1. SETS AND FUNCTIONS

1. For two sets A and B, $A \cup B = A$ if and only if

   (A) $B \subseteq A$ (B) $A \subseteq B$ (C) $A \neq B$ (D) $A \cap B = \phi$

2. If $A \subset B$, then $A \cap B$ is

   (A) B (B) $A \backslash B$ (C) A (D) $B \backslash A$

3. For any two sets P and Q, $P \cap Q$ is

   (A) $\{x : x \in P \text{ or } x \in Q\}$ (B) $\{x : x \in P \text{ and } x \notin Q\}$

   (C) $\{x : x \in P \text{ and } x \in Q\}$ (D) $\{x : x \notin P \text{ and } x \in Q\}$

4. If $A = \{ p, q, r, s \}$, $B = \{ r, s, t, u \}$, then $A \backslash B$ is

   (A) $\{ p, q \}$ (B) $\{ t, u \}$ (C) $\{ r, s \}$ (D) $\{p, q, r, s \}$

5. If $n[p(A)] = 64$, then $n(A)$ is

   (A) 6 (B) 8 (C) 4 (D) 5

6. For any three sets A, B and C, $A \cap (B \cup C)$ is

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

   (C) $A \cup (B \cap C)$ (D) $(A \cup B) \cap (B \cup C)$

7. For any two sets A and B, $\{(A \setminus B) \cup (B \setminus A)\} \cap (A \cap B)$ is

   (A) ϕ (B) $A \cup B$ (C) $A \cap B$ (D) $A' \cap B'$

8. Which one of the following is not true ?

   (A) $A \setminus B = A \cap B'$ (B) $A \setminus B = A \cap B$

   (C) $A \setminus B = (A \cup B) \cap B'$ (D) $A \setminus B = (A \cup B) \setminus B$

9. For any three sets A, B and C, $B \setminus (A \cup C)$ is

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

   (C) $(B \setminus A) \cap (A \setminus C)$ (D) $(A \setminus B) \cap (B \setminus C)$

10. If $n(A) = 20$, $n(B) = 30$ and $n(A \cup B) = 40$, then $n(A \cap B)$ is equal to

    (A) 50 (B) 10 (C) 40 (D) 70.

11. If $\{ (x, 2), (4, y) \}$ represents an identity function, then (x, y) is

    (A) (2, 4) (B) (4, 2) (C) (2, 2) (D) (4, 4)

12. If $\{ (7, 11), (5, a) \}$ represents a constant function, then the value of 'a' is

(A) 7 (B) 11 (C) 5 (D) 9

13. Given $f(x) = (-1)^x$ is a function from $\mathbb{N}$ to $\mathbb{Z}$. Then the range of f is

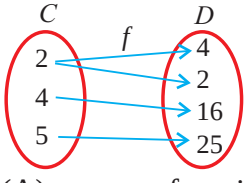
(A) $\{ 1\}$ (B) $\mathbb{N}$ (C) $\{ 1, -1 \}$ (D) $\mathbb{Z}$

14. If $f = \{ (6, 3), (8, 9), (5, 3), (-1, 6) \}$, then the pre-images of 3 are

(A) 5 and –1 (B) 6 and 8 (C) 8 and –1 (D) 6 and 5.

15. Let $A = \{ 1, 3, 4, 7, 11 \}$, $B = \{-1, 1, 2, 5, 7, 9 \}$ and $f : A \to B$ be given by $f = \{ (1, -1), (3, 2), (4, 1), (7, 5), (11, 9) \}$. Then f is

(A) one-one (B) onto (C) bijective (D) not a function

16. 

The given diagram represents

(A) an onto function (B) a constant function

(C) an one-one function (D) not a function

17. If $A = \{ 5, 6, 7 \}$, $B = \{ 1, 2, 3, 4, 5 \}$ and $f : A \to B$ is defined by $f(x) = x - 2$, then the range of f is

(A) $\{ 1, 4, 5 \}$ (B) $\{ 1, 2, 3, 4, 5 \}$ (C) $\{ 2, 3, 4 \}$ (D) $\{ 3, 4, 5 \}$

18. If $f(x) = x^2 + 5$, then $f(-4) =$

(A) 26 (B) 21 (C) 20 (D) –20

19. If the range of a function is a singleton set, then it is

(A) a constant function (B) an identity function

(C) a bijective function (D) an one-one function

20. If $f : A \to B$ is a bijective function and if $n(A) = 5$, then $n(B)$ is equal to

(A) 10 (B) 4 (C) 5 (D) 25

2. SEQUENCES AND SERIES OF REAL NUMBERS

1. Which one of the following is not true?

   (A) A sequence is a real valued function defined on $\mathbb{N}$.

   (B) Every function represents a sequence.

   (C) A sequence may have infinitely many terms.

   (D) A sequence may have a finite number of terms.

2. The 8^{th} term of the sequence 1, 1, 2, 3, 5, 8, $\cdots$ is

   (A) 25 (B) 24 (C) 23 (D) 21

3. The next term of $\frac{1}{20}$ in the sequence $\frac{1}{2}, \frac{1}{6}, \frac{1}{12}, \frac{1}{20}, \cdots$ is

   (A) $\frac{1}{24}$ (B) $\frac{1}{22}$ (C) $\frac{1}{30}$ (D) $\frac{1}{18}$

4. If a, b, c, l, m are in A.P, then the value of $a - 4b + 6c - 4l + m$ is

   (A) 1 (B) 2 (C) 3 (D) 0

5. If a, b, c are in A.P. then $\frac{a-b}{b-c}$ is equal to

   (A) $\frac{a}{b}$ (B) $\frac{b}{c}$ (C) $\frac{a}{c}$ (D) 1

6. If the n^{th} term of a sequence is $100n+10$, then the sequence is

   (A) an A.P. (B) a G.P. (C) a constant sequence (D) neither A.P. nor G.P.

