BHU-MCA-2017 (ACTUAL)

1. In a certain code, 'PLANT' is written as $@2*#., 'VIELD' is written as 'β64@%' . How is DELAY written in that code language?

(a) $\beta 4 * 2\%$ (b) $\beta 4@2\%$

(c) $\%42@\beta$ (d) $\%4@2\beta$

2. How many meaningful English words can be formed with the letters ARILT using each letter only once in that word?

(a) One (b) Two (A) Three (d) More than three

3. D said, 'A's father is the only brother of my sister's son". How is A's father related to D ?

(a) Cousin (b) Nephew (c) Aunt (d) Uncle

4. If A is coded as 1, B is coded as 3, C is coded as 5 and so on, which of the following is the numerical value of the word FAZED?

(a) 81 (b) 79 (c) 80 (d) 78

5. Which of the following pairs of words have the same relationship as FAN : HEAT ?

(a) WATER : DRINK (b) LIGHT : NIGHT

(c) FOOD : HUNGER (d) AIR : BREATHE

6. Q types faster than R but not as fast as V. T types faster than R. S types faster than V. Who amongst the five, types fastest?

(a) V (b) T (c) S (d) Data inadequate

7. Select the missing number from the given responses :

0, 7, 26, 63, ?

(a) 124 (b) 98 (c) 148 (d) 188

Directions (Question No. 8 to 11) : Select the related letter/ word/number from the given alternatives.

8. Reasoning : Logic : : Science : ?

(a) Evolution (b) Facts (c) Laboratory (d) Scientists

9. Petal : Flower : : Branch : ?

(a) Bee (b) Office (c) Tree (d) Sports

10. EJOT : KPUZ : : CHMR : ?

(a) JOTY (b) HMRW (c) INSX (d) LQVA

11. 5 : 625 : : 3 : ?

(a) 27 (b) 81 (c) 243 (d) 99

12. If the 4th day of a month is Monday, what date will it be 4 days after 3rd Saturday of the month?

(a) 16 (b) 20 (c) 23 (d) 28

13. Abhay moves 60 km West, then he turns left and moves 40 km. Again he turns left and moves 60 km. Finally, he turns right and moves 30 km. How far is he from the starting point?

(a) 70 km (b) 60 km (c) 50 km (d) 40 km

14. Find the odd number from the given alternatives

93, 86, 79, 72, 65, 59

(a) 93 (b) 79 (c) 72 (d) 59

15. Select the missing number from the given responses

144	256	150	
6	8	5	
32	37	?	

(a) 25 (b) 34 (c) 39 (d) 40

16. Artist is to Painting as Senator is to

(a) Attorney (b) Law (c) Politician (d) Constituents

17. A can do a piece of work in 24 day, while B alone can do it in 16 days. With the help of C, they finish the work in 8 days. C alone can do the Work in

(1) 48 days (2) 42 days (3) 36 days (4) 32 days

18. A train 700 m long is running at the speed of 72 km per hour. If it crosses a tunnel in 1 minute, then the length of the tunnel is

(a) 500 m (b) 550 m (c) 600 m (d) 650 m

19. A trader lists his articles 20% above cost price and allows a discount of 10% on cash payment. His gain percent is

(a) 5 (b) 6 (c) 7 (d) 8

20. The sides of a triangle arc in the ratio $\frac{1}{3}:\frac{1}{4}:\frac{1}{5}$ and its perimeter is 94 cm, the length of the smallest side is

(a) 18.4 cm (b) 22.5 cm (c) 23.2 cm (d) 24 cm

21. A mixture of 40 litres of milk and water contains 10% water. How much water should be added to this so that water may be 20% in the new mixture?

(a) 5 litres (b) 5.5 litres (c) 6 litres (d) 8 litres

22. The profit of a company is given below

Year	Profit (in crores of Rs)
2001	5.2
2002	6.5
2003	7.8
2004	9.9
2005	10.8
2006	9.5
2007	11.4

In how many years, the profit was above the average?

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

23. The loan disbursed by 5 banks for three years are given below :

Banks Years	2005	2006	2007
A	23	45	30
B	33	18	41
C	29	22	19
D	16	28	32
E	19	27	34

What was the percentage increase of disbursement of loans of all banks together from 2005 to 2007 ?

