MULTIPLE CHOICE QUESTIONS OF XI MATHEMATICS

1. $A = \{x : x \text{ is a prime number less than } 2, x \in N\}$
   $B = \{x : x \text{ is the solution of } x^2 - 1 = 0 ; x \in R\}$ then $n(A \cap B)$ is
   [1, 2, 0, 3]

2. $n(B) - n(A \cap B) = \ldots\ldots$ [$n(A-B)$, $n(B-A)$, $n(A \cup B)$, $n(A)$]

3. $A = \{1, 2\}$ then the number of subsets of A having exactly two elements
   [1, 2, 3, 4]

4. $A = \{x : x = 2^n + 1, n \in N, n \geq 5\}$ then $n[P(A)] = \ldots\ldots$
   [5, 2^3, 2^4, 2^5]

5. X and Y are disjoint sets and $x \in X$ then which is false
   [$x \in X \cup Y$, $x \notin X \cap Y$, $x \in Y$, $\{x\} \subset A \cup B$]

6. $A = \{x : x \text{ is a prime number and a divisor of } 6\}$ then $n(A)$ is
   [1, 2, 3, 4]

7. $(x, x+y) = (x, x-y)$ then the value of y
   [0, −1, 1, 2]

8. $A = \{x : x \geq 2, x \in N\}$ then A^c is
   [$x < 2$, $x \leq 2$, $\{1\}$, $\{1, 2\}$]

9. $P = \{0, 1\}$ then $n(P \times P \times P)$ is
   [2^n, 2^3, 3, 6]

10. $n(A) = 4$, $n(B) = 3$ then number of subsets of $A \times B$ is
    [2^4, 2^3, 2^{12}, 2^7]

11. R is the relation from A to B, $A = \{1, 2, 3\}$, $B = \{1, 3, 5\}$ then number of elements in $A \times B$ having 1 as x-coordinate is
    [1, 3, 5, 9]

12. Range of the function $f(x) = x$; $x \in R$
    [R, R^+, Q, Q^+]

13. Domain of $f(x)=\sqrt{81-x^2}$

$[(-9,9), [-9,9], (0,9), [0,9])$

14. $f(x)=x+2$, $g(x)=|x|$ then $gof(x)$ is

$[|x+2|, |x|+2, x+2, -x+2]$

15. Domain of $f(x)=|x+1|$ is $[R, R^+, Q, Q^+]$

16. Domain of $f(x)=\frac{x+2}{x-2}$ is

$[R, R^+, R-\{0\}, R-\{2\}]$

17. $f(x)=x^2+1$ then $\frac{f(1.2)-f(1.1)}{0.1}=\dots\dots$

$[2.3, 0.23, 23, 0.123]$

18. $n(A)=12$, $n(A\times B)=12$ then $n(B)=\dots\dots$

$[0, 1, 12, \phi]$

19. $n(A\times\phi)=\dots\dots$ $[0, 1, n(A), 2^n]$

20. $\cos 0+\cos\frac{\pi}{3}=\dots\dots$

$[\sin\frac{\pi}{3}+\tan\frac{\pi}{4}, \sin\frac{\pi}{4}+\sin\frac{\pi}{3}, \cos\frac{\pi}{4}+\sin\frac{\pi}{4}, \cos\frac{\pi}{6}+\sec\frac{\pi}{6}]$

21. Which is false

$[\sin\frac{3\pi}{2}=-1, \cos\frac{\pi}{2}=0, \cos 2\pi=1, \tan\pi=\sqrt{3}]$

22. $\sin x=\frac{3}{5}$; x lies in second quadrant then $\sin^2x+\cos^2x$ is

$[\frac{3}{5}, \frac{4}{5}, \frac{7}{5}, 1]$

23. Minimum value of $\sin x$ is $[0, 1, -1, 2]$

24. $\sin\frac{31\pi}{3}=\dots\dots$ $[1, \frac{\sqrt{3}}{2}, \frac{1}{2}, \frac{1}{\sqrt{2}}]$

25. $\cos 70^\circ\cos 20^\circ-\sin 70^\circ\sin 20^\circ=\dots\dots$ $[0, 1, -1, \frac{1}{2}]$