7. If $a_1, a_2, a_3, \cdots$ are in A.P. such that $\frac{a_4}{a_7} = \frac{3}{2}$, then the 13^{th} term of the A.P. is

   (A) $\frac{3}{2}$ (B) 0 (C) $12a_1$ (D) $14a_1$

8. If the sequence $a_1, a_2, a_3, \cdots$ is in A.P. , then the sequence $a_5, a_{10}, a_{15}, \cdots$ is

   (A) a G.P. (B) an A.P. (C) neither A.P nor G.P. (D) a constant sequence

9. If $k+2, 4k-6, 3k-2$ are the three consecutive terms of an A.P, then the value of k is

   (A) 2 (B) 3 (C) 4 (D) 5

10. If $a, b, c, l, m. n$ are in A.P., then $3a+7, 3b+7, 3c+7, 3l+7, 3m+7, 3n+7$ form

    (A) a G.P. (B) an A.P. (C) a constant sequence (D) neither A.P. nor G.P

11. If the third term of a G.P is 2, then the product of first 5 terms is

    (A) 5^2 (B) 2^5 (C) 10 (D) 15

12. If a, b, c are in G.P, then $\frac{a-b}{b-c}$ is equal to

    (A) $\frac{a}{b}$ (B) $\frac{b}{a}$ (C) $\frac{b}{c}$ (D) $\frac{c}{b}$

13. If $x,\ 2x+2,\ 3x+3,\cdots$ are in G.P, then $5x,\ 10x+10,\ 15x+15,\cdots$ form

(A) an A.P. (B) a G.P. (C) a constant sequence (D) neither A.P. nor a G.P.

14. The sequence –3, –3, –3,$\cdots$ is

(A) an A.P. only (B) a G.P. only (C) neither A.P. nor G.P (D) both A.P. and G.P.

15. If the product of the first four consecutive terms of a G.P is 256 and if the common ratio is 4 and the first term is positive, then its 3rd term is

(A) 8 (B) $\frac{1}{16}$ (C) $\frac{1}{32}$ (D) 16

16. In a G.P, $t_2=\frac{3}{5}$ and $t_3=\frac{1}{5}$. Then the common ratio is

(A) $\frac{1}{5}$ (B) $\frac{1}{3}$ (C) 1 (D) 5

17. If $x\neq 0$, then $1+\sec x+\sec^2 x+\sec^3 x+\sec^4 x+\sec^5 x$ is equal to

(A) $(1+\sec x)(\sec^2 x+\sec^3 x+\sec^4 x)$ (B) $(1+\sec x)(1+\sec^2 x+\sec^4 x)$

(C) $(1-\sec x)(\sec x+\sec^3 x+\sec^5 x)$ (D) $(1+\sec x)(1+\sec^3 x+\sec^4 x)$

18. If the n^{th} term of an A.P. is $t_n=3-5n$, then the sum of the first n terms is

(A) $\frac{n}{2}[1-5n]$ (B) $n(1-5n)$ (C) $\frac{n}{2}(1+5n)$ (D) $\frac{n}{2}(1+n)$

19. The common ratio of the G.P. a^{m-n} , a^m, a^{m+n} is

(A) a^m (B) a^{-m} (C) a^n (D) a^{-n}

20. If 1 + 2 + 3 +. . . + n = k then $1^3+2^3+\cdots+n^3$ is equal to

(A) k^2 (B) k^3 (C) $\frac{k(k+1)}{2}$ (D) $(k+1)^3$

3. ALGEBRA

1. If the system $6x - 2y = 3$, $kx - y = 2$ has a unique solution, then

   (A) $k = 3$ (B) $k \neq 3$ (C) $k = 4$ (D) $k \neq 4$

2. A system of two linear equations in two variables is inconsistent, if their graphs

   (A) coincide (B) intersect only at a point

   (C) do not intersect at any point (D) cut the x-axis

3. The system of equations $x - 4y = 8$, $3x - 12y = 24$

   (A) has infinitely many solutions (B) has no solution

   (C) has a unique solution (D) may or may not have a solution

4. If one zero of the polynomial $p(x) = (k+4)x^2 + 13x + 3k$ is reciprocal of the other, then k is equal to

   (A) 2 (B) 3 (C) 4 (D) 5

5. The sum of two zeros of the polynomial $f(x) = 2x^2 + (p+3)x + 5$ is zero, then the value of p is

   (A) 3 (B) 4 (C) –3 (D) –4

6. The remainder when $x^2 - 2x + 7$ is divided by $x+4$ is

   (A) 28 (B) 29 (C) 30 (D) 31

7. The quotient when $x^3 - 5x^2 + 7x - 4$ is divided by $x-1$ is

   (A) $x^2 + 4x + 3$ (B) $x^2 - 4x + 3$ (C) $x^2 - 4x - 3$ (D) $x^2 + 4x - 3$

8. The GCD of $(x^3 + 1)$ and $x^4 - 1$ is

   (A) $x^3 - 1$ (B) $x^3 + 1$ (C) $x + 1$ (D) $x - 1$

9. The GCD of $x^2 - 2xy + y^2$ and $x^4 - y^4$ is

   (A) 1 (B) $x+y$ (C) $x-y$ (D) $x^2 - y^2$

10. The LCM of $x^3 - a^3$ and $(x - a)^2$ is

    (A) $(x^3 - a^3)(x + a)$ (B) $(x^3 - a^3)(x - a)^2$

    (C) $(x - a)^2(x^2 + ax + a^2)$ (D) $(x + a)^2(x^2 + ax + a^2)$

11. The LCM of a^k, a^{k+3}, a^{k+5} where $k \in \mathbb{N}$ is

    (A) a^{k+9} (B) a^k (C) a^{k+6} (D) a^{k+5}

12. The lowest form of the rational expression $\frac{x^2 + 5x + 6}{x^2 - x - 6}$ is

    (A) $\frac{x-3}{x+3}$ (B) $\frac{x+3}{x-3}$ (C) $\frac{x+2}{x-3}$ (D) $\frac{x-3}{x+2}$

13. If $\frac{a+b}{a-b}$ and $\frac{a^3 - b^3}{a^3 + b^3}$ are the two rational expressions, then their product is

    (A) $\frac{a^2 + ab + b^2}{a^2 - ab + b^2}$ (B) $\frac{a^2 - ab + b^2}{a^2 + ab + b^2}$ (C) $\frac{a^2 - ab - b^2}{a^2 + ab + b^2}$ (D) $\frac{a^2 + ab + b^2}{a^2 - ab - b^2}$

