Chapter No 1

Q. 1 Multiple Choice Questions

Four possible answers are given for the following questions. Tick (✓) the correct answer.

1. Standard form of quadratic equation is:

(a) $Bx+c=0,\ b\neq0$

(b) $ax^2+bx+c=0,\ a\neq0$

(c) $ax^2=bx,\ a\neq0$

(d) $ax^2=0,\ a\neq0$

2. The number of terms in a standard quadratic equation $ax^2+bx+c=0$ is:

(a) 1 (b) 2

(c) 3 (d) 4

3. The number of methods to solve a quadratic equation is:

(a) 1 (b) 2

(c) 3 (d) 4

4. The quadratic formula is:

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

(c) $\frac{-b\pm\sqrt{b^2+4ac}}{2a}$ (d) $\frac{b\pm\sqrt{b^2+4ac}}{2a}$

5. Two linear factors of $x^2-15x+56$ are:

(a) $(x-7)$ and $(x+8)$

(b) $(x+7)$ and $(x-8)$

(c) $(x-7)$ and $(x-8)$

(d) $(x+7)$ and $(x+8)$

6. An equation, which remains unchanged when x is replaced by $\frac{1}{x}$ is called a/an:

(a) Exponential equation

(b) Reciprocal equation

(c) Radical equation

(d) None of these

7. An equation of the type $3^x+3^{2-x}+6=0$ is a/an:

(a) Exponential equation

(b) Reciprocal equation

(c) Radical equation

(d) None of these

8. The solution set of equation $4x^2-16=0$ is:

(a) $\{\pm4\}$ (b) $\{4\}$

(c) $\{\pm2\}$ (d) ±2

9. An equation of the form $2x^4-3x^3+7x^2-3x+2=0$ is called a/an

(a) Reciprocal equation

(b) Radical equation

(c) Exponential equation

(d) None of these

10. The solution set of $25x^2-1=0$ is

(a) $\left\{\pm\frac{1}{5}\right\}$ (b) $\left\{-\frac{1}{5}\right\}$

(c) $\left\{+\frac{1}{5}\right\}$ (d) None of these

11. An equation of the form $2^{2x}-3.2^x+5=0$ is called a /an ___ equation.

(a) Exponential (b) Radical

(c) Reciprocal (d) None of these

12. The solution set of the equation $x^2-9=0$ is:

(a) $\{\pm3\}$ (b) {3}

(c) $\{-3\}$ (d) $\{9\}$

13. An equation of type $x^4+x^3+x^2+x+1=0$ is called a/an ……equation.

(a) Radical (b) Reciprocal

(c) Exponential (d) None of these

14. Solve the equation $5^{1+x} + 5^{1-x} = 26$

(a) $\{1\}$ (b) $\{\pm 1\}$

(c) $\{2\}$ (d) $\{\pm 2\}$

15. The solution set of equation $2+9x=5x^2$ is:

(a) $\left\{\frac{-1}{5}, 2\right\}$ (b) $\left\{\frac{+1}{5}, 2\right\}$

(c) $\left\{\frac{1}{5}, -2\right\}$ (d) $\left\{\frac{-1}{5}, -2\right\}$

16. The solution set of equation $5x^2=30x$ is:

(a) $\{5, 30\}$ (b) $\{0, 6\}$

(c) $\{0, -6\}$ (d) $\{5, 0\}$

17. The solution set of equation $x^2–x–2=0$ is:

(a) $\{2, 1\}$ (b) $\{-2, 1\}$

(c) $\{2, –1\}$ (d) $\{–2, -1\}$

18. The solution set of equation $x^2–16=0$ is:

(a) $\{\pm 4\}$ (b) $\{+4\}$

(c) $\{–4\}$ (d) None of these

19. The solution set of equation $x^2 - 7x+6=0$ is:

(a) $\{1, 6\}$ (b) $\{–1, –6\}$

(c) $\{–1, 6\}$ (d) $\{1, –6\}$

20. The solution set of equation $3x^2+ 4x=5$ is:

(a) $\left\{\frac{-2 \pm \sqrt{19}}{3}\right\}$ (b) $\left\{\frac{2 \pm \sqrt{19}}{3}\right\}$

(c) $\left\{\frac{4 \pm \sqrt{19}}{3}\right\}$ (d) None of these

21. If b=0 in a quadratic equation $ax^2+bx+c=0$, then it is called:

(a) Pure quadratic equation

(b) Linear equation

(c) Quadratic equation

(d) Exponential equation

22. Sentences involving the sign…….. Between two algebraic expressions are called equations.

(a) $<$ (b) $\geq$

(c) $=$ (d) $<$ or $>$

23. The standard form of the quadratic equation is $ax^2+bx+c=0$ where a, b, c are.

(a) Irrational numbers (b) Rational numbers
(c) Real numbers (d) Whole numbers

24. If a=0, in $ax^2+bx+c=0$, then it reduces to:

(a) Pure quadratic equation (b)Linear equation

(c)Quadratic equations (d)Exponential equation

25. How many linear factors a quadratic equation has?

(a) 1 (b) 2

(c) 3 (d) 4

26. What is the degree of quadratic equation?

(a) 1 (b) 2

(c) 3 (d) 4

27. The number of roots of a quadratic equation is:

(a) 1 (b) 2

(c) 3 (d) 4

28. Cancellation of x on both sides of $5x^2= 30x$ means:

(a) The loss of one root

(b) No loss of any root

(c) Gain of one root

(d) Undefined solution

29. What should be done to make the co-efficient of x^2 equal to 1, in $7x^2+2x-1=0$?

(a) Multiply the equation by 7

(b) Divide the equation by 7

(c) Add 7 in both sides

(d) Subtract 7 from both sides

30. What should be done to make the co-efficient of x^2 equal to 1 in $3x^2+7x=0$?

(a) Multiply the equation by $\frac{1}{3}$

(b) Divide the equation by $\frac{1}{3}$

(c) Add $\frac{1}{3}$ in both sides

(d) Subtract $\frac{1}{3}$ from both sides

31. The value of variable of an equation not satisfying the equation is called:

(a) Root (b) Extraneous root

(c) Exponent (d) Solution set

32. The cancellation of x on both sides of the equation of the type $ax^2=bx$ means the loss of one root. That root is always equal to:

(a) 0 (b) 1

(c) A (d) b

33. If $y=x^{-1}$ and $3y=5$, the value of x is:

(a) $\frac{5}{3}$ (b) $\frac{-5}{3}$

(c) $\frac{-3}{5}$ (d) $\frac{3}{5}$

34. If $2^x=1$, then x = …….

(a) 0 (b) 1

(c) 2 (d) none of these

35. If $y=2^x$ and 8y =1, then, x =…

(a) 8 (b) $\frac{1}{8}$

(c) 3 (d) -3

1.	b	2.	c	3.	c	4.	a	5.	c
6.	b	7.	a	8.	c	9.	a	10.	a
11.	a	12.	a	13.	b	14.	b	15.	a
16.	b	17.	c	18.	a	19.	a	20.	a
21.	a	22.	c	23.	c	24.	b	25.	b
26.	b	27.	b	28.	a	29.	b	30.	a
31.	b	32.	a	33.	d	34.	a	35.	d

Chapter No 2

Q.1 Multiply Choice Questions.

Four possible answers are given for the following questions. Tick (✓) the correct answer.

1. If α,β are the roots of $3x^2+5x-2=0$ then $\alpha+\beta$ is:

(a) $\frac{5}{3}$ (b) $\frac{3}{5}$

(c) $\frac{-5}{3}$ (d) $\frac{-2}{3}$

2. If α,β are the roots of $7x^2-x+4=0$ then $\alpha\beta$ is:

(a) $\frac{-1}{7}$ (b) $\frac{4}{7}$

(c) $\frac{7}{4}$ (d) $\frac{-4}{7}$

3. Roots of the equation $4x^2-5x+2=0$ are:

(a) Irrational (b) imaginary

(c) Rational (d) none of these

4. Cube roots of –1 are:

(a) $-1,-\omega,-\omega^2$ (b) $-1,\ \omega,-\omega^2$

(c) $-1,-\omega,\omega^2$ (d) $1,-\omega,-\omega^2$

5. **Sum of the cube roots of unity is:**
   (a) 0 (b) 1
   (c) –1 (d) 3

6. **Product of cube roots of unity is:**
   (a) 0 (b) 1 (c) –1 (d) 3

7. **If $b^2-4ac < 0$ then the roots of $ax^2+bx+c=0$ are:**
   (a) Irrational (b) rational
   (c) Imaginary (d) None of these

8. **If $b^2-4ac > 0$, but not a perfect square then roots of $ax^2+bx+c=0$ are:**
   (a) Imaginary (b) rational
   (c) Irrational (d) None of these

9. $\frac{1}{\alpha}+\frac{1}{\beta}$ **is equal to:**
   (a) $\frac{1}{\alpha}$ (b) $\frac{1}{\alpha}-\frac{1}{\beta}$
   (c) $\frac{\alpha-\beta}{\alpha\beta}$ (d) $\frac{\alpha+\beta}{\alpha\beta}$

10. $\alpha^2+\beta^2$ **is equal to:**
    (a) $\alpha^2-\beta^2$ (b) $\frac{1}{\alpha^2}+\frac{1}{\beta^2}$
    (c) $(a+\beta)^2-2\alpha\beta$ (d) $\alpha+\beta$

11. **Two square roots of unity are:**
    (a) 1,–1 (b) $1,\omega$
    (c) $1,-\omega$ (d) ω,ω^2