26 Which is false

[$\cos(\frac{\pi}{2}+x) = -\sin x$, $\cos(\pi+x) = \cos x$, $\sin(\pi-x) = \sin x$, $\sin(2\pi-x) = -\sin x$]

27 $\frac{\tan 25^\circ + \tan 20^\circ}{1-\tan 25^\circ \cdot \tan 20^\circ}$ is

[0, 1, $\frac{1+\sqrt{2}}{1-\sqrt{2}}$, $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$]

28 $\cos(\frac{\pi}{4}+x) + \cos(\frac{\pi}{4}-x) = \ldots\ldots$

[$\sqrt{2}\cos x$, $2\sqrt{2}+2x$, $\sqrt{2}+x$]

29. $\frac{\sin\frac{\pi}{3} + \sin\frac{\pi}{6}}{\cos\frac{\pi}{3} + \cos\frac{\pi}{6}} = \ldots\ldots$

[0, $\sqrt{3}$, 1, $1/\sqrt{3}$]

30. Principal solution of $\sin x = \frac{\sqrt{3}}{2}$ [$\frac{2\pi}{3}$, $\frac{4\pi}{3}$, $\frac{\pi}{6}$, $\frac{7\pi}{6}$]

31. $3\sin\frac{\pi}{18} - 4\sin^2\frac{\pi}{18}$ is [1, $1/2$, $\sqrt{3}/2$, $1/\sqrt{2}$]

32. The conjugate of i [1, -1, $-i$, i]

33. $i + i^5 + i^9 + i^{13} + \ldots\ldots + i^{4n+1}$; $n \in N$ is

[i^2, n, in, i^n]

34. Multiplicative inverse of $-i$ is [1, -1, i, $-i$]

35. The argument of the complex number $1+i\sqrt{3}$ is

[$\pi/3$, $\pi/4$, $\pi/6$, $\pi/2$]

36. $|z|=5$, Which of the following values is not applicable for z.

[$3+4i$, $1+\sqrt{24}\,i$, $3-4i$, $1+5i$]

37. Argument of $\frac{1+i}{1-i} = \ldots\ldots$ [$\pi/3$, $\pi/4$, $\pi/6$, $\pi/2$]

38 Modulus of $\frac{1}{1+i}$ is [$1/\sqrt{2}$, $1/2$, $\sqrt{2}$, 2]

39. $5x - 3 < 3x+1$ then [$x<2$, $x>2$, $x\leq 2$, $x\geq 2$]

40 The height of 2 students is 100 cm, 150 cm respectievely. Find the minimum height of the third student such that their heights have an average of atleast 100 cm

[$x \geq 50$, $x \leq 50$, $x \leq 350$, $x \geq 350$]

41. $\frac{5-2x}{3} \leq \frac{x}{6} - 5$; $x \in R$ then value of x is

[$(8, \infty)$, $[8, \infty)$, $(8, \infty]$, $[8, \infty)$]

42. In the solution of $3x + 2y > 6$ which value is not applicable

[(2,2), (2,0), (4,1), (1,4)]

43 In the system of linear inequalities $x+y \geq 5$, $x-y \leq 3$, x and y can take values

[(2,1), (7,1), (4,1), (9,1)]

44 How many 5 letter words can be formed using the first five letters of the English alphabet if no letter is repeated.

[5, 5!, 5^2, 5^5]

45. $\frac{1}{8!} + \frac{1}{9!} = \frac{x}{10!}$ then value of x is [8! + 9!, 8! × 9!, 100, 10!]

46. Find the number of arrangements of the letters of the word ORANGE

47 in which the words begin with O and ends in E

[6!, 5!, 4!, 3!]

48 In how many ways can 2 green, 3 yellow balls can be arranged in a row if the balls of same colours are indistinguishable

[5, 5!, 2!, 10]

48. Find the number of arrangements if the word SMILES such that the two S's occure in last

[6!, 5!, 4!, 2!]