14. On dividing $\frac{x^2-25}{x+3}$ by $\frac{x+5}{x^2-9}$ is equal to

(A) $(x-5)(x-3)$ (B) $(x-5)(x+3)$ (C) $(x+5)(x-3)$ (D) $(x+5)(x+3)$

15. If $\frac{a^3}{a-b}$ is added with $\frac{b^3}{b-a}$, then the new expression is

(A) a^2+ab+b^2 (B) a^2-ab+b^2 (C) a^3+b^3 (D) a^3-b^3

16. The square root of 49 $(x^2-2xy+y^2)^2$ is

(A) $7|x-y|$ (B) $7(x+y)(x-y)$ (C) $7(x+y)^2$ (D) $7(x-y)^2$

17. The square root of $x^2+y^2+z^2-2xy+2yz-2zx$

(A) $|x+y-z|$ (B) $|x-y+z|$ (C) $|x+y+z|$ (D) $|x-y-z|$

18. The square root of $121x^4y^8z^6(l-m)^2$ is

(A) $11x^2y^4z^4|l-m|$ (B) $11x^4y^4|z^3(l-m)|$

(C) $11x^2y^4z^6|l-m|$ (D) $11x^2y^4|z^3(l-m)|$

19. If $ax^2+bx+c=0$ has equal roots, then c is equal

(A) $\frac{b^2}{2a}$ (B) $\frac{b^2}{4a}$ (C) $-\frac{b^2}{2a}$ (D) $-\frac{b^2}{4a}$

20. If $x^2+5kx+16=0$ has no real roots, then

(A) $k>\frac{8}{5}$ (B) $k>-\frac{8}{5}$ (C) $-\frac{8}{5}<k<\frac{8}{5}$ (D) $0<k<\frac{8}{5}$

21. A quadratic equation whose one root is 3 is

(A) $x^2-6x-5=0$ (B) $x^2+6x-5=0$

(C) $x^2-5x-6=0$ (D) $x^2-5x+6=0$

22. The common root of the equations $x^2-bx+c=0$ and $x^2+bx-a=0$ is

(A) $\frac{c+a}{2b}$ (B) $\frac{c-a}{2b}$ (C) $\frac{c+b}{2a}$ (D) $\frac{a+b}{2c}$

23. If α,β are the roots of $ax^2+bx+c=0$ $a\neq 0$, then the wrong statement is

(A) $\alpha^2+\beta^2=\frac{b^2-2ac}{a^2}$ (B) $\alpha\beta=\frac{c}{a}$

(C) $\alpha+\beta=\frac{b}{a}$ (D) $\alpha-\beta=\frac{b^2-4ac}{a}$

24. If α and β are the roots of $ax^2+bx+c=0$, then one of the quadratic equations whose roots are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$, is

(A) $ax^2+bx+c=0$ (B) $bx^2+ax+c=0$

(C) $cx^2+bx+a=0$ (D) $cx^2+ax+b=0$

25. If $b=a+c$, then the equation $ax^2+bx+c=0$ has

(A) real roots (B) no roots (C) equal roots (D) no real roots

4. MATRICES

1. Which one of the following statements is not true?

   (A) A scalar matrix is a square matrix

   (B) A diagonal matrix is a square matrix

   (C) A scalar matrix is a diagonal matrix

   (D) A diagonal matrix is a scalar matrix.

2. Matrix $A = [a_{ij}]_{m\times n}$ is a square matrix if

   (A) $m < n$ (B) $m > n$ (C) $m = 1$ (D) $m = n$

3. If $\begin{pmatrix} 3x+7 & 5 \\ y+1 & 2-3x \end{pmatrix} = \begin{pmatrix} 1 & y-2 \\ 8 & 8 \end{pmatrix}$ then the values of x and y respectively are

   (A) $-2, 7$ (B) $-\frac{1}{3}, 7$ (C) $-\frac{1}{3}, -\frac{2}{3}$ (D) $2, -7$

4. If $A = \begin{pmatrix} 1 & -2 & 3 \end{pmatrix}$ and $B = \begin{pmatrix} -1 \\ 2 \\ -3 \end{pmatrix}$ then $A + B$

   (A) $\begin{pmatrix} 0 & 0 & 0 \end{pmatrix}$ (B) $\begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}$

   (C) $\begin{pmatrix} -14 \end{pmatrix}$ (D) not defined

5. If a matrix is of order 2×3, then the number of elements in the matrix is

   (A) 5 (B) 6 (C) 2 (D) 3

6. If $\begin{pmatrix} 8 & 4 \\ x & 8 \end{pmatrix} = 4\begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}$ then the value of x is

   (A) 1 (B) 2 (C) $\frac{1}{4}$ (D) 4

7. If A is of order 3×4 and B is of order 4×3, then the order of BA is

   (A) 3×3 (B) 4×4 (C) 4×3 (D) not defined

8. If $A\times\begin{pmatrix} 1 & 1 \\ 0 & 2 \end{pmatrix} = \begin{pmatrix} 1 & 2 \end{pmatrix}$ then the order of A is

   (A) 2×1 (B) 2×2 (C) 1×2 (D) 3×2

9. If A and B are square matrices such that $AB = I$ and $BA = I$, then B is

   (A) Unit matrix (B) Null matrix

   (C) Multiplicative inverse matrix of A (D) $-A$

10. If $\begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix}\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$, then the values of x and y respectively, are

    (A) $2, 0$ (B) $0, 2$ (C) $0, -2$ (D) $1, 1$

11. If $A = \begin{pmatrix} 1 & -2 \\ -3 & 4 \end{pmatrix}$ and $A + B = O$, then B is

(A) $\begin{pmatrix} 1 & -2 \\ -3 & 4 \end{pmatrix}$ (B) $\begin{pmatrix} -1 & 2 \\ 3 & -4 \end{pmatrix}$ (C) $\begin{pmatrix} -1 & -2 \\ -3 & -4 \end{pmatrix}$ (D) $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

12. If $A = \begin{pmatrix} 4 & -2 \\ 6 & -3 \end{pmatrix}$, then A^2 is

(A) $\begin{pmatrix} 16 & 4 \\ 36 & 9 \end{pmatrix}$ (B) $\begin{pmatrix} 8 & -4 \\ 12 & -6 \end{pmatrix}$ (C) $\begin{pmatrix} -4 & 2 \\ -6 & 3 \end{pmatrix}$ (D) $\begin{pmatrix} 4 & -2 \\ 6 & -3 \end{pmatrix}$

13. A is of order $m \times n$ and B is of order $p \times q$, addition of A and B is possible only if

(A) $m = p$ (B) $n = q$ (C) $n = p$ (D) $m = p, n = q$

14. If $\begin{pmatrix} a & 3 \\ 1 & 2 \end{pmatrix}\begin{pmatrix} 2 \\ -1 \end{pmatrix} = \begin{pmatrix} 5 \\ 0 \end{pmatrix}$, then the value of a is