12. **Roots of the equation $4x^2-4x+1=0$ are:**
    (a) Real, equal (b) real, unequal
    (c) Imaginary (d) irrational

13. **If α,β are the roots of $px^2+qx+r=0$, then sum of the roots 2α and 2β is:**
    (a) $\frac{-q}{p}$ (b) $\frac{r}{p}$ (c) $\frac{-2q}{p}$ (d) $-\frac{q}{2p}$

14. **If α, β are the roots of $x^2-x-1=0$, then product of the roots 2α and 2β is:**
    (a) –2 (b) 2
    (c) 4 (d) -4

15. **The nature of the roots of equation $ax^2+bx+c=0$ is determined by:**
    (a) Sum of the roots
    (b) Product of the roots
    (c) Synthetic division
    (d) Discriminant

16. **The discriminant of $ax^2+bx+c=0$ is:**
    (a) b^2-4ac (b) b^2+4ac
    (c) $-b^2+4ac$ (d) $-b^2-4ac$

17. **If $b^2-4ac>0$ and is a perfect square, then roots of $ax^2+bx+c=0$ are:**
    (a) irrational, equal
    (b) Rational, equal
    (c) Rational, unequal
    (d) Irrational, unequal

18. **If $b^2-4ac=0$, then roots of $ax^2+bx+c=0$ are:**
    (a) irrational, equal
    (b) Rational, equal
    (c) Rational, unequal
    (d) Irrational, unequal

19. **Disc. of $2x^2-7x+1=0$ is:**
    (a) 47 (b) 41
    (a) 40 (d) 51

20. **Disc. of $x^2-3x+3=0$ is:**
    (a) 6 (b) 12 (c) 21 (d) –3

21. **The roots of $x^2+8x+16=0$ are:**
    (a) Imaginary (b) equal
    (c) Unequal (d) irrational

22. **If roots of a quadratic equation are equal, then disc. is:**
    (a) Positive (b) negative
    (c) Zero (d) irrational

23. **If roots of a quadratic equation are imaginary, then disc. is:**
    (a) Positive (b) negative

(c) Zero (d) irrational

24. If roots of an quadratic equation are real and distinct then disc. is:

(a) Positive (b) negative

(c) Zero (d) imaginary

25. If roots of a quadratic equation are rational and distinct, then disc. is:

(a) Perfect square

(b) Not perfect square

(c) Zero

(d) Negative

26. If roots of a quadratic equation are irrational and distinct, then disc. is:

(a) Perfect square

(b) Not perfect square

(c) Zero

(d) Negative

27. If for a quadratic equation $b^2-4ac=49$, then roots are real and:

(a) Equal (b) unequal

(c) Irrational (d) imaginary

28. If for a quadratic equation $b^2-4ac=-47$, then roots are: 10302197

(a) Real (b) rational

(c) Irrational (d) complex

29. If for a quadratic equation $b^2-4ac=0$, then roots are:

(a) complex (b) irrational

(c) Repeated (d) distinct

30. If for a quadratic equation $b^2-4ac=205$, then roots are:

(a) complex (b) irrational

(c) Rational (d) equal

31. Which of the following is true description of nature of roots of a quadratic equation?

(a) Real, irrational, equal

(b) Real, imaginary, unequal

(c) Real, irrational, unequal

(d) Complex, repeated, rational

32. If roots of a quadratic equation are real, rational and equal, then possible value of disc. is:

(a) 0 (b) 36

(c) 40 (d) –49

33. If roots of a quadratic equation are real, rational and unequal then possible value of disc. is:

(a) 0 (b) 36

(c) 40 (d) –25

34. If roots of a quadratic equation are real, irrational and unequal then possible value of disc. is:

(a) 0 (b) 9

(c) 5 (d) –7

35. If roots of a quadratic equation are imaginary, and unequal, the possible value of Disc. is:

(a) 0 (b) 9

(c) 8 (d) –9

36. If $\omega=\frac{-1-\sqrt{-3}}{2}$, then ω^2=…..

(a) $\frac{-1\pm\sqrt{3}}{2}$ (b) $\frac{-1+\sqrt{3}}{2}$

(c) $\frac{-1+\sqrt{-3}}{2}$ (d) $\frac{-1\pm\sqrt{-3}}{2}$

37. If ω and ω^2 are complex cube root of unity, then $\omega.\omega^2$=…….

(a) 1 (b) –1

(c) 0 (d) 2

38. ω^4 =…….

(a) ω^2 (b) ω

(c) 1 (d) 0

39. If 1, ω, ω^2 are cube root of unity, then $1+\omega+\omega^2$ = …….

(a) 0 (b) ω^3

(c) 1 (d) –1

40. If 1, ω, ω^2 are cube root of unity, then $1+\omega$ = ……..

(a) 0 (b) ω

(c) ω^2 (d) $-\omega^2$

41. If 1, ω, ω^2 are cube root of unity, then $1+\omega^2$ = ……..

(a) –ω (b) ω

(c) ω^2 (d) $-\omega^2$

42. If 1, ω, ω^2 are cube root of unity, then $\omega+\omega^2$ = ……..

(a) 1 (b) –1

(c) ω^3 (d) $2\omega^2$

43. If ω is complex cube root of unity, then ω^7 = ……..

(a) ω (b) –ω

(c) ω^2 (d) $-\omega^2$

44. If ω is complex cube root of unity, then ω^{23} = …….

(a) ω (b) –ω

(c) ω^2 (d) $-\omega^2$

45. If ω is complex cube root of unity, then ω^{63} = ……

(a) ω (b) 1

(c) –ω (d) $-\omega^2$

46. If ω is complex cube root of unity, then ω^{-5} = ……

(a) ω (b) 1

(c) –ω (d) $-\omega^2$

47. If ω is complex cube root of unity, then ω^{-16} = ……

(a) ω (b) –ω

(c) $-\omega^2$ (d) ω^2

48. If ω is complex cube root of unity, then ω^{-27} = ……..

(a) 1 (b) –1

(c) ω (d) ω^2

49. $\left(-1+\sqrt{-3}\right)^3$ **=……..**

(a) 8 (b) 1

(c) –4 (d) –28

50. Cube roots of 8 are:

(a) $2, 2\omega, 2\omega^2$ (b) $-2,-2\omega,-2\omega^2$

(c) $2,-2\omega,-2\omega^2$ (d) $2,-2\omega,2\omega^2$

51. Cube roots of –27 are:

(a) $3,-3\omega,3\omega^2$ (b) $-3,-3\omega,-3\omega^2$

(c) $-3,3\omega,3\omega^2$ (d) $3,3\omega,-3\omega^2$

52. Cube root of 64 are:

(a) $-4,-4\omega,-4\omega^2$ (b) $4,16\omega$

(c) $4, 4\omega,4\omega^2$ (d) $(4)^3$

53. $\left(1-\omega-\omega^2\right)^5$ **= …….**

(a) 6 (b) 16

(c) 32 (d) 64

54. $\left(1-3\omega-3\omega^2\right)^3$ **=……..**

(a) 12 (b) 16

(c) –125 (d) 64

55. $\left(9+4\omega+4\omega^2\right)^3$ **= …….**

(a) 15 (b) 25

(c) 125 (d) $(17)^3$

56. Which of the following are symmetric

functions of the roots of a quadratic equation? (a) $\alpha^2+\beta^2$

(b) $\alpha^3+\beta^3$

(c) $\frac{1}{\alpha}+\frac{1}{\beta}$ (d) all of these

57. Which of the following shows "the product of two consecutive positive numbers."

(a) $x(x+1)$ (b) $x(x+2)$

(c) $x(x+3)$ (d) $x(x+4)$

58. The sum of five times a number and the square of the number is:

(a) $5x^2+x$ (b) $5x+x^2$

(c) $(5x+x)^2$ (d) $5(x+x^2)$

59. If length and width of a rectangle are x and y respectively then which of the following shows perimeter?

(a) $(x+y)^2$ (b) $2x-2y$

(c) $2xy$ (d) $2(x+y)$

60. "Five less than three times a certain number" is:

(a) $3x-5$ (b) $3x+5$

(c) $5x+3$ (d) $5x-3$

61. The equation $x^4-49x^2+36x+252=0$ is called ……. equation. 1

(a) Quadratic (b) quartic

(c) Linear (d) cubic

1.	c	2.	b	3.	b	4.	a	5.	a
6.	b	7.	c	8.	c	9.	d	10.	c
11.	a	12.	a	13.	c	14.	d	15.	d
16.	a	17.	c	18.	b	19.	b	20.	d
21.	b	22.	c	23.	b	24.	a	25.	a
26.	b	27.	b	28.	d	29.	c	30.	b
31.	c	32.	a	33.	b	34.	c	35.	d
36.	c	37.	a	38.	b	39.	a	40.	d
41.	a	42.	b	43.	a	44.	c	45.	b
46.	a	47.	d	48.	a	49.	a	50.	a
51.	b	52.	c	53.	c	54.	d	55.	c
56.	d	57.	a	58.	b	59.	d	60.	a
61.	b								

Chapter No 3

Q. 1 Multiple Choice Questions

Four possible answers are given for the following questions. Tick (✓) the correct answer.