49. $(\sqrt{3}+\sqrt{2})^6 - (\sqrt{3}-\sqrt{2})^6 = \ldots\ldots$ [3^3, $396\sqrt{6}$, $\sqrt{5}^6$, $2\sqrt{6}$]

50. In an AP fourth term is 20 and seventh term is 35. Common difference is

[$\frac{15}{9}$, 3, 5, 15]

51. The n^{th} term of an AP is $2n-1$, and first term is 1. Then common difference is

[1, 2, 3, 4]

52. $1+\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\ldots\ldots\infty = \ldots\ldots$

[$\frac{2^n-1}{2}$, 2, $\frac{3}{2}$, 2^n-1]

53. The arithmetic mean of two real numbers is 4 and their geometric mean is $\sqrt{15}$, find the numbers.

[16 and 15, 2 and 15, 3 and 8, 3 and 5]

54. The sum of first three terms of a GP is 16 and the sum of next three terms is 128 then common ratio is

[112, 8, 2, 4]

55. 2, x, 8 forms a GP. Then $x = \ldots\ldots$ [5, 4, 3, 16]

56. x, $\sqrt{32}$, $\frac{x}{2}$ forms a GP then the positive value of x is

[2, 4, $4\sqrt{2}$, 8]

57. A straight line makes an angle $30°$ with the positive direction of X-axis then, slope of the line is [0, $1/\sqrt{3}$, $\sqrt{3}$, 1]

58. Slope of a line which passes through the points (3,-2) and (7,y) is 0. Then value of y is [+2, -2, 0, +4]

59. Slope of a line which is parallel to the line having slope x is $\frac{1}{2}$. then x = ...

[2, $\frac{1}{2}$, 0, 1]

60. Line through the points (8, 12) and (x, 24) is perpendicular to the line having slope 1. Then value of x is

[4, 0, 20, 1]

61. Slope of the straight line $y=3$ is

[0, 3, $\frac{1}{3}$, 1]

62. The x-intercept of $\frac{x}{3}+\frac{y}{2}=1$ is [3, 2, 6, 5]

63. The line $a_1x+b_1y=c_1$ is parallel to $a_2x+b_2y=c_2$ then,

[$a_1a_2=b_1b_2$, $a_1b_2=a_2b_1$, $a_1a_2+b_1b_2=0$, $c_2-c_1=0$]

64. The centre of the circle $(x-3)^2+(y-3)^2=4$ is

[(-3,-3), (3,3), (0,0), (0,4)]

65. The length of latusrectum of the parabola $x^2=4y$

[4a, 4x, 4y, 4]

66. The focus of the parabola $y^2=8x$ [(0,-2), (-2,0), (0,2), (2,0)]

67. The eccentricity of the ellipse $9x^2+25y^2=1$

[$\frac{4}{5}$, $\frac{3}{5}$, $\frac{4}{3}$, $\frac{3}{4}$]

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68. The length of Latusrectum of the ellipse $\frac{x^2}{4}+\frac{y^2}{b}=1$ is 8. then value of b is,

[8, 4, 16, 32]

69. The vertex of the hyperbola $\frac{x^2}{9} - \frac{y^2}{16} = 1$

[(0, ±3), (0, ±5), (±3,0), (±5,0)]

70. The value of x coordinate of a point in YZ plane is

[0, 1, −1, 2]

71. Which of the point lies in XY plane

[(2, 3, 0), (2, 0, 3), (0, 2, 3), (1, 1, 1)]

72. Distance between the points (1, 2, 3) and (2, 3, 4) is

[77, 3, $\sqrt{3}$, $\sqrt{2}$]

73. The midpoint of the line segment joining (1, 2, 3) and (1, 2, z) is (1, 2, 1) then z = ...

[3, 1, 5, −1]

74. $\lim_{x \to a} \frac{x^n - a^n}{x - a} = \ldots\ldots$ [a^n, na^{n-1}, a^{n-1}, x^{n-1}]

75. $\lim_{x \to 2} \frac{x-2}{x^2-4} = \ldots\ldots$ [4, $1/4$, 0, 2^4]

76. Which of the following is not equal to 1

[$\lim_{x\to 0} \frac{\sin x}{x}$, $\lim_{x\to 0} \frac{e^x - 1}{x}$, $\lim_{x\to 0} \frac{\log(1+x)}{1}$, $\lim_{x\to 0} \frac{\cos x}{x}$]

77. $\frac{d}{dx}(\log x) = \ldots\ldots$ [1, 0, $\frac{1}{x}$, x]