(A) 8 (B) 4 (C) 2 (D) 11

15. If $A = \begin{pmatrix} \alpha & \beta \\ \gamma & -\alpha \end{pmatrix}$ is such that $A^2 = I$, then

(A) $1 + \alpha^2 + \beta\gamma = 0$ (B) $1 - \alpha^2 + \beta\gamma = 0$

(C) $1 - \alpha^2 - \beta\gamma = 0$ (D) $1 + \alpha^2 - \beta\gamma = 0$

16. If $A = [a_{ij}]_{2\times 2}$ and $a_{ij} = i + j$, then A =

(A) $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ (B) $\begin{pmatrix} 2 & 3 \\ 3 & 4 \end{pmatrix}$ (C) $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix}$ (D) $\begin{pmatrix} 4 & 5 \\ 6 & 7 \end{pmatrix}$

17. $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} a & b \\ c & d \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$, then the values of a, b, c and d respectively are

(A) $-1, 0, 0, -1$ (B) 1, 0, 0, 1 (C) $-1, 0, 1, 0$ (D) 1, 0, 0, 0

18. If $A = \begin{pmatrix} 7 & 2 \\ 1 & 3 \end{pmatrix}$ and $A + B = \begin{pmatrix} -1 & 0 \\ 2 & -4 \end{pmatrix}$ then the matrix B =

(A) $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ (B) $\begin{pmatrix} 6 & 2 \\ 3 & -1 \end{pmatrix}$ (C) $\begin{pmatrix} -8 & -2 \\ 1 & -7 \end{pmatrix}$ (D) $\begin{pmatrix} 8 & 2 \\ -1 & 7 \end{pmatrix}$

19. If $\begin{pmatrix} 5 & x & 1 \end{pmatrix}\begin{pmatrix} 2 \\ -1 \\ 3 \end{pmatrix} = \begin{pmatrix} 20 \end{pmatrix}$, then the value of x is

(A) 7 (B) -7 (C) $\frac{1}{7}$ (D) 0

20. Which one of the following is true for any two square matrices A and B of same order?.

(A) $(AB)^T = A^T B^T$ (B) $(A^T B)^T = A^T B^T$ (C) $(AB)^T = BA$ (D) $(AB)^T = B^T A^T$

5. COORDINATE GEOMETRY

1. The midpoint of the line joining $(a, -b)$ and $(3a, 5b)$ is
   (A) $(-a, 2b)$ (B) $(2a, 4b)$ (C) $(2a, 2b)$ (D) $(-a, -3b)$
2. The point P which divides the line segment joining the points $A(1, -3)$ and $B(-3, 9)$ internally in the ratio 1:3 is
   (A) $(2, 1)$ (B) $(0, 0)$ (C) $\left(\frac{5}{3}, 2\right)$ (D) $(1, -2)$
3. If the line segment joining the points $A(3, 4)$ and $B(14, -3)$ meets the x-axis at P, then the ratio in which P divides the segment AB is
   (A) 4 : 3 (B) 3 : 4 (C) 2 : 3 (D) 4 : 1
4. The centroid of the triangle with vertices at $(-2, -5)$, $(-2, 12)$ and $(10, -1)$ is
   (A) $(6, 6)$ (B) $(4, 4)$ (C) $(3, 3)$ (D) $(2, 2)$
5. If $(1, 2)$, $(4, 6)$, $(x, 6)$ and $(3, 2)$ are the vertices of a parallelogram taken in order, then the value of x is
   (A) 6 (B) 2 (C) 1 (D) 3
6. Area of the triangle formed by the points (0,0), $(2, 0)$ and $(0, 2)$ is
   (A) 1 sq. units (B) 2 sq. units (C) 4 sq. units (D) 8 sq. units
7. Area of the quadrilateral formed by the points $(1, 1)$, $(0, 1)$, $(0, 0)$ and $(1, 0)$ is
   (A) 3 sq. units (B) 2 sq. units (C) 4 sq. units (D) 1 sq. units
8. The angle of inclination of a straight line parallel to x-axis is equal to
   (A) 0° (B) 60° (C) 45° (D) 90°
9. Slope of the line joining the points $(3, -2)$ and $(-1, a)$ is $-\frac{3}{2}$, then the value of a is equal to
   (A) 1 (B) 2 (C) 3 (D) 4
10. Slope of the straight line which is perpendicular to the straight line joining the points $(-2, 6)$ and $(4, 8)$ is equal to
    (A) $\frac{1}{3}$ (B) 3 (C) -3 (D) $-\frac{1}{3}$
11. The point of intersection of the straight lines $9x - y - 2 = 0$ and $2x + y - 9 = 0$ is
    (A) $(-1, 7)$ (B) $(7, 1)$ (C) $(1, 7)$ (D) $(-1, -7)$
12. The straight line $4x + 3y - 12 = 0$ intersects the y- axis at
    (A) $(3, 0)$ (B) $(0, 4)$ (C) $(3, 4)$ (D) $(0, -4)$
13. The slope of the straight line $7y - 2x = 11$ is equal to
    (A) $-\frac{7}{2}$ (B) $\frac{7}{2}$ (C) $\frac{2}{7}$ (D) $-\frac{2}{7}$
14. The equation of a straight line passing through the point (2 , –7) and parallel to x-axis is
    (A) $x = 2$ (B) $x = -7$ (C) $y = -7$ (D) $y = 2$

15. The x and y-intercepts of the line $2x - 3y + 6 = 0$, respectively are

(A) 2, 3 (B) 3, 2 (C) $-3, 2$ (D) $3, -2$

16. The centre of a circle is $(-6, 4)$. If one end of the diameter of the circle is at $(-12, 8)$, then the other end is at

(A) $(-18, 12)$ (B) $(-9, 6)$ (C) $(-3, 2)$ (D) $(0, 0)$

17. The equation of the straight line passing through the origin and perpendicular to the straight line $2x + 3y - 7 = 0$ is

(A) $2x + 3y = 0$ (B) $3x - 2y = 0$ (C) $y + 5 = 0$ (D) $y - 5 = 0$

18. The equation of a straight line parallel to y-axis and passing through the point $(-2, 5)$ is

(A) $x - 2 = 0$ (B) $x + 2 = 0$ (C) $y + 5 = 0$ (D) $y - 5 = 0$

19. If the points (2, 5), (4, 6) and (a, a) are collinear, then the value of a is equal to

(A) -8 (B) 4 (C) -4 (D) 8

20. If a straight line $y = 2x + k$ passes through the point (1, 2), then the value of k is equal to

(A) 0 (B) 4 (C) 5 (D) -3

21. The equation of a straight line having slope 3 and y-intercept -4 is

(A) $3x - y - 4 = 0$ (B) $3x + y - 4 = 0$

(C) $3x - y + 4 = 0$ (D) $3x + y + 4 = 0$

22. The point of intersection of the straight lines $y = 0$ and $x = -4$ is

(A) $(0, -4)$ (B) $(-4, 0)$ (C) $(0, 4)$ (D) $(4, 0)$

23. The value of k if the straight lines $3x + 6y + 7 = 0$ and $2x + ky = 5$ are perpendicular is

(A) 1 (B) -1 (C) 2 (D) $\frac{1}{2}$

6. GEOMETRY

1. If a straight line intersects the sides AB and AC of a $\triangle ABC$ at D and E respectively and is parallel to BC, then $\frac{AE}{AC} =$