1. In a ratio a: b, a is called:

(a) Relation (b) antecedent

(c) Consequent (d) None of these

2. In a ratio x: y, y is called:

(a) Relation (b) antecedent

(c) Consequent (d) None of these

3. In a proportion a: b:: c: d, a and d are called:

(a) Means

(b) Extremes

(c) Fourth proportional

(d) None of these

4. In a proportion a:b::c: d, b and c are called:

(a) Means (b) extremes

(c) Fourth proportional

(d) none of these

5. In continued proportion a:b = b:c, ac= b^2, b is said to be ___proportional.

(a) Third (b) fourth

(c) means (d) none of these

6. In continued proportion a:b = b: c, c is said to be __proportional to a and b.

(a) Third (b) fourth

(c) means (d) none of these

7. Find x in proportion 4:x::5:15

(a) $\frac{75}{4}$ (b) $\frac{4}{3}$

(c) $\frac{3}{4}$ (d) 12

8. If $u \propto v^2$, then:

(a) $u = v^2$ (b) $u = kv^2$

(c) $uv^2 = k$ (d) $uv^2 = 1$

9. If $y^2 \propto \frac{1}{x^3}$, then:

(a) $y^2 = \frac{k}{x^3}$ (b) $y^2 = \frac{1}{x^3}$

(c) $y^2 = x^2$ (d) $y^2 = kx^3$

10. If $\frac{u}{v} = \frac{v}{w} = k$, then:

(a) $u = wk^2$ (b) $u = vk^2$

(c) $u = w^2k$ (d) $u = v^2k$

11. The third proportional of x^2 and y^2 is:

(a) $\frac{y^2}{x^2}$ (b) x^2y^2

(c) $\frac{y^4}{x^2}$ (d) $\frac{y^2}{x^4}$

12. The fourth proportional w of x:y::v:w is:

(a) $\frac{xy}{v}$ (b) $\frac{vy}{x}$

(c) xyv (d) $\frac{x}{vy}$

13. If a: b=x: y, then alternant property is:

(a) $\frac{a}{x} = \frac{b}{y}$ (b) $\frac{a}{b} = \frac{x}{y}$

(c) $\frac{a+b}{b} = \frac{x+y}{y}$ (d) $\frac{a-b}{x} = \frac{x-y}{y}$

14. If a : b = x : y, then inverted property is:

(a) $\frac{a}{x} = \frac{b}{y}$ (b) $\frac{a}{a-b} = \frac{x}{x-y}$

(c) $\frac{a+b}{b} = \frac{x+y}{y}$ (d) $\frac{b}{a} = \frac{y}{x}$

15. If $\frac{a}{b} = \frac{c}{d}$, then components property is:

(a) $\frac{a}{a+b} = \frac{c}{c+d}$ (b) $\frac{a}{a-b} = \frac{c}{c-d}$

(c) $\frac{ad}{bc}$ (d) $\frac{a-b}{b} = \frac{c-d}{d}$

16. The simplest form of the ratio $\frac{(x+y)(x^2+xy+y^2)}{x^3-y^3}$ is:

(a) $\frac{x-y}{x+y}$ (b) $\frac{x+y}{x-y}$

(c) 1 (d) 2

17. Newton's law of Gravitation is an example of:

(a) variation
(b) direct variation
(c) inverse variation
(d) joint variation

18. The relation between radius and circumference of a circle is an example

of:

(a) Variation

(b) Direct variation

(c) Inverse variation

(d) Joint variation

19. **If $\frac{24}{7} = \frac{6}{x}$, then 4x = ……**

(a) 7 (b) $\frac{7}{4}$

(c) 4 (d) $\frac{42}{24}$

20. **If $\frac{5a}{3x} = \frac{15b}{y}$, then ay = ……**

(a) $\frac{9bx}{y}$ (b) $\frac{9y}{9b}$

(c) $5ay = 45bx$ (d) $9bx$

21. **In proportion 7:4::p:8, p =……..**

(a) 1 (b) 28

(c) 14 (d) 56

22. **If 6: m:: 9: 12, then m = ……**

(a) 6 (b) 9

(c) 1 (d) 8

23. **If x and y varies directly, then x = ……**

(a) Y (b) ky

(c) $\frac{k}{y}$ (d) k

24. **If v varies directly as u^3, then u^3 = ……**

(a) Vk (b) $\frac{k}{v}$

(c) $\frac{v}{k}$ (d) vk^3

25. **If w varies inversely as p^2, then k = …..**

(a) $\frac{w}{P^2}$ (b) wp^2

(c) $\frac{P^2}{w}$ (d) WP

26. **A third proportional of 12 and 4, is:**

(a) $\frac{3}{4}$ (b) $\frac{4}{3}$

(c) 12 (d) 16

27. **The fourth proportional of 15, 6, 5 is:**

(a) 30 (b) 15

(c) 2 (d) 1

28. **The mean proportional of $4m^2n^4$ and p^6 is:**

1

(a) $\pm 2mnp$ (b) $\pm mnp$

(c) $\pm\frac{2m^2n}{P^3}$ (d) $\pm 2mn^2p^3$

29. **The continued proportion of 4, m, 9 is:**

(a) 4 : m : : m : 9

(b) 4: 9:: 9: m

(c) 9: 4:: 4: m

(D) 9: 4:: m : m

30. **Third proportional of 6, 12 is:** 10303175

(a) 24 (b) 2

(c) 18 (d) 84

31. **Third proportional of a^3, $3a^2$ is:**10303176

(a) $3a^5$ (b) 9a

(c) $9a^4$ (d) $9a^7$

32. **Fourth proportional of 5, 8, 15 is:**

(a) 120 (b) 40

(c) 24 (d) 20

33. **Fourth proportional of $4x^4$, $2x^3$, $18x^5$ is:**

(a) $36x^8$ (b) $9x^2$

(c) $9x^{12}$ (d) $9x^4$

34. **Mean Proportional of 20 and 45 is:**

(a) ± 30 (b) ± 25

(c) ± 20 (d) ± 15

35. **Mean proportional of $20x^3y^5$, $5x^7y$ is:**

(a) $\pm 10x^5y^6$ (b) $\pm 10x^5y^3$

(c) $\pm 10x^{10}y^6$ (d) $100x^{10}y^6$

36. What is the value of p in the continued proportion of 5, p, 45?

(a) 225 (b) ± 50

(c) ± 15 (d) ± 9

37. What is the value of x in the continued proportion of 8, x, 18?

(a) ± 144 (b) ± 8

(c) ± 18 (d) ± 12

38. If $\frac{9pq}{2\ell m} = \frac{18p}{5m}$, then 5q = …..

(a) 4m (b) 4p

(c) 4ℓ (d) 4q

39. The mean proportional of $9p^6q^4$ and r^8 is:

(a) $\pm 3p^3q^2r^4$ (b) $\pm 9p^6q^2r^8$

(c) $\pm 9p^3q^2r^4$ (d) $\pm 3p^6q^4q^8$

40. What is the value of P in continued proportion of 12, p, 3?

(a) ± 4 (b) ± 6

(c) ± 30 (d) ± 2

41. How many types of variations are there?

(a) One (b) two

(c) three (d) four

1.	b	2.	c	3.	b	4.	a	5.	c
6.	a	7.	d	8.	b	9.	a	10.	a
11.	c	12.	b	13.	a	14.	d	15.	a
16.	b	17.	d	18.	a	19.	a	20.	d
21.	c	22.	d	23.	b	24.	c	25.	b
26.	b	27.	c	28.	d	29.	a	30.	a
31.	b	32.	c	33.	d	34.	a	35.	b
36.	c	37.	d	38.	c	39.	a	40.	b
41.	b								

Chapter No 4

Q. 1Multiple Choice Questions:

Four possible answers are given for the following questions. Tick (✓) the correct answer.

1. The identity $(5x+4)^2 = 25x^2 + 40x + 16$ is true for.

(a) One value of x (b) two values of x

(c) All values of x (d) none of these

2. A function of the form f (x)= $\frac{N(x)}{D(x)}$, with D(x) ≠ 0, where N(x) and D(x) are polynomials in x is called:

(a) an identity (b) an equation

(c) A fraction (d) none of these

3. A fraction in which the degree of the numerator is greater or equal to the degree of denominator is called'

(a) A proper fraction

(b) An improper fraction

(c) An equation

(d) Algebraic relation

4. A fraction in which the degree of numerator is less than the degree of the denominator is called:

(a) An equation

(b) An improper fraction

(c) An identity

(d) A proper fraction

5. $\frac{2x+1}{(x+1)(x-1)}$ is:

(a) An improper fraction

(b) An equation

(c) A proper fraction

(d) None of these

6. $(x+3)^2 = x^2 + 6x + 9$ is:

(a) A linear equation

(b) An equation

(c) An identity

(d) None of these

7. $\frac{x^3+1}{(x-1)(x+2)}$ **is:**

(a) A proper fraction

(b) An improper fraction

(c) An identity

(d) A constant term

8. Partial fractions of $\frac{x-2}{(x-1)(x+2)}$ **are of the form:**

(a) $\frac{A}{x-1}+\frac{B}{x+2}$ (b) $\frac{Ax}{x-1}+\frac{B}{x+2}$

(c) $\frac{A}{x-1}+\frac{Bx+C}{x+2}$ (d) $\frac{Ax+B}{x-1}+\frac{C}{x+2}$

9. Partial fractions of $\frac{x+2}{(x+1)(x^2+2)}$ **are of the form:**

(a) $\frac{A}{x+1}+\frac{B}{x^2+2}$

(b) $\frac{A}{x+1}+\frac{Bx+C}{x^2+2}$

(c) $\frac{Ax+B}{x+1}+\frac{C}{x^2+2}$

(d) $\frac{A}{x+1}+\frac{Bx}{x^2+2}$

10. Partial fractions of $\frac{x^2+1}{(x+1)(x-1)}$ **are of the form:**

(a) $\frac{A}{x+1}+\frac{B}{x-1}$

(b) $1+\frac{A}{x+1}+\frac{Bx+C}{x-1}$

(c) $1+\frac{A}{x+1}+\frac{B}{x-1}$

(d) $\frac{Ax+B}{(x+1)}+\frac{C}{x-1}$

1.	c	2.	c	3.	b	4.	d	5.	c
6.	c	7.	b	8.	a	9.	b	10.	c

Chapter No 5

Q.1 Multiple choice questions. Four possible answers are given for the following questions. Tick mark (✓) the correct answer.