78. $f(x) = \begin{cases} 2x+3 ; & x \le 0 \\ 2x+1 ; & x > 0 \end{cases}$

then $\lim_{x \to 2} f(x)$ is

[3, 5, 7, 1]

79. $\frac{d}{dx}\left(\frac{1}{x}\right) = \cdots\cdots\cdots$ $\left[\frac{1}{x}, \frac{1}{x^2}, \frac{-1}{x}, \frac{-1}{x^2}\right]$

80. $\sin 2x = 2\sin x \cos x$ then $\frac{d}{dx}(\sin 2x) = \cdots\cdots$

$[2\sin x\cos x, \cos 2x, \sin 2x, 2\cos 2x]$

81. $\lim_{x\to 0} \frac{\tan x}{x} = \cdots\cdots\cdots$ $[0, 1, x, \sec^2 x]$

82. The value of $\lim_{x\to 0} \frac{\sin 4x}{\sin 2x}$ is

$[4, 2, 1, 1/2]$

83. $\lim_{x\to \pi} \left(x - \frac{22}{7}\right)$ is $\cdots\cdots$ $\left[0, 1, \frac{22}{7}, x\right]$

84. Value of $\lim_{x\to \frac{\pi}{6}} \cos x$ is $[0, 1/2, \sqrt{3}/2, 1/\sqrt{2}]$

85. $f(x) = \begin{cases} \frac{|x|}{x} & \text{when } x \neq 0 \\ 0 & \text{when } x = 0 \end{cases}$ then $\lim_{x\to 0^-} f(x)$ is

$[1, -1, 0, 1/2]$

86. $\lim_{x\to 2} (a+2) = 4$ then a is $\cdots\cdots$

$[0, 2, 6, 1]$

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87. The mean of 6, 7, 10, 12, 13, 4, 8, 12 is 9. Then mean deviation about mean is

$\left[\frac{22}{8}, \frac{72}{8}, \frac{20}{8}, 3\right]$

88. Standard deviation of n observations $x_1, x_2, x_3 \cdots\cdots x_n$

$\left[\frac{1}{n}\sum_{i=1}^{n}(x_i-\bar{x})^2, \frac{1}{n}\sum_{i=1}^{n}(x_i-\bar{x}), \sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i-\bar{x})^2}, \sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i-\bar{x})}\right]$

89. Two coins are tossed. Then number of elements in the sample space is

$[2, 4, 1, 3]$

90 Two dice are thrown. Then the number of elements in the sample space having doublets is [1, 6, 12, 36]

91 Concider the random experiment of tossing 3 coins. Then the number of elements in the sample space having atleast one head

[1, 7, 3, 4]

92 A and B are mutually exclusive events then,

[$A \cup B = S$, $A \cup B = \emptyset$, $A \cap B = S$, $A \cap B = \emptyset$]

93 Which value is valid for the probability of an event

[-2, 1.2, $\frac{1}{2}$, $\frac{3}{2}$]

94 A and B are disjoint sets, then

[$P(A \cup B) = P(A) + P(B) - P(A \cap B)$, $P(A \cup B) = P(A) + P(B)$,
$P(A \cup B) = P(A) - P(B) + P(A \cap B)$, $P(A \cup B) = 1 - P(A \cap B)$]

95. $P(A) = 1/3$, then $P(A^c) = \ldots\ldots\ldots$ [1, 3, $2/3$, $4/3$]

96 $n(S) = 5$ and $A = \{1, 2, 3, 4, 5\}$ then $P(A) = \ldots\ldots$

[0, 1, $1/5$, 5]

97 $P(E) = 0.05$, $P(F) = 0.10$ and $P(E \cap F) = 0.02$ then $P(E^c \cap F^c)$

[0.87, 0.88, 0.13, 0.17]

98. A committee of two persons is selected from 2 men and 2 women, what is the probability that the committee have no men

[1, $1/4$, $1/6$, $2/4$]

99. One card is drawn from a well shuffled deck of 52 cards. If each outcome is equally likely, what is the probability that the card will be a diamond [$\frac{26}{52}$, $\frac{52}{52}$, $\frac{13}{52}$, $\frac{4}{52}$]

100 S is the sample space and A is the event then $P(A \cup A^c)$ is

[$P(A)$, $P(A^c)$, $P(S)$, $P(\emptyset)$]