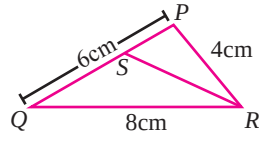
(A) $\frac{AD}{DB}$ (B) $\frac{AD}{AB}$ (C) $\frac{DE}{BC}$ (D) $\frac{AD}{EC}$

2. In $\triangle ABC$, DE is $\parallel$ to BC, meeting AB and AC at D and E.

If $AD = 3$ cm, $DB = 2$ cm and $AE = 2.7$ cm , then AC is equal to

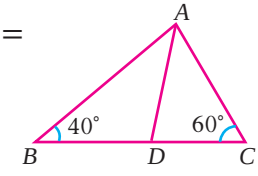
(A) 6.5 cm (B) 4.5 cm (C) 3.5 cm (D) 5.5 cm

3. In $\triangle PQR$, RS is the bisector of $\angle R$. If $PQ = 6$ cm, $QR = 8$ cm, $RP = 4$ cm then PS is equal to



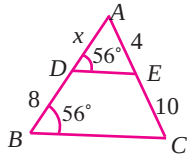
(A) 2 cm (B) 4 cm (C) 3 cm (D) 6 cm

4. In figure, if $\frac{AB}{AC} = \frac{BD}{DC}$, $\angle B = 40°$, and $\angle C = 60°$, then $\angle BAD =$



(A) 30° (B) 50° (C) 80° (D) 40°

5. In the figure, the value x is equal to



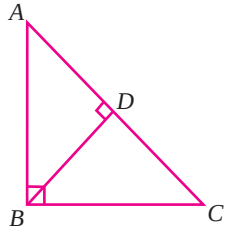
(A) $4 \cdot 2$ (B) $3 \cdot 2$

(C) $0 \cdot 8$ (D) $0 \cdot 4$

6. In triangles ABC and DEF, $\angle B = \angle E$, $\angle C = \angle F$, then

(A) $\frac{AB}{DE} = \frac{CA}{EF}$ (B) $\frac{BC}{EF} = \frac{AB}{FD}$ (C) $\frac{AB}{DE} = \frac{BC}{EF}$ (D) $\frac{CA}{FD} = \frac{AB}{EF}$

7. From the given figure, identify the wrong statement.



(A) $\Delta ADB \sim \Delta ABC$ (B) $\Delta ABD \sim \Delta ABC$

(C) $\Delta BDC \sim \Delta ABC$ (D) $\Delta ADB \sim \Delta BDC$

8. If a vertical stick 12 m long casts a shadow 8 m long on the ground and at the same time a tower casts a shadow 40 m long on the ground, then the height of the tower is

(A) 40 m (B) 50 m (C) 75 m (D) 60 m

9. The sides of two similar triangles are in the ratio 2:3, then their areas are in the ratio

(A) 9:4 (B) 4:9 (C) 2:3 (D) 3:2

10. Triangles ABC and DEF are similar. If their areas are 100 cm^2 and 49 cm^2 respectively and BC is 8.2 cm then $EF =$

(A) 5.47 cm (B) 5.74 cm (C) 6.47 cm (D) 6.74 cm

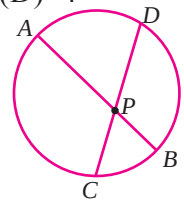
11. The perimeters of two similar triangles are 24 cm and 18 cm respectively. If one side of the first triangle is 8 cm, then the corresponding side of the other triangle is

(A) 4 cm (B) 3 cm (C) 9 cm (D) 6 cm

12. AB and CD are two chords of a circle which when produced to meet at a point P such that $AB = 5$, $AP = 8$, and $CD = 2$ then $PD =$

(A) 12 (B) 5 (C) 6 (D) 4

13. In the adjoining figure, chords AB and CD intersect at P. If $AB = 16$ cm, $PD = 8$ cm, $PC = 6$ and AP >PB, then AP =

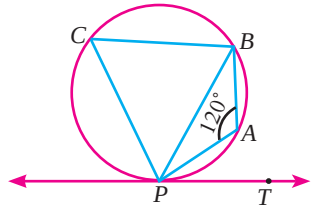


(A) 8 cm (B) 4 cm (C) 12 cm (D) 6 cm

14. A point P is 26 cm away from the centre O of a circle and PT is the tangent drawn from P to the circle is 10 cm, then OT is equal to

(A) 36 cm (B) 20 cm (C) 18 cm (D) 24 cm

15. In the figure, if $\angle PAB = 120^\circ$ then $\angle BPT =$

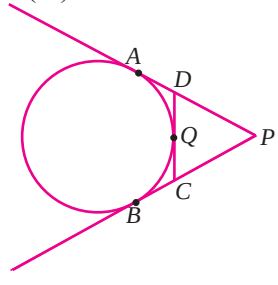


(A) 120° (B) 30° (C) 40° (D) 60°

16. If the tangents PA and PB from an external point P to circle with centre O are inclined to each other at an angle of 40°, then $\angle POA =$

(A) 70° (B) 80° (C) 50° (D) 60°

17. In the figure, PA and PB are tangents to the circle drawn from an external point P. Also CD is a tangent to the circle at Q. If $PA = 8$ cm and $CQ = 3$ cm, then PC is equal to



(A) 11 cm (B) 5 cm (C) 24 cm (D) 38 cm

18. ΔABC is a right angled triangle where $\angle B = 90^\circ$ and $BD \perp AC$. If BD = 8 cm, $AD = 4$ cm, then CD is

(A) 24 cm (B) 16 cm (C) 32 cm (D) 8 cm

19. The areas of two similar triangles are 16 cm^2 and 36 cm^2 respectively. If the altitude of the first triangle is 3 cm, then the corresponding altitude of the other triangle is