1. A collection of well-defined distinct objects is called:
   (a) Subset (b) power set
   (c) set (d) none of these

2. A set $Q=\left\{\frac{a}{b}\,|\,a,b\in Z\wedge b\neq 0\right\}$ is called a set of :
   (a) Whole numbers
   (b) Natural numbers
   (c) Irrational numbers
   (d) Rational numbers

3. The different number of ways to describe a set are:
   (a) 1 (b) 2
   (c) 3 (d) 4

4. A set with no element is called:
   (a) Subset (b) empty set
   (c) Singleton set (d) super set

5. The set $\{x / x\in W\wedge x\leq 101\}$ is:

(a) Infinite set (b) subset

(c) Null set (d) finite set

6. The set having only one element is called:
(a) Null set (b) power set

(c) Singleton set (d) subset

7. Power set of an empty set is:
(a) ϕ (b) $\{a\}$

(c) $\{\phi,\{a\}\}$ (d) $\{\phi\}$

8. The number of elements in power set $\{1,2,3\}$ is:
(a) 4 (b) 6

(c) 8 (d) 9

9. If $A \subseteq B$ then $A \cup B$ is equal to:
(a) A (b) B

(c) ϕ (d) None of these

10. If $A \subseteq B$ then $A \cap B$ is equal to:
(a) A (b) B

(c) ϕ (d) None of these

11. If $A \subseteq B$ then $A - B$ is equal to:
(a) A (b) B
(c) ϕ (d) None of these

12. $(A \cup B) \cup C$ is equal to:
(a) $A \cap (B \cup C)$ (b) $(A \cup B) \cap C)$

(c) $A \cup (B \cup C)$ (d) $A \cap (B \cap C)$

13. $A \cup (B \cap C)$ is equal to:
(a) $(A \cup B) \cap (A \cup C)$

(b) $A \cap (B \cap C)$

(c) $(A \cap B) \cap (A \cap C)$

(d) $A \cup (B \cup C)$

14. If A and B are disjoint sets, then $A \cup B$ is equal to:
(a) A (b) B

(c) ϕ (d) $B \cup A$

15. If number of elements in set A is 3 and in set B is 4, then number of elements in A×B is:
(a) 3 (b) 4

(c) 12 (d) 7

16. If number of elements in se A is 3 and in set B is 2, then number of binary relations in A×B is:
(a) 2^3 (b) 2^6

(c) 2^8 (d) 2^2

17. The domain of R
={(0,2),(2,3),(3,3)(3,4)} is:
(a) {0,3,4} (b) {0,2,3}

(c) {0,2,4} (d) {2,3, 4}

18. The Range of R
={(1,3),(2,2),(3,1)(4,4)} is:
(a) {1,2,4} (b) {3,2,4}

(c) {1,2,3,4} (d) {1,3,4}

19. Point (-1,4) lies in the quadrant:
(a) I (b) II
(c) III (d) IV

20. The relation {(1,2),(2,3),(3,3)(3,4)} is:
(a) Onto function

(b) Into function

(c) Not a function

(d) one-one function

21. If A∩B= ϕ , then set A and B are ….sets.
(a) Sub (b) over lapping

(c) Disjoint (d) power

22. If $A \subseteq B$ and $B \subseteq A$, then:
(a) A = B (b) A ≠ B

(c) A ∩ B = ϕ (d) A ∪ B = ϕ

23. The complement of U is:
(a) U (b) ϕ

(c) Impossible (d) union

24. The complement of ϕ is:
(a) U (b) ϕ

(c) Impossible (d) union

25. $A \cap A^c = \ldots\ldots$
(a) U (b) A
(c) A^c (d) ϕ

26. $A \cup A^c = \ldots\ldots$
(a) U (b) A
(c) A^c (d) ϕ

27. The set $\{ x \mid x \in A \text{ and } x \notin B \}$ is:
(a) $A \cup B$ (b) $A \cap B$
(c) $A - B$ (d) $B - A$

28. The point $(-5, -7)$ lies in … quadrant.
(a) I (b) II 1
(c) III (d) IV

29. The point $(4, -6)$ lies in …. Quadrant.
(a) I (b) II
(c) III (d) IV

30. y co-ordinate of every point on x–axis is:
(a) +ve (b) –ve
(c) Zero (d) 1

31. x co-ordinate of every point on y–axis is:
(a) +ve (b) –ve
(c) zero (d) 1

32. The domain of {(a,b), (b,c), (c,d)} is:
(a) {a,b,c} (b) {b,c,d}
(c) {a,b} (d) {a, b,c,d,}

33. The range of {(a,a), (b,b), (c,c)} is:
(a) {a,b} (b) {a,b,c}
(c) {a} (d) ϕ

34. Venn diagram was first used by:
(a) John Venn (b) Newton
(c) Arthur Clayey d) John Napier

35. A subset of $A \times A$ is called……in A.
(a) Set (b) relation
(c) Function (d) into function

36. If $f: A \to B$ and range of $f = B$, then f is an:
(a) Into function (b) onto function
(c) Objective function (d) function

37. If $f: A \to B$ and range of $f \neq B$, then f is an:
(a) Into function
(b) Onto function
(c) Objective function
(d) Function

38. The relation $\{(a,b),(b,c),(a,d),\}$ is:
(a) a function (b) not a function
(c) range (d) domain

39. By definition, which of the following is a set?
(a) $\{a,b,c,a\}$ (b) $\{1,2,3,2\}$
(c) $\{\ell, m, n, o\}$ (d) $\{0,1,2,3,1\}$

40. Which of the following is true?
(a) $W \subseteq N$ (b) $Z \subseteq W$
(c) $N \subseteq P$ (d) $P \subseteq W$

41. Which of the following is true?
(a) $P \subseteq N \subseteq Z \subseteq W$
(b) $P \subseteq N \subseteq W \subseteq Z$
(c) $P \subseteq W \subseteq N \subseteq Z$
(d) $P \subseteq Z \subseteq N \subseteq W$

42. Which of the following is true?
(a) $N \text{ and } W \subseteq Z$
(b) $P \text{ and } O \subseteq W$
(c) $O \text{ and } E \subseteq W$
(d) $P \text{ and } E \subseteq N$

