of two 2 digit numbers is 1938. If the product of their unit's digits is 28 and that of ten's digits is 15, then find the numbers :
- (A) 37, 54
(B) 36, 54
(C) 19, 38
(D) 34, 57
10. 280% of a number is 560. What is the number ?
- (A) 200
(B) 280
(C) 1568
(D) None of the above
11. How many two digit numbers are divisible by 3 ?
- (A) 30
(B) 20
(C) 40
12. A number is divided by 5 and the remainder is 3. If the number is divided by 10, then the remainder is :
- (A) 3
(B) 5
(C) 8
(D) 10
13. A number is divided by 10 and the remainder is 7. If the number is divided by 5, then the remainder is :
- (A) 2
(B) 3
(C) 4
(D) 5
14. Whether 301 is a term in the list of numbers 5, 11, 17, 23,
- (A) Yes
(B) Yes if we have total number of terms as 51
(C) No
(D) None of the above
15. A quadratic equation $ax^2 + bx + c = 0$ has no real root if :
- (A) $b^2 - 4ac > 0$
(B) $b^2 - 4ac = 0$
(C) $b^2 - 4ac < 0$
(D) $b^2 - 4ac < 0$
16. A meter scale has a length of 100 cm. It is divided into 1000 equal parts. The length of each part is :
- (A) 1 mm
(B) 1 cm
(C) 10 mm
(D) 10 cm

17. Roots of the quadratic equation $2x^2 - 2\sqrt{2}x + 1 = 0$ are :
- (A) $\left(\frac{1}{\sqrt{2}}, 2\right)$
- (B) $\left(\frac{1}{\sqrt{2}}, 3\right)$
- (C) $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$
- (D) None of the above
18. For what values of p does the pair of equations given below has unique solution :
- $4x + py + 8 = 0$; $2x + 2y + 2 = 0$
- (A) $p = 4$
- (B) $p \neq 8$
- (C) For all values of p except 4
- (D) None of the above
19. 4 chairs and 3 tables cost Rs. 2100 and 5 chairs and 2 tables cost Rs. 1,750, then the cost of a chair is :
- (A) Rs. 150
- (B) Rs. 500
- (C) Rs. 15
21. $g(y) = 2y^3 + 5y - 7$ is a :
- (A) Cubic polynomial
- (B) Quadratic polynomial
- (C) Linear polynomial
- (D) None of the above
22. The sum of the squares of zeroes of the quadratic polynomial $f(x) = x^2 - 8x + k$ is 40 then value of k is :
- (A) 14
- (B) 3
- (C) 8
- (D) 12
23. Verify whether 2 and 0 are zeroes of the polynomial $x^2 - 2x$:
- (A) Yes
- (B) No
- (C) Yes if $x^2 = 3$
- (D) None of the above
24. The remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $(x - 1)$ is :
- (A) 1
- (B) 3

26. A fort had provisions of food for 300 men for 90 days. After 20 days, 50 men left the fort. How long would the food last at the same rate ?
- (A) 108 days
(B) 70 days
(C) 84 days
(D) 48 days
27. A and B together can do a piece of work in 12 days. While B alone can finish it in 30 days. In how many days can A alone finish the work ?
- (A) 18 days
(B) 20 days
(C) 30 days
(D) 12 days
28. At what rate percent per annum will a sum of Rs. 2,000 amount to Rs. 2,205 in 2 years, compounded annually ?
- (A) 6
(B) 20
(C) 2
30. Area of a regular hexagon each of whose sides measures 6 cm is :
- (A) 92.528 cm^2
(B) 93.528 cm^2
(C) 36 cm^2
(D) None of the above
31. The lengths of tangents drawn from an external point to a circle are :
- (A) Parallel
(B) Not equal
(C) Equal
(D) None of the above
32. The area of the sector of a circle with radius 4 cm and of angle 30° is (use $\pi = 3.14$) approximately :
- (A) 4.19 cm^2
(B) 16 cm^2
(C) 120 cm^2
(D) None of the above