(A) 6.5 cm (B) 6 cm (C) 4 cm (D) 4.5 cm

20. The perimeter of two similar triangles ΔABC and ΔDEF are 36cm and 24 cm respectively. If $DE = 10$ cm, then AB is

(A) 12 cm (B) 20 cm (C) 15 cm (D) 18 cm

7. TRIGONOMETRY

1. $(1-\sin^2\theta)\sec^2\theta =$

(A) 0 (B) 1 (C) $\tan^2\theta$ (D) $\cos^2\theta$

2. $(1+\tan^2\theta)\sin^2\theta =$

(A) $\sin^2\theta$ (B) $\cos^2\theta$ (C) $\tan^2\theta$ (D) $\cot^2\theta$

3. $(1-\cos^2\theta)(1+\cot^2\theta) =$

(A) $\sin^2\theta$ (B) 0 (C) 1 (D) $\tan^2\theta$

4. $\sin(90^\circ-\theta)\cos\theta+\cos(90^\circ-\theta)\sin\theta =$

(A) 1 (B) 0 (C) 2 (D) –1

5. $1-\dfrac{\sin^2\theta}{1+\cos\theta} =$

(A) $\cos\theta$ (B) $\tan\theta$ (C) $\cot\theta$ (D) $\operatorname{cosec}\theta$

6. $\cos^4 x-\sin^4 x =$

(A) $2\sin^2 x-1$ (B) $2\cos^2 x-1$ (C) $1+2\sin^2 x$ (D) $1-2\cos^2 x$.

7. If $\tan\theta=\dfrac{a}{x}$, then the value of $\dfrac{x}{\sqrt{a^2+x^2}}$ =

(A) $\cos\theta$ (B) $\sin\theta$ (C) $\operatorname{cosec}\theta$ (D) $\sec\theta$

8. If $x=a\sec\theta$, $y=b\tan\theta$, then the value of $\dfrac{x^2}{a^2}-\dfrac{y^2}{b^2}$ =

(A) 1 (B) –1 (C) $\tan^2\theta$ (D) $\operatorname{cosec}^2\theta$

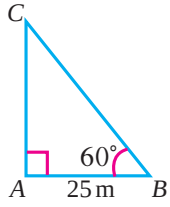
9. $\dfrac{\sec\theta}{\cot\theta+\tan\theta}$ =

(A) $\cot\theta$ (B) $\tan\theta$ (C) $\sin\theta$ (D) $-\cot\theta$

10. $\dfrac{\sin(90^\circ-\theta)\sin\theta}{\tan\theta}+\dfrac{\cos(90^\circ-\theta)\cos\theta}{\cot\theta}$ =

(A) $\tan\theta$ (B) 1 (C) –1 (D) $\sin\theta$

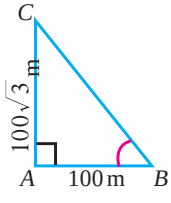
11. In the adjoining figure, AC =



(A) 25 m (B) $25\sqrt{3}$ m

(C) $\dfrac{25}{\sqrt{3}}$ m (D) $25\sqrt{2}$ m

12. In the adjoining figure $\angle ABC$ =



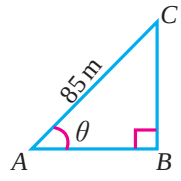
(A) 45° (B) 30°

(C) 60° (D) 50°

13. A man is 28.5 m away from a tower. His eye level above the ground is 1.5 m. The angle of elevation of the tower from his eyes is 45°. Then the height of the tower is

(A) 30 m (B) 27.5 m (C) 28.5 m (D) 27 m

14. In the adjoining figure, $\sin\theta = \frac{15}{17}$. Then BC =



(A) 85 m (B) 65 m

(C) 95 m (D) 75 m

15. $(1+\tan^2\theta)(1-\sin\theta)(1+\sin\theta)$ =

(A) $\cos^2\theta - \sin^2\theta$ (B) $\sin^2\theta - \cos^2\theta$

(C) $\sin^2\theta + \cos^2\theta$ (D) 0

16. $(1+\cot^2\theta)(1-\cos\theta)(1+\cos\theta)$ =

(A) $\tan^2\theta - \sec^2\theta$ (B) $\sin^2\theta - \cos^2\theta$

(C) $\sec^2\theta - \tan^2\theta$ (D) $\cos^2\theta - \sin^2\theta$

17. $(\cos^2\theta - 1)(\cot^2\theta + 1) + 1$ =

(A) 1 (B) –1 (C) 2 (D) 0

18. $\frac{1+\tan^2\theta}{1+\cot^2\theta}$ =

(A) $\cos^2\theta$ (B) $\tan^2\theta$ (C) $\sin^2\theta$ (D) $\cot^2\theta$

19. $\sin^2\theta + \frac{1}{1+\tan^2\theta}$ =

(A) $\operatorname{cosec}^2\theta + \cot^2\theta$ (B) $\operatorname{cosec}^2\theta - \cot^2\theta$

(C) $\cot^2\theta - \operatorname{cosec}^2\theta$ (D) $\sin^2\theta - \cos^2\theta$

20. $9\tan^2\theta - 9\sec^2\theta$ =

(A) 1 (B) 0 (C) 9 (D) –9

8. MENSURATION

1. The curved surface area of a right circular cylinder of radius 1 cm and height 1 cm is equal to

   (A) π cm^2 (B) 2π cm^2 (C) 3π cm^3 (D) 2 cm^2

2. The total surface area of a solid right circular cylinder whose radius is half of its height h is equal to

   (A) $\frac{3}{2}\pi h$ sq. units (B) $\frac{2}{3}\pi h^2$ sq. units (C) $\frac{3}{2}\pi h^2$ sq.units (D) $\frac{2}{3}\pi h$ sq.units

3. Base area of a right circular cylinder is 80 cm^2 . If its height is 5 cm, then the volume is equal to

   (A) 400 cm^3 (B) 16 cm^3 (C) 200 cm^3 (D) $\frac{400}{3}$ cm^3

4. If the total surface area a solid right circular cylinder is 200π cm^2 and its radius is 5 cm, then the sum of its height and radius is

   (A) 20 cm (B) 25 cm (C) 30 cm (D) 15 cm

5. The curved surface area of a right circular cylinder whose radius is a units and height is b units, is equal to

   (A) $\pi a^2 b$ sq.cm (B) $2\pi ab$ sq.cm (C) 2π sq.cm (D) 2 sq.cm

6. Radius and height of a right circular cone and that of a right circular cylinder are respectively, equal. If the volume of the cylinder is 120 cm^3, then the volume of the cone is equal to