43. $N \cap W = \ldots\ldots\ldots$
(a) ϕ (b) $\{0\}$
(c) N (d) W

44. $N \cup W = \ldots\ldots\ldots$
(a) ϕ (b) $\{0\}$
(c) N (d) W

45. $N - W = \ldots\ldots\ldots$

(a) ϕ (b) $\{0\}$

(c) N (d) W

46. $W-N=.....$

(a) ϕ (b) $\{0\}$

(c) N (d) W

47. $O\cap E=.....$

(a) ϕ (b) O

(c) E (d) Z

48. $O\cup E=.....$

(a) ϕ (b) O

(c) E (d) Z

49. $E-O=.....$

(a) ϕ (b) O

(c) E (d) Z

50. $O-E=.....$

(a) ϕ (b) O

(c) E (d) Z

51. Which of the following is complete description of Real numbers?

(a) $N\cup W=R$ (b) $O\cup E=R$

(c) $P\cup Q=R$ (d) $Q\cup Q'=R$

52. If $x\in A$ and $x\in B$,then $\{x\}$ is equal to:

(a) $A-B$ (b) A^c

(c) $A\cap B$ (d) B^c

53. If $x\in A$ and $x\notin B$, then { x } is equal to:

(a) $A-B$ (b) $B-A$

(c) $A\cap B$ (d) A^c

54. If $x\in U$ and $x\notin A$, then $\{x\}$ is equal to:

(a) U^C (b) A^C

(c) ϕ^C (d) $A-U$

55. Which of the following is De-Morgan's law?

(a) $(A\cup B)\cup C=A\cup(B\cup C)$

(b) $(A\cap B)^C=A^C\cup B^C$

(c) $A\cup(B\cap C)=(A\cup B)\cap(A\cup C)$

(d) $A\cap(B\cup C)=(A\cap B)\cup(A\cap C)$

56. Which of the following is associative law of union?

(a) $A\cup(B\cup C)=(A\cup B)\cup C$

(b) $A\cap(B\cap C)=(A\cap B)\cap C$

(c) $A\cup(B\cap C)=(A\cup B)\cap(A\cup C)$

(d) $A\cap(B\cup C)=(A\cap B)\cup(A\cap C)$

57. Which of the following is associative law of intersection?

(a) $A\cup(B\cup C)=(A\cup B)\cup C$

(b) $A\cap(B\cap C)=(A\cap B)\cap C$

(c) $A\cup(B\cap C)=(A\cup B)\cap(A\cup C)$

(d) $A\cap(B\cup C)=(A\cap B)\cup(A\cap C)$

58. Which of the following is distributive property of union over intersection?

(a) $A\cup(B\cup C)=A\cup(B\cup C)$

(b) $A\cap(B\cap C)=(A\cap B)\cap C$

(c) $A\cup(B\cap C)=(A\cup B)\cap(A\cup C)$

(d) $A\cap(B\cup C)=(A\cap B)\cup(A\cap C)$

59. Which of the following is distributive property of intersection over union?

(a) $A\cup(B\cup C)=A\cup(B\cup C)$

(b) $A\cap(B\cap C)=(A\cap B)\cap C$

(c) $A\cup(B\cap C)=(A\cup B)\cap(A\cup C)$

(d) $A\cap(B\cup C)=(A\cap B)\cup(A\cap C)$

60. Which of the following is commutative law?

(a) $A\cup(B\cup C)=(A\cup B)\cup C$

(b) $A\cap(B\cap C)=(A\cap B)\cap C$

(c) $A\cap B=B\cap A$

(d) $(A\cup B)^C=A^C\cap B^C$

61. Two sets having no common element are called …… sets.

(a) subset (b) overlapping

(c) disjoint (d) super

62. If two sets have some elements common but not all are called….sets.
(a) sub (b) overlapping

(c) disjoint (d) super

63. If set A has all its elements common with set B then set A is called….set.
(a) sub (b) overlapping

(c) disjoint (d) super

64. A and A^C are ……..sets.
(a) Universal (b) overlapping

(c) disjoint (d) super

65. If union and intersection of two sets are equal then sets are ……sets.
(a) Disjoint (b) overlapping

(c) Equal (d) super

66. If A is subset of U, then $\left(A^C\right)^C$ = ...
(a) A (b) A^c

(c) ϕ^C (d) U^c

1.	c	2.	d	3.	c	4.	b	5.	d
6.	c	7.	d	8.	c	9.	b	10.	a
11.	c	12.	c	13.	a	14.	d	15.	c
16.	b	17.	b	18.	c	19.	b	20.	c
21.	c	22.	a	23.	b	24.	a	25.	d
26.	a	27.	c	28.	c	29.	d	30.	c
31.	c	32.	a	33.	b	34.	a	35.	b
36.	c	37.	a	38	b	39.	c	40.	d
41.	b	42.	a	43,	c	44.	d	45.	a
46.	b	47.	a	48.	d	49.	c	50.	b
51.	d	52.	c	53.	a	54.	b	55.	b
56.	a	57.	b	58.	c	59.	d	60.	c
61.	c	62.	b	63.	a	64.	c	65.	c
66.	a								

Chapter No 6

1. A grouped frequency table is also called:
(a) Data
(b) Frequency distribution
(c) Frequency polygon
(d) Histogram

2. A histogram is a set of adjacent:
(a) Squares (b) rectangles
(c) Circles (d) Dots

3. A frequency polygon is a many sided:
(a) Closed figure (b) rectangle
(c) Square (d) Circles

4. A cumulative frequency table is also called:
(a) Frequency distribution
(b) Data
(c) Less than cumulative frequency distribution
(d) Histogram

5. In a cumulative frequency polygon frequencies are plotted against:
(a) Midpoints
(b) Upper class boundaries
(c) Class limits (d) frequencies

6. Arithmetic mean is a measure that determines a value of the variable under study by dividing the sum of all values of the variable by their:
(a) Number (b) group
(c) Denominator (d) numerator

7. A deviation is defined as a difference of any value of the variable from a:
(a) Constant (b) histogram
(c) Sum (d) frequency

8. A data in the form of frequency distribution is called:
(a) Grouped data
(b) Ungrouped data
(c) Histogram
(d) Dispersion

9. Mean of a variable with similar observations say constant k is:
(a) Negative (b) k itself
(c) Zero (d) one

10. Mean is affected by change in:
(a) Value (b) ratio
(c) Origin (d) none of these

11. Mean is affected by change in:
(a) Place (b) scale
(c) Rate (d) none of these

12. Sum of the deviations of the variable x from its mean is always:
(a) Zero (b) one
(c) Same (d) negative

13. The n^{th} positive root of the product of the $x_1,x_2,x_3,\ldots\ldots\ldots\ldots x_n$ observations is called:
(a) Mode (b) Mean
(c) Geometric mean d) median

14. The value obtained by reciprocating the mean of the reciprocal of $x_1,x_2,x_3..x_n$ observations is called:
(a) Geometric mean
(b) Median
(c) Harmonic mean
(d) S.D

15. The most frequent occurring observation in a data set is called:
(a) Mode
(b) Median
(c) Harmonic mean
(d) Mean

16. The measure which determines the middlemost observation in a data set is called:
(a) median (b) mode
(c) Mean (d) variance

17. The observation that divide a data set into four equal part, are called:
(a) defiles (b) quartiles
(c) Percentiles (d) mode

18. The spread or scatterings of observations in a data set is called:
(a) average
(b) dispersion
(c) central tendency
(d) quartile

19. The measures that are used to determine the degree or extent of variation in a data set are called measures of:
(a) Dispersion (b) central tendency
(c) Average (d) quartile

20. The extent of variation between two extreme observations of a data set is measured by:
(a) Average (b) range
(c) Quartiles (d) mode

21. The mean of the squared deviations of x_i (i = 1, 2……,n) observations from their arithmetic mean is called:
(a) Variance
(b) Standard deviation
(c) Range (d) mode

22. The positive square root of mean of the squared deviations of x_i (i – 1,2,…. n) observations from their arithmetic mean is called:
(a) Harmonic mean (b) range
(c) S.D (d) variance

23. The size of class interval (6–10) is:
(a) 4 (b) 5
(c) 8 (d) 10

24. The arrangement of data is necessary to find the value of:
(a) Mean (b) Median
(c) Mode (d) Range

25. The class having maximum frequency is called ……..class.
(a) Modal (b) Median
(c) Lower (d) Upper

26. The class containing $\frac{n}{2}$th observation is called _____ class.
(a) Modal (b) Median
(c) Boundary of (d) Size of

27. During frequency distribution number of groups should be between:
(a) 5 and 10 (b) 10 and 15
(c) 10 and 20 (d) 5 and 15

28. Direct formula to find mean from ungrouped data.

(a) $\overline{X}=\frac{\sum x}{n}$ (b) $\overline{X}=\frac{\sum fx}{\sum f}$

(c) $\overline{X}=A+\frac{\sum D}{n}$ (d) $\overline{X}=A+\frac{\sum fD}{\sum f}$

29. Direct formula to find mean from grouped data is:

(a) $\overline{X}=\frac{\sum x}{n}$ (b) $\overline{X}=\frac{\sum fx}{\sum f}$

(c) $\overline{X}=A+\frac{\sum D}{n}$ (d) $\overline{X}=A+\frac{\sum fD}{\sum f}$

30. Short formula to find mean from ungrouped data is:

(a) $\overline{X}=\frac{\sum x}{n}$ (b) $\overline{X}=\frac{\sum fx}{\sum f}$

(c) $\overline{X}=A+\frac{\sum D}{n}$ (d) $\overline{X}=A+\frac{\sum fD}{\sum f}$

31. Short formula to find mean from grouped data is:

(a) $\overline{X}=\frac{\sum x}{n}$ (b) $\overline{X}=\frac{\sum fx}{\sum f}$

(c) $\overline{X}=A+\frac{\sum D}{n}$ (d) $\overline{X}=A+\frac{\sum fD}{\sum f}$

32. Coding formula to find mean from ungrouped data is:

(a) $\overline{X}=\frac{n}{\sum \frac{1}{x}}$ (b) $\overline{X}=\frac{n}{\sum \frac{f}{x}}$

(c) $\overline{X}=A+\frac{\sum u}{n}\times h$ (d) $\overline{X}=A+\frac{\sum fu}{\sum f}\times h$

33. Coding formula to find mean from grouped data is:

(a) $\overline{X}=\frac{n}{\sum \frac{1}{x}}$ (b) $\overline{X}=\frac{n}{\sum \frac{f}{x}}$

(c) $\overline{X}=A+\frac{\sum u}{n}\times h$ (d) $\overline{X}=A+\frac{\sum fu}{\sum f}\times h$

34. Formula to find Harmonic mean from ungrouped data is:

(a) $\overline{X}=\frac{n}{\sum \frac{1}{x}}$ (b) $\overline{X}=\frac{n}{\sum \frac{f}{x}}$

(c) $\overline{X}=A+\frac{\sum fu}{n}\times h$

(d) $\overline{X}=A+\frac{\sum fu}{\sum f}\times h$

35. Formula to find Harmonic mean from grouped data is:

(a) $\overline{X}=\frac{n}{\sum \frac{1}{x}}$ (b) $\overline{X}=\frac{n}{\sum \frac{f}{x}}$

(c) $\overline{X}=A+\frac{\sum fu}{n}\times h$ (d) $\overline{X}=A+\frac{\sum fu}{\sum f}\times h$

