Placement Exam for Basic And Applied 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. $\sqrt{3}$ belongs to (O1)
   a) Rational 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 $4 \div 2 - 6 \times 3 + 4^2$, 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 girls to number of boys is given by (O3)
   a) 12:13
   b) 13:12
   c) 12:12
   d) 13:13

6. 18 months are equal to_____ years. (O3)

a) 1.4

b) 1.5

c) 1.6

d) 1.8

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

a) $+3 \leq x \leq -3$

b) $-3 \leq x \leq +3$ answer

c) $-3 < x < 3$

d) $+3 < x < -3$

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

a) $\sqrt{+1}$

b) $+\sqrt{+1}$

c) $\sqrt{-1}$ answer

d) $-\sqrt{-1}$

9. The quadratic equation,$x^2 - 5x + 6 = 0$ has roots (O5)

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

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

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

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

10. A pencil costs \$5, pen costs \$7, and a book costs \$10. The total cost price is (O6)

a) \$12

b) \$15

c) \$120

d) \$22

11. The sale price of a bread is \$5. For 7 breads Mr. Omer paid (O6)

a) \$12

b) \$25

c) $35

d) $49

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. $(x + y)^0 + 1 =$_____ (O8)

a) $x + y + 1$

b)

c) 0

d) 1

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

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

c) $(3)^2$ answer

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

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

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

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

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

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

17. $\sqrt[3]{x^2}$ can also be written as (O9)

a) $\sqrt{x^3}$

b) x^6

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

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

18. Parallel lines intersects (O10)

a) At one point

b) At many points

c) Never

d) At 90^o angle

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

a) I

b) II

c) III

d) IV

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

a) Origin

b) X-axis

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 $tangent\ \theta$ is given by _____. (O13)

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

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

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

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

24. In case of a right angle isosceles triangle the other angles will be of measure (O14)

a) 30^0

b) $\underline{45^0}$

c) 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) $tangent\ \theta$

APPLIED SECTION

26. For the system of two linear equations, $x - y = 3 \; and \; x + y = 5$, the solution is __ (Oa)

a) $(4, 1)$ answer

b) $(4, -1)$

c) $(1, 4)$

d) $(1, -4)$

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

a) Vertical Line

b) Horizontal Line

c) Straight Line

d) Parallel line

28. For $x \geq 0 \; and \; y \leq 0$ area will lie in _____ quadrant. (Ob)

a) I

b) II

c) III

d) IV answer

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

a) up

b) down

c) right

d) left

30. $f(x) = x^2 + 4$ has a minimum value of 4.Therefore, range is _____ (Oc)

a) $[4, -\infty)$

b) $(-\infty, 4]$

c) $(\infty, 4]$

d) $[4, \infty)$ answer

31. The solution for the function,$f(x) = x^2 - 5x + 6 < 0$, is given by_____. (Od)

a) $(-\infty, 2) \cup (2, 3)$

b) $(2, 3)$ answer

c) $(2, 3) \cup (2, \infty)$

d) $(-\infty, \infty)$

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

a) even

b) odd

c) both even and odd

d) none of these

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

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

34. Midpoint of the line segment with endpoints at (6, -6) and (2, 4) is (Oe)

a) (4, 1)

b) (4, -1)

c) (-4, 1)

d) (-4, -1)

35. $f(x) = x^2 - 4$has a minimum value of _____ (Of)

a) $y = -4$

b) $x = -2$

c) $x = +2$

d) $y = +4$

36. For the given line $y = 3x - 6$, the x-intercept is given by_____ (Of)

a) -2

b) +2

c) 6

d) -6

37. Graph of $f(x) = e^x$ is always_____ (Og)

a) Increasing

b) Decreasing

c) Parabola

d) Straight line

38. $Log\ x$ exists for _____. (Og)

a) $x < 0$

b) $x \leq 0$

c) $x \geq 0$

d) $x > 0$ answer

39. $A = Pe^{RT}$ is the formula for _____. (Oh)

a) Simple Interest

b) Compound Interest

c) <u>Continuous Interest</u>

d) Annual Interest

40. The simple interest earned when 1000 RO is invested at 7% per annum for 2 years is _____ (Oh)

a) $110\ RO$

b) $120\ RO$

c) $130\ RO$

d) <u>$140\ RO$</u>

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

a) $x = a^y$

b) <u>$y = a^x$</u>

c) $x = y^a$

d) $y = x^a$

42. $Log(M.N) =$ _____ (Oi)

a) $LogM + Log\ N$ answer

b) $LogM - Log\ N$

c) $LogM.Log\ N$

d) None of these

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

a) <u>6</u>

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