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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, HCF(r, s) × LCM(r, s) =
   (A) r × s
   (B) r × r – s
   (C) r + s × 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 × 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

(D) None of the above

its first term is 10 then the 20^{th} term is :

(A) 200

(B) 100

(C) 1050

(D) None of the above

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) $b - 4ac < 0$

(D) $b^2 - 4ac < 0$

16. A motorboat whose speed is 10 km /

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^o 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) $11\sqrt{2}\ cm^2$

(B) $30\sqrt{2}\ cm^2$

(C) $11\sqrt{30}\ cm^2$

(D) $8\sqrt{30}\ cm^2$

35. If the sum of a pair of opposite angles of a quadrilateral is 180^o, 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) $6000\ cm^2$

(B) $1300\ cm^2$

(C) $3000\ cm^2$

(D) None of the above

37. Find the curved surface area of a right

respectively, then the volume of the cone is (take $\pi = 22/7$) :

(A) $154\ cm^3$

(B) $1848\ cm^3$

(C) $84\ cm^3$

(D) $7546\ cm^3$

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) $84.8\ cm^3$

(B) $89\ cm^3$

(C) $89.8\ cm^3$

(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

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 unbaised die is thrown, what is the probability of getting an even number ?
(A) 1/6
(B) 1/2
(C) 1/3