Section-A

(i)   If $x^3 + 4x^2 - 7x + 3$ is divided by $x - 1$. then remainder is _____.

    (a) 0   (b) -1   (c) 1   (d) 2

(ii)   In 35, 30, 10, 48, 100, 90, he range (R) is _____.

    (a) 35   (b) 10   (c) 100   (d) 90

(iii) the central angle of a minor arc is _____ than the inscribed angle of its corresponding major arc.

    (a) Less   (b) Double   (c) Half   (d) None of these

(iv)   If set A contains 7 elements and set B contains 3 elements, then A x B contains ____ order pairs.

    (a) 12   (b) 21   (c) 3   (d) 7

(v) $x^2 - 0.4x + 0.04 = $ _____

    (a) $(x - 0.2)^2$ (b) $(x - 0.2)^2$ (c) $(x + 0.2)^2$ (d) $(x + 0.2)(x - 0.2)$

(Vi) $\sqrt{1 - \sin^2(m\angle A)} = $ _____

    (a)   (b)   (c)   (d)

(Vii) $\sqrt[4]{8a} = $ _____

    (a) 2   (b) 3   (c) 9   (d) 4

(viii) The roots of the equation $ax^2 + bx - C = 0$, $a = 0$ are _____.

    (a) $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ (b) $\dfrac{b \pm \sqrt{b^2 - 4ac}}{2a}$ (c) $\dfrac{-b \pm \sqrt{b^2 + 4ac}}{2a}$ (d) None of these

(ix) $2^5 = 32$ is logarithemic form is _____.

    (a) $\log_2 5 = 32$ (b) $\log_5 2 = 32$ (c) $\log_2 32 = 5$ (d) $\log_5 32 = 2$

(x)   The mantissa of the logarithem is _____.

    (a) Positive   (b) Negative   (c) Both (a) and (b)   (d) None of these

(xi)   If non-commond arms of two adjacent angles are collinear, they are _____.

    (a) Complementary angles   (b) Supplementary Angles

(c) Vertical Angles   (d) Alternate Angles

(xii) The ratio $a^m : b^n$ is called he sub-duplicate ratio or _____.

  (a) $a : b$ (b) $a^3 : b^3$ (c) $a^2 : b^2$ (d) $a^m : b^n$

(xiii) Every plane contains at least _____ non collineur points.

  (a) 2   (b) 3   (b) 4   (d) None of these

(xiv) The degree of the polynomial $x^4y + y^3 + y^5$ is _____.

  (a) 2   (b) 3   (c) 4   (d) 5

(xv) If $a : b = c : d$. tjem $b : a = d : c$ this properties of proportion is called _____.

  (a) alternando (b) Componendo (c) Dividendo (d) Invertendo

(xvi) A series contains from the vertex to the opposite side of a triangle is _____.

  (a) Altitude (b) Hypotenuse (c) Median (d) None of these

(xvii) A perpendicular from the vertex to the opposite side of a traingle is _____.

  (a) Altitude (b) Hyprotenuse (c) Median (d) None of these

(xviii) The value of $\sec 30°$ is _____.

  (a) $\frac{2}{\sqrt{3}}$ (b) $\sqrt{2}$ (c) 2 (d) $\frac{1}{2}$

Section-B

Note: Solve any TEN of the following questions. Each question carries 05 marks.

Q.2 If $A = \{1,2,3,4\}$, $B = \{2,4,6,8\}$ and $C = \{2,3,6,8\}$ find $(A \triangle B) \times (B \cap C)$

Q.3 If $a - b = 5$ and $a + b = -9$, find the value of $a^2 + b^2$.

Q.4 Find the solution set of any one fo the following equations.

  (a) $2x(4x-1) = 15$ (b) $-6 + |5x - 3| = 3$

Q.5 Write the advantages and disadvaentages of Arithmetic Mean.

Q.6 Simplify: (i) $\left[\dfrac{30xy^8}{5x^3y^2}\right]^2$ (ii) $\dfrac{\sqrt[n]{p}}{\sqrt[m]{q}}$

Q.7 Prove that: $\tan\theta + \cot\theta = \sec\theta \, \csc\theta$

Q.8 Simplify with the help of logarithm: $\dfrac{(780.6)^{1/2} \times \sqrt{3000}}{4000}$

Q.9 Eliminate "x" from the equations: $3x + 4y = 22$, $-4x + 5y = 43$

Q.10 Simplify: $\dfrac{x^2(y-z)}{(x+y)(x+z)} - \dfrac{y^2(z-x)}{(y+z)(y+x)} + \dfrac{z^2(x-y)}{(z+x)(z+y)}$

Q.11 Solve: $\dfrac{\sqrt{x+10} - \sqrt{x-10}}{\sqrt{x+10} + \sqrt{x-10}} = \dfrac{1}{5}$

Q.12 Prove that, if two lines intersect, the vertically opposite angle so formed are congruent.

Q.13 Prove that, if line drawn from the centre of a circle to biscet a chaord is perpendicular to the chord.

Q.14 Prove that, the sum of the meausres of anglesof a quadrilateral is 360o.

Q.15 Define any TWO of the following terms and draw the figures.

Acute angle Corresponding angles Escribed circle of a triangle

Section-C

Note: **Solve any TWO of the following questions.**

Q.16 Factorize an Five of the following.

(i) $4(x+2y)^2 - 9(x-y)^2$ (ii) $a^2x^4 - 20ax^2y^2 - 96y^4$

(iii) $a^2 - b^2 + 9c^2 + 6ac$ (iv) $24x^2 - 81x + 27$

(v) $a^3 - 2 + \dfrac{1}{a^3}$ (vi) $ax^{12} + ay^{11}$

(vii) $a^4(b^2 - c^2) + b^4(c^2 - a^2) + c^4(a^2 - b^2)$

Q.17 Derive with the help of right angle triangle :