Placement Exam for Basic And Pure Maths

Basic Section

1. The number zero, "0" belongs to every set except (O1)
   a) Real number
   b) Natural number
   c) Whole numbers
   d) Rational numbers

2. $\sqrt{9}$ belongs to (O1)
   a) Natural number
   b) Integer number
   c) Irrational number
   d) Whole number

3. PEMDAS has _____ operations (O2)
   a) 1
   b) 2
   c) 4
   d) 6

4. Solving by PEMDAS, in $4 \div 2 - 6 \times 3 + 4$, first solve (O2)
   a) Exponent
   b) Multiplication
   c) Addition
   d) Subtraction

5. In a class there are 240 boys and 260 girls. The ratio of number of boys to number of girls is given by (O3)
   a) 12:13
   b) 13:12
   c) 12:12
   d) 13:13

6. 30 months are equal to_____ years. (O3)

a) 2.1

b) 2.3

c) 2.5

d) 2.6

7. $|x-1| \leq 3$ represents the interval (O4)

a) $-2 \leq x \leq 4$ nswer

b) $1 \leq x \leq +3$

c) $-1 \leq x \leq +3$

d) $2 < x < 4$

8. Let ***i*** represents imaginary number iota, then $i^2 =$_____ (O5)

a) $+1$

b) $+\sqrt{+1}$

c) $\sqrt{-1}$

d) -1 answer

9. The quadratic equation,$x^2 + x - 6 = 0$ has roots (O5)

a) $\{-2, 3\}$

b) $\{2, -3\}$ answer

c) $\{-2, -3\}$

d) $\{+2, +3\}$

10. A pencil costs \$2, pen costs \$4, and a book costs \$9. The total cost price is (O6)

a) \$12

b) \$15

c) \$120

d) \$22

11. The sale price of a bread is \$5. For 6 breads Mr. Omer paid (O6)

a) \$11

b) \$30

c) $36

d) $35

12. Evaluate $a - b$ for $a = -8$ and $b = -10$ (O7)

a) -18

b) -2

c) 2

d) 18

13. The equation $4x - 7(2 + x) = 3x + 4$, satisfies for $x =$_____ (O7)

a) 2

b) 3

c) -3

d) -2

14. $(x + y)^0 =$_____ (O8)

a) $x + y$

b) 0

c) 1

d) 2

15. Given $\frac{\left(\frac{1}{3}\right)^{-2} \times \left(\frac{1}{3}\right)^{4}}{\left(\frac{1}{3}\right)^{3} \times \left(\frac{1}{3}\right)^{-2}}$, by using the law of exponents the simplified answer with positive exponents is (O8)

a) $\left(\frac{1}{3}\right)$answer

b) $\left(\frac{1}{3}\right)^{-2}$

c) $(3)^2$

d) $(3)^{-2}$

16. Rationalizing the denominator of $\frac{2}{\sqrt{3}}$gives (O9)

a) $\frac{2\sqrt{3}}{3}$ answer

b) $\frac{3\sqrt{2}}{3}$

c) $\frac{2\sqrt{3}}{2}$

d) $\frac{3\sqrt{2}}{2}$

17. $\sqrt[3]{x}$ can also be written as (O9)

a) $\sqrt{x^3}$

b) x^6

c) $x^{\frac{2}{3}}$

d) $x^{\frac{1}{3}}$ answer

18. Perpendicular lines intersects (O10)

a) At two point

b) At many points

c) Never

d) <u>At 90^o angle</u>

19. Point (3,-4) lies in the _____ quadrant (O10)

a) I

b) II

c) III

d) <u>IV</u>

20. Curve $x = y^2$ is symmetric about (O11)

a) Origin

b) <u>X-axis</u>

c) Y-axis

d) None of above

21. Arc length of a circle of radius 2*r*subtended an angle of $\pi$is given by (O12)

a) πr^2

b) $2\pi r^2$

c) πr

d) $\underline{2\pi r}$

22. $\frac{2\pi}{3} radian =$_____degrees (O12)