36. The concept of antilogarithm is used to find the value of:

(a) A.M (b) G. M

(c) H. M (d) Mode

37. Variance is denoted by:

(a) V (b) S

(c) S^2 (d) $\overline{X}$

38. Standard deviation is denoted by:

(a) X (b) S

(c) S^2 (d) $\overline{X}$

39. Median is denoted by:

(a) $\overline{X}$ (b) X

(c) S (d) S^2

40. On the basis of types of variable or data, the types of frequency distribution are:

(a) 2 (b) 3

(c) 4 (d) 5

41. In class (10 – 19), upper class limit is:

(a) 10 (b) 19

(c) 29 (d) 14.5

42. In class (30–39), lower class limit is:

(a) 39 (b) 9

(c) 30 (d) 34.5

43. In class (20–29), Midpoint or class mark is:

(a) 20.5 (b) 24.5

(c) 29 (d) 49

44. Types of measures of central tendency are:

(a) 3 (b) 4

(c) 5 (d) 6

45. Median from the data 82,93,86,92 and 79 is:

(a) 82 (b) 86

(c) 92 (d) 93

46. Median from the data 2.3, 2.7, 2.5, 3.1 and 1.9 is:

(a) 2.3 (b) 2.5

(c) 2.7 (d) 2.9

47. Mode from the following data 4,4,5,5,6,6,6,7,7,5,8,8,8,6,5,6,5,7 is:

(a) 4 (b) 5

(c) 5, 6 (d) 5, 7

48. Geometric Mean of 2,4,8 is:

(a) 2 (b) 4

(c) 8 (d) 3

49. Harmonic mean for 12,5,8,4 is:

(a) 6.08 (b) 5.08

(c) 7.08 (d) 4.08

50. Range = ……

(a) $X_m + X_o$ (b) $X_m - X_o$

(c) $\frac{X_m}{X_o}$ (d) $\frac{X_o}{X_m}$

51. Range for the data 110, 109, 84, 89, 77, 104, 74, 97, 49, 59, 103, 62 is:

(a) 41 (b) 51

(c) 61 (d) 71

52. If standard deviation is 6 then its variance is:

(a) $\sqrt{6}$ (b) 36

(c) 3 (d) 6

53. $\sum(X - \overline{X}) =$ ……

(a) 0 (b) 1

(c) –1 (d) 2

54. Arithmetic mean of 34,34,34,34,34,34 is

(a) 0 (b) 34

(c) 6 (d) 170

55. If Y = X + 5 then $\overline{Y}$ = ……

(a) $\overline{X}$ (b) 5

(c) $\overline{X}+5$ (d) $5\overline{X}$

56. If y = 10X then $\overline{y}$ =…….

(a) 10 (b) $10\overline{X}$

(c) $\overline{X}$ (d) $10+\overline{X}$

57. Which one is formula for weighted Arithmetic mean?

(a) $\frac{\sum w}{\sum wx}$ (b) $\sum wx$

(c) $\sum x$ (d) $\frac{\sum wx}{\sum w}$

58. Types of dispersion are:.

(a) 4 (b) 5

(c) 6 (d) 3

1.	b	2.	b	3.	a	4.	c	5.	b
6.	a	7.	a	8.	a	9.	b	10.	c
11.	b	12.	a	13.	c	14.	c	15.	a
16.	a	17.	b	18.	b	19.	a	20.	b
21.	a	22.	c	23.	b	24.	b	25.	a
26.	b	27.	d	28.	a	29.	b	30.	c
31.	d	32.	c	33.	d	34.	a	35.	b
36.	b	37.	c	38.	b	39.	b	40.	a
41.	b	42.	c	43.	b	44.	c	45.	b
46.	b	47.	c	48.	b	49.	a	50.	b
51.	c	52.	b	53.	a	54.	b	55.	c
56.	b	57.	d	58.	b				

Chapter No 7

Q. 1 Multiple choice questions:

Four possible answers are given for the following questions. Tick (✓) the correct answer.

1. The union of two non–collinear rays, which have common end point is called:

   (a) An angle (b) a degree

   (c) A minute (d) a radian

2. The system of measurement in which the angle is measured in radians is called:

   (a) CGS system

   (b) Sexagesimal system

   (c) MKS system

   (d) Circular system

3. 20° = …….

   (a) 360′ (b) 630′

   (c) 1200′ (d) 3600′

4. $\frac{3\pi}{4}$ Radians =

   (a) 115° (b) 135°

   (c) 150° (d) 30°

5. If $\tan\theta = \sqrt{3}$, then θ is equal to:

   (a) 90° (b) 45°

   (c) 60° (d) 30°

6. $\sec^2\theta$ =

   (a) $1 - \sin^2\theta$ (b) $1 + \tan^2\theta$

   (c) $1 + \cos^2\theta$ (d) $1 - \tan^2\theta$

7. $\frac{1}{1+\sin\theta} + \frac{1}{1-\sin\theta}$

   (a) $2\sec^2\theta$ (b) $2\cos^2\theta$

   (c) $\sec^2\theta$ (d) $\cos\theta$

8. $\frac{1}{2}$ cosec45°

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

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

9. $\sec\theta \cot\theta$ =

   (a) $\sin\theta$ (b) $\frac{1}{\cos\theta}$

   (c) $\frac{1}{\sin\theta}$ (d) $\frac{\sin\theta}{\cos\theta}$

10. $\text{cosec}^2\theta - \cot^2\theta$ =

    (a) –1 (b) 1

    (c) 0 (d) $\tan\theta$

11. In degree measurement, 1^o is equal to:

    (a) $1'$ (b) $60'$

    (c) $90'$ (d) $360'$

12. In degree measurement, $1'$ is equal to:

    (a) $1''$ (b) $60''$

    (c) $90''$ (d) $360''$

13. How many right angles are there in 360 degrees?

    (a) Two (b) four

    (c) Six (d) eight

14. If ‘r’ is the radius of a circle, then its circumference is:

    (a) $\frac{\pi}{2}r$ (b) πr

    (c) $2\pi r$ (d) $4\pi r$

15. The radian measure of an angle that form a complete circle is:

    (a) $\frac{\pi}{2}$ (b) π

    (c) 2π (d) 4π

16. 2π radians =

    (a) 0^o (b) 90^o

(c) 180^o (d) 360^o

17. π radians =
(a) 0^o (b) 90^o
(c) 180^o (d) 360^o

18. 1^o =
(a) 180π radian (b) π radian
(c) $\frac{\pi}{180}$ radian (d) $\frac{180}{\pi}$ radian

19. 1 radian =
(a) $(180\pi)^o$ (b) $(180)^o$
(c) $\left(\frac{\pi}{180}\right)^o$ (d) $\left(\frac{180}{\pi}\right)^o$

20. $\frac{\pi}{2}$ radians =
(a) 30^o (b) 45^o
(c) 60^o (d) 90^o

21. $\frac{\pi}{3}$ radians =
(a) 30^o (b) 45^o
(c) 60^o (d) 90^o

22. $\frac{\pi}{4}$ radians =
(a) 30^o (b) 45^o
(c) 60^o (d) 90^o

23. $\frac{\pi}{6}$ radians =
(a) 30^o (b) 45^o
(c) 60^o (d) 90^o

24. $\frac{3\pi}{2}$ radians=
(a) 90^o (b) 180^o
(c) 270^o (d) 360^o

25. 1^o =
(a) 0.0175 radians
(b) 0.175 radians
(c) 1.75 radians
(d) 175 radians

26. A part of circumference of a circle is called:
(a) radius (b) chord
(c) sector (d) arc

27. Formula for arc length is:
(a) $\ell = r\theta$ (b) $r = \ell\theta$
(c) $\theta = \ell r$ (d) $\ell = \frac{r}{\theta}$

28. Area of a circular sector =
(a) $r\theta$ (b) $r^2\theta$
(c) $\frac{1}{2}r\theta$ (d) $\frac{1}{2}r^2\theta$

29. $\frac{1}{\text{Sin}\theta}$ =
(a) $\text{Cos}\theta$ (b) $\text{Sec}\theta$
(c) $\text{Cosec}\,\theta$ (d) $\text{Cot}\,\theta$

30. $\frac{1}{\text{Cos}\theta}$ =
(a) $\text{Sin}\theta$ (b) $\text{Sec}\theta$
(c) $\text{Cosec}\,\theta$ (d) $\text{Cot}\theta$

31. $\frac{1}{\tan\theta}$ =
(a) $\tan\theta$ (b) $\text{Sec}\theta$
(c) $\text{Cosec}\,\theta$ d) $\text{Cot}\theta$

32. $\text{Sin}45^o$ =
(a) 1 (b) $\sqrt{2}$
(c) $\frac{1}{\sqrt{2}}$ (d) 0

33. $\text{Cos}45^o$ =
(a) 1 (b) $\sqrt{2}$
(c) $\frac{1}{\sqrt{2}}$ (d) 0

34. $\tan 45^o$ =
(a) 1 (b) $\sqrt{2}$

(c) $\frac{1}{\sqrt{2}}$ (d) 0

35. $\text{Cosec}\,45^\circ =$

(a) 1 (b) $\sqrt{2}$

(c) $\frac{1}{\sqrt{2}}$ (d) 0

36. $\text{Sec}45^\circ =$

(a) 1 (b) $\sqrt{2}$

(c) $\frac{1}{\sqrt{2}}$ (d) 0

37. $\text{Cot}45^\circ =$

(a) 1 (b) $\sqrt{2}$

(c) $\frac{1}{\sqrt{2}}$ (d) 0

38. $\text{Sin}30^\circ =$

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

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

39. $\text{Cos}30^\circ =$

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

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

40. $\tan 30^\circ =$

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

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

41. $\text{Cot}30^\circ =$

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

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

42. $\text{Sec}30^\circ =$

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

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

43. $\text{Cosec}\,30^\circ =$

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

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

44. $\text{Sin}60^\circ =$

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

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

45. $\text{Cos}60^\circ =$

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

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

46. $\tan 60^\circ =$

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

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

47. $\text{Cot}60^\circ =$

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

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

48. $\text{Sec}60^\circ =$

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

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

49. $\text{Cosec}\,60^\circ =$

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

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

50. In which quadrant only $\text{Sin}\theta$ and $\text{Cosec}\,\theta$ are positive?

(a) I (b) II

(c) III (d) IV

51. In which quadrant only $\cos\theta$ and $\sec\theta$ are positive?
(a) I (b) II
(c) III (d) IV

52. In which quadrant only $\tan\theta$ and $\cot\theta$ are positive?
(a) I (b) II
(c) III (d) IV

53. In which quadrant θ lie when $\sin\theta > 0, \tan\theta < 0$?
(a) I (b) II
(c) III (d) IV

54. In which quadrant θ lie when $\cos\theta < 0, \sin\theta < 0$?
(a) I (b) II
(c) III (d) IV

55. In which quadrant θ lie when $\sec\theta > 0, \sin\theta < 0$?
(a) I (b) II
(c) III (d) IV

56. In which quadrant θ lie when $\cos\theta < 0, \tan\theta < 0$?
(a) I (b) II
(c) III (d) IV

57. In which quadrant θ lie when $\operatorname{cosec}\theta > 0, \cos\theta > 0$?
(a) I (b) II
(c) III (d) IV

58. In which quadrant θ lie when $\sin\theta < 0, \sec\theta < 0$?
(a) I (b) II
(c) III (d) IV

59. $\sin^2\theta + \cos^2\theta =$
(a) $\tan^2\theta$ (b) $\cot^2\theta$
(c) 1 (d) 0