   (A) 1200 cm^3 B) 360 cm^3 (C) 40 cm^3 (D) 90 cm^3

7. If the diameter and height of a right circular cone are 12 cm and 8 cm respectively, then the slant height is

   (A) 10 cm (B) 20 cm (C) 30 cm (D) 96 cm

8. If the circumference at the base of a right circular cone and the slant height are 120π cm and 10 cm respectively, then the curved surface area of the cone is equal to

   (A) 1200π cm^2 (B) 600π cm^2 (C) 300π cm^2 (D) 600 cm^2

9. If the volume and the base area of a right circular cone are 48π cm^3 and 12π cm^2 respectively, then the height of the cone is equal to

   (A) 6 cm (B) 8 cm (C) 10 cm (D) 12 cm

10. If the height and the base area of a right circular cone are 5 cm and 48 sq. cm respectively, then the volume of the cone is equal to

    (A) 240 cm^3 (B) 120 cm^3 (C) 80 cm^3 (D) 480 cm^3

11. The ratios of the respective heights and the respective radii of two cylinders are 1:2 and 2:1 respectively. Then their respective volumes are in the ratio

(A) 4 : 1 (B) 1 : 4 (C) 2 : 1 (D) 1 : 2

12. If the radius of a sphere is 2 cm , then the curved surface area of the sphere is equal to

(A) 8π cm^2 (B) 16 cm^2 (C) 12π cm^2 (D) 16π cm^2 .

13. The total surface area of a solid hemisphere of diameter 2 cm is equal to

(A) 12 cm^2 (B) 12π cm^2 (C) 4π cm^2 (D) 3π cm^2.

14. If the volume of a sphere is $\frac{9}{16}\pi$ cu.cm, then its radius is

(A) $\frac{4}{3}$ cm (B) $\frac{3}{4}$ cm (C) $\frac{3}{2}$ cm (D) $\frac{2}{3}$ cm.

15. The surface areas of two spheres are in the ratio of 9 : 25. Then their volumes are in the ratio

(A) 81 : 625 (B) 729 : 15625 (C) 27 : 75 (D) 27 : 125.

16. The total surface area of a solid hemisphere whose radius is a units, is equal to

(A) $2\pi a^2$ sq.units (B) $3\pi a^2$ sq.units (C) $3\pi a$ sq.units (D) $3a^2$ sq.units.

17. If the surface area of a sphere is 100π cm^2, then its radius is equal to

(A) 25 cm (B) 100 cm (C) 5 cm (D) 10 cm .

18. If the surface area of a sphere is 36π cm^2, then the volume of the sphere is equal to

(A) 12π cm^3 (B) 36π cm^3 (C) 72π cm^3 (D) 108π cm^3.

19. If the total surface area of a solid hemisphere is 12π cm^2 then its curved surface area is equal to

(A) 6π cm^2 (B) 24π cm^2 (C) 36π cm^2 (D) 8π cm^2.

20. If the radius of a sphere is half of the radius of another sphere, then their respective volumes are in the ratio

(A) 1 : 8 (B) 2: 1 (C) 1 : 2 (D) 8 : 1

21. Curved surface area of solid sphere is 24 cm^2. If the sphere is divided into two hemispheres, then the total surface area of one of the hemispheres is

(A) 12 cm^2 (B) 8 cm^2 (C) 16 cm^2 (D) 18 cm^2

22. Two right circular cones have equal radii. If their slant heights are in the ratio 4 : 3, then their respective curved surface areas are in the ratio

(A) 16 : 9 (B) 8 : 6 (C) 4 : 3 (D) 3 : 4

11. STATISTICS

1. The range of the first 10 prime numbers 2, 3, 5, 7, 11, 13, 17, 19, 23 , 29 is

   (A) 28 (B) 26 (C) 29 (D) 27

2. The least value in a collection of data is 14.1. The range of the collection is 28.4. Then the greatest value of the collection is

   (A) 42.5 (B) 43.5 (C) 42.4 (D) 42.1

3. The greatest value of a collection of data is 72 and the least value is 28. Then the coefficient of range is

   (A) 44 (B) 0.72 (C) 0.44 (D) 0.28

4 For a collection of 11 items, $\Sigma x = 132$, then the arithmetic mean is

   (A) 11 (B) 12 (C) 14 (D) 13

5. For any collection of n items, $\Sigma(x - \overline{x}) =$

   (A) Σx (B) $\overline{x}$ (C) $n\overline{x}$ (D) 0

6. For any collection of n items, $(\Sigma x) - \overline{x} =$

   (A) $n\overline{x}$ (B) $(n-2)\overline{x}$ (C) $(n-1)\overline{x}$ (D) 0

7. If t is the standard deviation of x, y, z, then the standard deviation of $x+5,\ y+5,\ z+5$ is

   (A) $\frac{t}{3}$ (B) $t+5$ (C) t (D) $x\,y\,z$

8. If the standard deviation of a set of data is 1.6, then the variance is

   (A) 0.4 (B) 2.56 (C) 1.96 (D) 0.04

9. If the variance of a data is 12.25, then the S.D is

   (A) 3.5 (B) 3 (C) 2.5 (D) 3.25

10. Variance of the first 11 natural numbers is

    (A) $\sqrt{5}$ (B) $\sqrt{10}$ (C) $5\sqrt{2}$ (D) 10

11. The variance of 10, 10, 10, 10, 10 is

    (A) 10 (B) $\sqrt{10}$ (C) 5 (D) 0

12. If the variance of 14, 18, 22, 26, 30 is 32, then the variance of 28, 36,44,52,60 is

    (A) 64 (B) 128 (C) $32\sqrt{2}$ (D) 32

13. Standard deviation of a collection of data is $2\sqrt{2}$. If each value is multiplied by 3, then the standard deviation of the new data is

(A) $\sqrt{12}$ (B) $4\sqrt{2}$ (C) $6\sqrt{2}$ (D) $9\sqrt{2}$

14. Given $\sum(x-\bar{x})^2 = 48$, $\bar{x} = 20$ and $n = 12$. The coefficient of variation is

(A) 25 (B) 20 (C) 30 (D) 10

15. Mean and standard deviation of a data are 48 and 12 respectively. The coefficient of variation is

(A) 42 (B) 25 (C) 28 (D) 48

12.PROBABILITY

1. If ϕ is an impossible event, then $P(\phi) =$

   (A) 1 (B) $\frac{1}{4}$ (C) 0 (D) $\frac{1}{2}$

2. If S is the sample space of a random experiment, then $P(S)$ =

   (A) 0 (B) $\frac{1}{8}$ (C) $\frac{1}{2}$ (D) 1

3. If p is the probability of an event A, then p satisfies

   (A) $0 < p < 1$ (B) $0 \le p \le 1$ (C) $0 \le p < 1$ (D) $0 < p \le 1$

4. Let A and B be any two events and S be the corresponding sample space. Then $P(\overline{A} \cap B) =$

   (A) $P(B) - P(A \cap B)$ (B) $P(A \cap B) - P(B)$

   (C) $P(S)$ (D) $P[(A \cup B)']$

5. The probability that a student will score centum in mathematics is $\frac{4}{5}$. The probability that he will not score centum is