34. Two sides of a triangle are 8 cm and 11 cm respectively and its perimeter is 32 cm then the area of the triangle is :
- (A) $11\sqrt{2}$ cm²
 (B) $30\sqrt{2}$ cm²
 (C) $11\sqrt{30}$ cm²
 (D) $8\sqrt{30}$ cm²
35. If the sum of a pair of opposite angles of a quadrilateral is 180° , then the quadrilateral is :
- (A) Asymptote
 (B) Cyclic
 (C) Cubic
 (D) None of the above
36. Surface area of a cuboid whose length, breadth and height are 15 cm, 10 cm and 20 cm respectively is :
- (A) 6000 cm²
 (B) 1300 cm²
 (C) 3000 cm²
 (D) None of the above
37. Find the curved surface area of a right circular cone whose radius is 7 cm and height is 24 cm respectively, then the volume of the cone is (take $\pi = 22/7$) :
- (A) 154 cm³
 (B) 1848 cm³
 (C) 84 cm³
 (D) 7546 cm³
39. A hemispherical bowl has a radius 3.5 cm. What would be the volume of water it would contain ? (take $\pi = 22/7$) :
- (A) 84.8 cm³
 (B) 89 cm³
 (C) 89.8 cm³
 (D) None of the above
40. A cone of height 24 cm and radius of base 6 cm is made up of modeling clay. A child reshapes it in the form of a sphere. Then the radius of the sphere will be :
- (A) 2 cm
 (B) 4 cm
 (C) 12 cm

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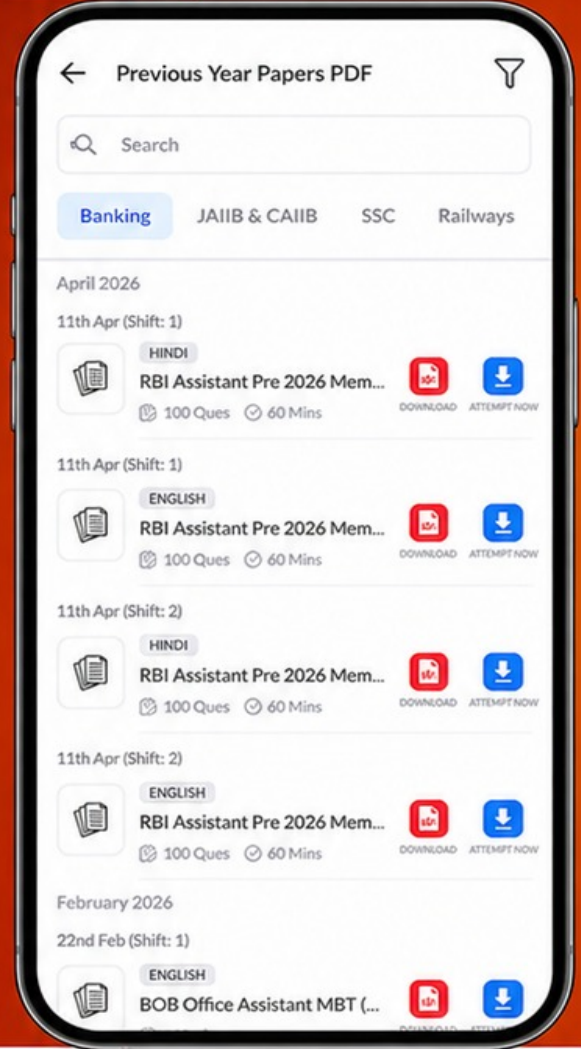
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42. A cube has total surface area 486 cm^2 . Then volume of the cube is :
- (A) 829 cm^3
(B) 486 cm^3
(C) 720 cm^3
(D) None of the above
43. The bar graph is a pictorial representation of numerical data in the form of rectangles of :
- (A) Equal width or varying heights
(B) Equal width and varying heights
(C) Equal width and constant heights
(D) None of the above
44. The number of times a particular observation occurs in a given data is called its :
- (A) Range
(B) Frequency
(C) Group
(D) None of the above
45. The height (in cm) of 9 students of a class are as follows :
155, 160, 145, 149, 150, 147, 152, 144, 148.
- (B) 1
(C) $71/150$
(D) $79/150$
47. Suppose we throw a die once, what is the probability of getting a number greater than 4 ?
- (A) $1/6$
(B) 3
(C) $4/6$
(D) $1/3$
48. A box contains 3 blue, 2 white and 4 red marbles. If a marble is drawn at random from the box, then what is the probability that it will be a red ?
- (A) $1/9$
(B) $1/3$
(C) $2/9$
(D) None of the above
49. An unbiased die is thrown, what is the probability of getting an even number ?
- (A) $1/6$
(B) $1/2$
(C) $1/3$
(D) $1/4$