60. $1 + \tan^2\theta =$
(a) $\sin^2\theta$ (b) $\cos^2\theta$
(c) $\operatorname{cosec}^2\theta$ (d) $\sec^2\theta$

61. $1 + \cot^2\theta =$
(a) $\sin^2\theta$ (b) $\cos^2\theta$
(c) $\operatorname{cosec}^2\theta$ (d) $\sec^2\theta$

62. In which quadrate all trigonometric ratios are positive?
(a) I (b) II
(c) III (d) IV

63. Fundamental trigonometric ratios are:
(a) 3 (b) 4
(c) 5 (d) 6

64. Which one is a quadrant angle?
(a) 30° (b) 45°
(c) 60° (d) 90°

65. $\sin\theta.\operatorname{cosec}\theta =$
(a) 1 (b) 0
(c) $\sin\theta$ (d) $\cos\theta$

66. $\cos\theta.\sec\theta =$
(a) 1 (b) $\tan\theta$
(c) 0 (d) $\cot\theta$

67. $\tan\theta\cot\theta =$
(a) $\sin\theta$ (b) $\sec\theta$
(c) 1 (d) 0

68. Angles between 180° and 270° are in which quadrant?
(a) I (b) II
(c) III (d) IV

69. Angles between 0° and 90° are in which quadrant?
(a) I (b) II
(c) III (d) IV

70. $\sin(-310^\circ) = \ldots\ldots$
(a) $\sin 310^\circ$ (b) $-\sin 310^\circ$
(c) $\cos 310^\circ$ (d) $\tan 310^\circ$

71. $\sec(-60^\circ) = \ldots\ldots$
(a) $-\sec 60^\circ$ (b) $\sec 60^\circ$
(c) $\cos 60^\circ$ (d) $\cot 60^\circ$

1.	a	2.	d	3.	c	4.	b	5.	c
6.	b	7.	a	8.	b	9.	c	10.	b
11.	b	12.	b	13.	b	14.	c	15.	c
16.	d	17.	c	18.	c	19.	d	20.	d
21.	c	22.	b	23.	a	24.	c	25.	a
26.	d	27.	a	28.	d	29.	c	30.	b
31.	d	32.	c	33.	c	34.	a	35.	b
36.	b	37.	a	38.	a	39.	b	40.	d
41.	c	42.	d	43.	c	44.	b	45.	a
46.	c	47.	d	48.	c	49.	d	50.	b
51.	d	52.	c	53.	b	54.	c	55.	d
56.	b	57.	a	58.	c	59.	c	60.	d
61.	c	62.	a	63.	d	64.	d	65.	a
66.	a	67.	c	68.	c	69.	a	70.	b
71.	b								

Chapter No 9

Q.1 Four possible answers are given for the following questions.

1. In the circular figure. ADB is called:
(a) An arc
(b) A secant
(c) A chord
(d) A diameter

2. In the circular figure, *ACB* is called:
(a) An arc
(b) A secant
(c) A chord
(d) A diameter

3. In the circular figure, AOB is called:
(a) an arc
(b) a secant
(c) A chord
(d) Diameter

4. In a circular figure, two chords $\overline{AB}$ and $\overline{CD}$ are equidistant from the center. They will be:
(a) parallel
(b) non congruent
(c) congruent
(d) perpendicular

5. Radii of a circle are.
(a) all equal
(b) double of the diameter
(c) all unequal
(d) half of any chord

6. A chord Passing through the center of a circle is called:
(a) radius
(b) diameter
(c) circumference
(d) secant

7. Right bisector of the chord of a circle always passes through the:
(a) radius (b) circumference
(c) center (d) diameter

8. The circular region bounded by two radii and the corresponding arc is called:
(a) circumference of a circle 10309034
(b) sector of a circle
(c) diameter of a circle
(d) segment of a circle

9. The distance of any point of the circle to its center is called:
(a) radius (b) diameter
(c) a chord (d) an arc

10. Line segment joining any point of the circle to the center is called:
(a) circumference
(b) diameter
(c) Radial segment
(d) Perimeter

11. Locus of a point in a plane equidistant from a fixed point is called:
(a) radius (b) circle
(c) circumference (d) diameter

12. The symbol for a triangle is denoted by:
(a) $\angle$ (b) Δ
(c) $\perp$ (d) $\odot$

13. A complete circle is divided into:
(a) 90 degree (b) 180 degree
(c) 270 degree (d) 360 degree

14. Through how many non-collinear points, a circle can pass?
(a) one (b) two
(c) Three (d) None

15. The vertex of central angle is at:

(a) circumference
(b) center
(c) Any point of radius
(d) Any point of diameter

16. The line segment joining the center and any point of circle is called:
(a) circumference
(b) radial segment
(c) Chord
(d) Diameters

17. The length of boundary traced by a moving point in a circular path is called:
(a) circumference
(b) radial segment
(c) Chord
(d) Diameter

18. The ling segment joining any two points of circle is called:
(a) circumference
(b) radial segment
(c) Chord
(d) Diameter

19. The central chord of circle is its:
(a) circumference
(b) radial segment
(c) Chord
(d) Diameter

20. The largest chord of a circle is its:
(a) circumference
(b) radial segment
(c) Chord
(d) Diameter

21. A circle of radius 4cm has a chord few cm away from its center, which of the following length of chord may be?
(a) 6cm (b) 8cm
(c) 10cm (d) 12cm

22. π is the ratio of:
(a) radius and diameter
(b) diameter and circumference
(c) circumference and diameter
(d) Circumference and radius

23. $\pi \approx \frac{22}{7}$ is an …….. number.
(a) rational (b) irrational
(c) Natural (d) prime

24. If radius of a circle is "r", then its diameter is:
(a) r^2 (b) 2 + r
(c) 2r (d) r – 2

25. If central chord of a circle is 12cm, then its radius is:
(a) 6cm (b) 8cm
(c) 12cm (d) 24cm

1.	c	2.	a	3.	d	4.	c	5.	a
6.	b	7.	c	8.	b	9.	a	10.	c
11.	b	12.	b	13.	d	14.	c	15.	b
16.	b	17.	a	18.	c	19.	d	20.	d
21.	a	22.	c	23.	b	24.	c	25.	a

Chapter No 10

Q. 1 Four possible answers are given for the following questions.

1. In the adjacent figure of the circle, the line is $\overleftrightarrow{PTQ}$ named as.
(a) An arc
(b) A chord
(c) A tangent
(d) A secant

2. In a circle with center O, $\overline{OT}$ is the radical segment and $\overleftrightarrow{PTQ}$ is the tangent line, then:
(a) $\overline{OT} \perp \overleftrightarrow{PQ}$
(b) $\overline{OT} \not\perp \overleftrightarrow{PQ}$
(c) $\overline{OT} \parallel \overleftrightarrow{PQ}$
(d) $\overline{OT}$ is the right bisector of $\overleftrightarrow{PQ}$

3. In the adjacent figure find semicircular area if $\pi \simeq 3.1416$ and m$\overline{OA}$=20cm.
(a) 62.83sq cm
(b) 314.16sq cm
(c) 436.20sq cm
(d) 628.32sq cm

4. In the adjacent figure find half the perimeter of circle with center O if $\pi = 3.1416$ and m$\overline{OA}$=20cm.
(a) 31.42 cm
(b) 62.832 cm
(c) 125.65 cm
(d) 188.50 cm

5. A line which has two points in common with a circle is called:
(a) sine of a circle
(b) Cosine of a circle
(c) Tangent of a circle
(d) Secant of a circle

6. A line which has only one point in common with a circle is called:
(a) sine of a circle
(b) Cosine of a circle
(c) Tangent of a circle
(d) Secant of a circle

7. Two tangents drawn to a circle from a point outside it are …….in length.
(a) Half (b) equal
(c) Double (d) triple

8. A circle has only one:
(a) secant (b) chord
(c) diameter (d) center

9. A tangent line intersects the circle.
(a) three points (b) two points
(c) single point (d) no point at all

10. Tangents drawn at the ends of diameter of a circle are…… to each other.
(a) parallel (b) non-parallel
(c) collinear (d) perpendicular

11. The distance between the centers of two congruent touching circles externally is:
(a) of zero length
(b) the radius of each circle
(c) the diameter of each circle
(d) twice the diameter of each circle

12. In the adjacent circular figure with center O and radius 5cm. The length of the chord intercepted at 4cm away from the center of this circle is:
(a) 4cm
(b) 6cm
(c) 7cm
(d) 9cm

13. In the adjoining figure there is a circle with center O. If $\overline{DC}$ || diameter $\overline{AB}$ and m$\angle AOC = 120°$, then m$\angle ACD$ is:
(a) 40°
(b) 30°
(c) 50°
(d) 60°

14. In the given diagram find m$\overline{OA}$ if m$\overline{OB}$=8cm, m$\overline{OP}$=4cm and m$\overline{OQ}$=12cm
(a) 2cm
(b) 2.67
(c) 2.8 cm
(d) 3cm

15. In the given diagram find m$\overline{OX}$ if m$\overline{OA}$=6cm and m$\overline{OY}$=9cm
(b) 6cm
(c) 9cm
(d) 12cm
(a) 4cm

1.	c	2.	a	3.	d	4.	b	5.	d
6.	c	7.	b	8.	d	9.	c	10.	a
11.	c	12.	b	13.	b	14.	b	15.	a

Chapter No 11

Q.1 Multiple Choice Questions

Four possible answers arc given for the following questions.