   (A) $\frac{1}{5}$ (B) $\frac{2}{5}$ (C) $\frac{3}{5}$ (D) $\frac{4}{5}$

6. If A and B are two events such that $P(A) = 0.25, P(B) = 0.05$ and $P(A \cap B) = 0.14$, then $P(A \cup B) =$

   (A) 0.61 (B) 0.16 (C) 0.14 (D) 0.6

7. There are 6 defective items in a sample of 20 items. One item is drawn at random. The probability that it is a non-defective item is

   (A) $\frac{7}{10}$ (B) 0 (C) $\frac{3}{10}$ (D) $\frac{2}{3}$

8. If A and B are mutually exclusive events and S is the sample space such that $P(A) = \frac{1}{3}P(B)$ and $S = A \cup B$, then $P(A) =$

   (A) $\frac{1}{4}$ (B) $\frac{1}{2}$ (C) $\frac{3}{4}$ (D) $\frac{3}{8}$

9. The probabilities of three mutually exclusive events A, B and C are given by $\frac{1}{3}, \frac{1}{4}$, and $\frac{5}{12}$. Then $P(A \cup B \cup C)$ is

   (A) $\frac{19}{12}$ (B) $\frac{11}{12}$ (C) $\frac{7}{12}$ (D) 1

10. If $P(A) = 0.25, P(B) = 0.50, P(A \cap B) = 0.14$ then P(neither A nor B) =

    (A) 0.39 (B) 0.25 (C) 0.11 (D) 0.24

11. A bag contains 5 black balls, 4 white balls and 3 red balls. If a ball is selected at random, the probability that it is not red is

(A) $\frac{5}{12}$ (B) $\frac{4}{12}$ (C) $\frac{3}{12}$ (D) $\frac{3}{4}$

12. Two dice are thrown simultaneously. The probability of getting a doublet is

(A) $\frac{1}{36}$ (B) $\frac{1}{3}$ (C) $\frac{1}{6}$ (D) $\frac{2}{3}$

13. A fair die is thrown once. The probability of getting a prime or composite number is

(A) 1 (B) 0 (C) $\frac{5}{6}$ (D) $\frac{1}{6}$

14. Probability of getting 3 heads or 3 tails in tossing a coin 3 times is

(A) $\frac{1}{8}$ (B) $\frac{1}{4}$ (C) $\frac{3}{8}$ (D) $\frac{1}{2}$

15. A card is drawn from a pack of 52 cards at random. The probability of getting neither an ace nor a king card is

(A) $\frac{2}{13}$ (B) $\frac{11}{13}$ (C) $\frac{4}{13}$ (D) $\frac{8}{13}$

16. The probability that a leap year will have 53 Fridays or 53 Saturdays is

(A) $\frac{2}{7}$ (B) $\frac{1}{7}$ (C) $\frac{4}{7}$ (D) $\frac{3}{7}$

17. The probability that a non-leap year will have 53 Sundays and 53 Mondays is

(A) $\frac{1}{7}$ (B) $\frac{2}{7}$ (C) $\frac{3}{7}$ (D) 0

18. The probability of selecting a queen of hearts when a card is drawn from a pack of 52 playing cards is

(A) $\frac{1}{52}$ (B) $\frac{16}{52}$ (C) $\frac{1}{13}$ (D) $\frac{1}{26}$

19. Probability of sure event is

(A) 1 (B) 0 (C) 100 (D) 0.1

20. The outcome of a random experiment results in either success or failure. If the probability of success is twice the probability of failure, then the probability of success is

(A) $\frac{1}{3}$ (B) $\frac{2}{3}$ (C) 1 (D) 0

Answers

1. SETS AND FUNCTIONS

1	2	3	4	5	6	7	8	9	10
A	C	C	A	A	B	A	B	B	B
11	12	13	14	15	16	17	18	19	20
A	B	C	D	A	D	D	B	A	C

2. SEQUENCES AND SERIES OF REAL NUMBERS

1	2	3	4	5	6	7	8	9	10
A	D	C	D	D	A	B	B	B	B
11	12	13	14	15	16	17	18	19	20
B	A	B	D	A	B	B	A	C	A

3. ALGEBRA

1	2	3	4	5	6	7	8	9	10
B	C	A	A	C	D	B	C	C	C
11	12	13	14	15	16	17	18	19	20
D	B	A	A	A	D	D	D	B	C
21	22	23	24	25					
D	A	C	C	A					

4. MATRICES

1	2	3	4	5	6	7	8	9	10
D	D	A	D	B	D	B	C	C	A
11	12	13	14	15	16	17	18	19	20
B	D	D	B	C	B	A	C	B	D

5. COORDINATE GEOMETRY

1	2	3	4	5	6	7	8	9	10	11	12
C	B	A	D	A	B	D	A	D	C	C	B
13	14	15	16	17	18	19	20	21	22	23	
C	C	C	D	B	B	D	A	A	B	B	

6. GEOMETRY

1	2	3	4	5	6	7	8	9	10
A	B	A	D	B	C	B	D	B	B
11	12	13	14	15	16	17	18	19	20
D	D	C	D	D	A	B	B	D	C

7. TRIGONOMETRY

1	2	3	4	5	6	7	8	9	10
B	C	C	A	A	B	A	A	C	B
11	12	13	14	15	16	17	18	19	20
B	C	A	D	C	C	D	B	B	D

8. MENSURATION

1	2	3	4	5	6	7	8	9	10	11
B	C	A	A	B	C	A	B	D	C	C
12	13	14	15	16	17	18	19	20	21	22
D	D	B	D	B	C	B	D	A	D	C

11. STATISTICS

1	2	3	4	5	6	7	8	9	10
D	A	C	B	D	C	C	B	A	B
11	12	13	14	15					
D	B	C	D	B					

12. PROBABILITY

1	2	3	4	5	6	7	8	9	10
C	**D**	**B**	**A**	**A**	**B**	**A**	**A**	**D**	**A**
11	12	13	14	15	16	17	18	19	20
D	**C**	**C**	**B**	**B**	**C**	**D**	**A**	**A**	**B**

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