a) 60

b) $\underline{120}$

c) 45

d) 30

23. In a right angle triangle $Sine\ \theta$ is given by _____. (O13)

a) $\frac{Opposite}{Hypotenuse}$

b) $\frac{Perpendiculer}{Hypotenuse}$ answer

c) $\frac{Perpendiculer}{Opposite}$

d) $\frac{Hypotenuse}{Perpendiculer}$

24. In case of a equilateraltriangle the angles will be of measure (O14)

a) 30^0

b) 45^0

c) $\underline{60^0}$

d) 90^0

25. Simplifying trigonometric rations $secant\ \theta \times cotangent\ \theta =$_____ (O15)

a) $sine\ \theta$

b) $\underline{cosecant\ \theta}$

c) $cosine\ \theta$

d) $tangent\ \theta$

PURE SECTION

26. The graph of a linear equation is _____ (Oa)

a) Vertical Line

b) Horizontal Line

c) Straight Line

d) Parallel line

27. The graph of $f(x) = 4 - 2x - 6x^2$ shows parabola opening_____. (Oa)

a) up

b) down

c) right

d) left

28. Given$f(x) = \frac{x}{x^2+1}$ is _____ function (Od)

a) even

b) odd

c) both even and odd

d) none of these

29. Quadratic formula to solve the equation $ax^2 + bx + c = 0$ is (Ob)

a) $x = -b \pm \frac{\sqrt{b^2-4ac}}{2a}$

b) $x = -b \pm \frac{\sqrt{4ac-b^2}}{2a}$

c) $x = \frac{-b\pm\sqrt{b^2-4ac}}{2a}$ answer

d) $x = \frac{-b\pm\sqrt{4ac-b^2}}{2a}$

30. The discernment of $x^2 - 1 = 0$is given by _____ (Ob)

a) 4 answer

b) -4

c) 0

d) 1

31. $Log\ x$ exists for _____. (Oc)

a) $x < 0$

b) $x \leq 0$

c) $x \geq 0$

d) $x > 0$ answer

32. $Log(M.N) =$ _____ (Oc)

a) $LogM + Log\ N$ answer

b) $LogM - Log\ N$

c) $LogM.Log\ N$

d) None of these

33. $x = Log_a\ y$can be written in exponential form as _____ (Od)

a) $x = a^y$

b) $y = a^x$

c) $x = y^a$

d) $y = x^a$

34. Graph of $f(x) = e^x$ is always_____ (Od)

a) Increasing

b) Decreasing

c) Parabola

d) Straight line

35. If case of supplementary angles, sum of two angles is _____ (Oe)

a) 45°

b) 90°

c) $\underline{180^{\circ}}$

d) 360°

36. The relation between radian and degree is _____ (Oe)

a) π degree $= 180$ radian

b) π radian $= 180$ degreeanswer

c) 2π degree $= 180$ radian

d) π radain $= 360$ degree

37. The equation of circle with origin at$(h, -k)$ and radius r is given (Of)

a) $(x + h)^2 + (y + k)^2 = r^2$

b) $(x - h)^2 + (y + k)^2 = r^2$ answer

c) $(x + h)^2 + (y - k)^2 = r^2$

d) $(x - h)^2 + (y - k)^2 = r^2$

38. Area of a circle of radius $2r$ is given by (Of)

a) πr^2

b) πr

c) $4\pi r$

d) $\underline{4\pi r^2}$

39. $Sin^2 x + Cos^2 x = 1$ is called_____ (Og)

a) Expression

b) Equation

c) Identity

d) Function

40. Relation between $tan\ x$ and $cot\ x$ is given by _____ (Og)

a) $tan^2x + cot^2x = 1$

b) $tan^2x - cot^2x = 1$

c) $cot^2x - tan^2x = 1$ answer

d) $tan^2x + cot^2x = -1$

41. If we are given the, the ratio of the sidesand opposite angles then we will use (Oh)

a) Law of Sines

b) Law of Cosines

c) Law of Tangents

d) Laws of Angles

42. $Cos\ x = \cos(-x)$ because cosine is _____ function. (Oh)

a) Increasing

b) Decreasing

c) Even

d) Odd

43. For the following data values$6, 6, 14, 15\ and\ 16$, the mode is _____(Oj)

a) 6

b) 15

c) 14

d) 16

44. The mean of the sample $3, 5, 5, 7, 9\ and\ 13$ is _____. (Oj)

a) 5

b) 7

c) 9

d) 13

45. In case of histogram, the bars represent the _____. (Oj)

a) Length
b) Width
c) Area
d) Frequency

46. In case of pie chart, the total area of all the sectors is given by _____. (Oj)

a) 90^o
b) 180^o
c) 270^o
d) 360^o answer

47. An arrangement of objects in which the order is important is called a_____. (Ok)

a) Permutation
b) Combination
c) Factorial
d) Exponential

48. For factorial 0!= _____ (Ok)

a) 0
b) 1
c) Not defined
d) None of these

49. $P(n;r)$_____$C(n;r)$ (Ok)

a) >
b) $\geq$ answer
c) <
d) $\leq$

50. In an experiment of rolling a die, the probability of getting odd number is ____ (Ok)

a) 1/2

b) 6

c) 1/3

d) 3