1. A 4 cm long chord subtends central angle of 60°. The radial segment of this, circle:
(a) 1cm (b) 2cm
(c) 3cm (d) 4cm

2. The length of a chord and the radial segment of a circle are congruent, the central angle made by the chord will be:
(a) 30° (b) 45°
(c) 60° (d) 75°

3. Out of two congruent arcs of a circle, if one arc makes a central angle of 30° then the other arc will subtend the central angle of:
(a) 15° (b) 30°
(c) 45° (d) 60°

4. An arc subtends a central angle of 40° then the corresponding chord will subtended a central angle of:
(a) 20° (b) 40°
(c) 60° (d) 80°

5. A pair of chords of a circle subtending two congruent central angles is:
(a) Congruent (b) incongruent
(c) Over lapping (d) parallel

6. If an arc of a circle subtends a central angle of 60°, then the corresponding chord of the arc will make the central angle of:
(a) 20° (b) 40°
(c) 60° (d) 80°

7. The semi circumference and the diameter of a circle both subtend a central angle of
(a) 90° (b) 180°
(c) 270° (d) 360°

8. The chord length of a circle subtending a central angle of 180° is always:
(a) Less than radial segment
(b) Equal to the radial segment
(c) Double of the radial segment
(d) None of these

9. If a chord of a circle subtends a central angle of 60°, then the length of the chord and the radial segment are:
(a) congruent (b) incongruent
(c) parallel (d) perpendicular

10. The arcs opposite to incongruent central angles of a circle are always:
(a) Congruent (b) incongruent
(c) parallel (d) perpendicular

1.	d	2.	c	3.	b	4.	b	5.	a
6.	c	7.	b	8.	c	9.	a	10.	b

Chapter No 12

Q. 1 Multiple Choice Questions

Four possible answers arc given for the following questions.

1. A circle passes through the vertices of a right angled ΔABC with $m\overline{AC}$ = 3cm and $m\overline{BC}$ =4cm, $m\angle C = 90^o$, Radius of the circle is:
(a) 1.5 cm (b) 2.0 cm
(c) 2.5 cm (d) 3.5 cm

2. In the adjacent circular figure, central and inscribed angles stand on the same arc AB:
(a) $m\angle 1 = m\angle 2$
(b) $m\angle 1 = 2m\angle 2$
(c) $m\angle 2 = 3m\angle 1$
(d) $m\angle 2 = 2m\angle 1$

3. In the adjacent figure if $m\angle 3 = 75^o$, then find $m\angle 1$ and $m\angle 2$

(a) $37\frac{1^o}{2}, 37\frac{1^o}{2}$

(b) $37\frac{1^o}{2}, 75^o$

(c) $75^o, 37\frac{1^o}{2}$

(d) $75^o, 75^o$

4. Given that O is the center of the circle, the angle marked x will be:

(a) $12\frac{1^o}{2}$ (b) 25^o

(c) 50^o (d) 75^o

5. Given that O is the center of the circle the angle marked y will be:

(a) $12\frac{1^o}{2}$ (b) 25^o

(c) 50^o (d) 75^o

6. In the figure, O is the center of the circle and $\overleftrightarrow{ABN}$ is a straight line. The obtuse angle AOC = x is:

(a) 32^o (b) 64^o

(c) 96^o (d) 128^o

7. In the figure , O is the center of the circle, then the angle x is:

(a) 55^o

(b) 110^o

(c) 220^o

(d) 125^o

8. In the figure, O is the center of the circle then angle x is:

(a) 15^o

(b) 30^o

(c) 45^o

(d) 60^o

9. In the figure ,O is the center of the circle then the angle x is:

(a) 15^o

(b) 30^o

(c) 45^o

(d) 60^o

10. In the figure, O is the center of the circle then the angle x is: 10312024

(a) 50^o

(b) 75^o

(c) 100^o

(d) 125^o

1.	c	2.	d	3.	a	4.	c	5.	b
6.	d	7.	d	8.	b	9.	d	10.	c

Chapter No 13

Multiple Choice Questions

Three possible answers are given for the following questions. Tick (✓) the correct answer.

1. The circumference of a circle is a called:
(a) Chord (b) segment
(c) Boundary (d) point

2. A line intersecting a circle is called:
(a) Tangent (b) secant
(c) Chord (d) diameter

3. The portion of a circle between two radii and an arc is called:
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(a) Sector (b) segment
(c) Chord (d) interior

4. Angle inscribed in a semi-circle is:
(a) $\frac{\pi}{2}$ (b) $\frac{\pi}{3}$
(c) $\frac{\pi}{4}$ (d) π

5. The length of the diameter of a circle is how many times the radius of the circle?
   (a) 1 (b) 2
   (c) 3 (d) 4

6. The tangent and radius of a circle at the point of contact are:
   (a) Parallel
   (b) Not perpendicular
   (c) Perpendicular
   (d) Collinear

7. Circles having three points in common
   (a) Overlapping
   (b) Collinear
   (c) Not coincide
   (d) Non-concentric

8. If two circles touch each other, their center and point of contact are:
   (a) Coincident (b) non collinear
   (c) Collinear (d) non co planer

9. The measure of the external angle of a regular hexagon is:
   (a) $\frac{\pi}{3}$ (b) $\frac{\pi}{4}$
   (c) $\frac{\pi}{6}$ (d) π

10. If the in-center and circum-centre of a triangle coincide, the triangle is:
   (a) An isosceles
   (b) A right triangle
   (c) An equilateral
   (d) A scalene triangle

11. The measure of the external angle of a regular octagon is:
   (a) $\frac{\pi}{4}$ (b) $\frac{\pi}{6}$
   (c) $\frac{\pi}{8}$ (d) π

12. Tangents drawn at the end points of the diameter of a circle are:
   (a) Parallel (b) perpendicular
   (c) Intersecting (d) non co planer

13. The lengths of two transverse tangents to a pair of circles are:
   (a) Un equal (b) equal
   (c) Overlapping
   (d) Double of each other

14. How many tangents can be drawn from a point outside the circle?
   (a) 1 (b) 2
   (c) 3 (d) none

15. If the distance between the center of two circles is equal to the sum of the their radii, then the circles will:
   (a) Intersect
   (b) Do not intersect
   (c) Touch each other externally
   (d) Touch each other internally

16. If the two circles touches externally, then the distance between their center is equal to the:
   (a) Difference of their radii
   (b) Sum of their radii
   (c) Product of the their radii
   (d) Division of their radii

17. How many common tangents can be drawn for two touching circles?
   (a) 1 (b) 2
   (c) 3 (d) 4

18. How many common tangents can be drawn for two disjoint circles?
   (a) 1 (b) 2
   (c) 3 (d) 4

19. How many common tangents can be drawn for two intersecting circles?
    (a) 1 (b) 2
    (c) 3 (d) 4

20. The word geometry is derived from two ___ words Geo and Matron.
    (a) English (b) Latin
    (c) Greek (d) Chinese

21. Euclid was a ___ mathematician.
    (a) English (b) Latin
    (c) Greek (d) Chinese

22. The circle passing through vertices of a triangle is called:
    (a) circus – circle (b) in-circle
    (c) Escribed circle (d) right circle

23. The circle which touches the three sides of a triangle is called:
    (a) circus – circle (b) in-circle
    (c) Escribed circle (d) right circle

24. The circle touching one side of the triangle externally and two produced sides internally is called:
    (a) circus – circle (b) in-circle
    (c) Escribed circle (d) right circle

25. Tangent is a line touching a circle at:
    (a) No point (b) one point
    (c) Two points (d) infinite points

26. Two circles of different radii can touch each other at:
    (a) No point (b) one point
    (c) Two points (d) infinite points

27. Two circles of same radii can touch each other at:
    (a) No point (b) one point
    (c) Two points (d) infinite points

1.	c	2.	b	3.	a	4.	a	5.	b
6.	c	7.	a	8.	c	9.	a	10.	c
11.	a	12.	a	13.	b	14.	b	15.	c
16.	b	17.	c	18.	d	19.	b	20.	c
21.	c	22.	a	23.	b	24.	c	25.	b
26.	b	27.	d						

Reference: Mathematics 10 (Science Group) written by Muhammad Habib, Ch Asghar Ali, Prof. Abdul Rauf Khan and.

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