(a) 10 (b) 20 (c) 30 (d) $23\frac{1}{13}$

24. Fare by bus and car are Rs 5 and Rs 14 per km respectively. A man who travels 220 km spends Rs 2,270 in going a part of distance by bus and the remaining in car. How many km did he travel in car?
(a) 90 (b) 75 (c) 130 (d) 82

25. The surface area of a sphere is same as the total surface area of a cylinder whose height is 4 cm and the diameter of the base is 8 cm. Then the radius of the sphere is
(a) 4 cm (b) 4.5 cm (c) 6 cm (d) 8 cm

26. Production of a company in 2012 was 468 tonnes. If it increases by 15% in the first year and decreases by 8% in the second year, then the production of the company after two year will be
(a) 500.76 (b) 495.14 (c) 493.875 (d) 487.14

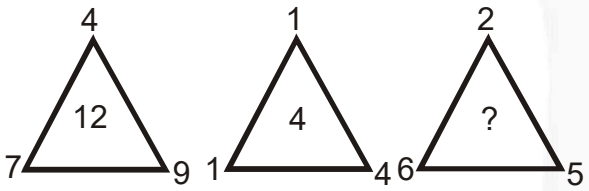
Directions (Question No. 27 to 29) : Three of the following four are alike in a certain way and so form a group. Which is the one that does not belong to the group?

27. (a) Spain (b) Croatia (c) Italy (d) Brazil

28. (a) Phoenix (b) Miami (c) Nashville (d) Boston

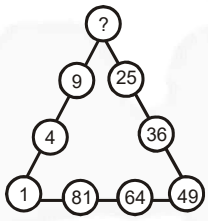
29. (a) Basic (b) Barley (c) Fortran (d) Cobol

30. Which number replaces the question (?) mark?



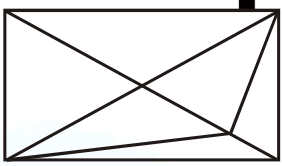
(a) 9 (b) 7 (c) 8 (d) 13

31. Which number replaces the question (?) mark?



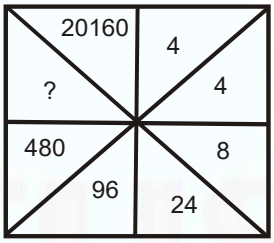
(a) 20 (b) 24 (c) 12 (d) 16

32. Find the number of triangles in the following figure



(a) 11 (b) 13 (c) 15 (d) 17

33. Find the missing number from the given responses :



(a) 860 (b) 1140 (c) 2880 (d) 3240

34. The missing term in the series $11\frac{1}{9}, 12\frac{1}{2}, 14\frac{2}{7}, 16\frac{2}{3}, ?$ is

(a) $8\frac{1}{3}$ (b) $19\frac{1}{2}$ (c) 20 (d) $22\frac{1}{3}$

35. A cube painted yellow on all faces is cut into 27 small cubes of equal size. How many small cubes are painted on one face only?
(a) 1 (b) 6 (c) 8 (d) 12

36. What number must be added to the numbers 3, 7 and 13 so that they are in a continued proportion?
(a) 5 (b) 6 (c) 7 (d) 8

37. The radii of two cylinders are in the ratio of 2 :3 and their heights are in the ratio 5:3. The ratio of their volumes is
(a) 27:20 (b) 20:27 (c) 4 : 9 (d) 9:4

38. If the height of a cone is doubled, then its volume is increased by
(a) 100% (b) 200% (c) 300% (d) 400%

39. The greatest number-of four digits Which divisible each one of the numbers 12, 18, 21 and 28 is
(a) 9848 (b) 9864 (c) 9828 (d) 9636

40. Find the odd one from the following :
253, 136, 352, 460, 324, 631, 244:
(a) 136 (b) 324 (c) 352 (d) 631

41. If log 27 =1.431, then the value of log 9 is
(a) 0.934 (b) 0.945 (c) 0.954 (d) 0958

42. The value of $\left(\frac{1}{\log_3 60}+\frac{1}{\log_4 60}+\frac{1}{\log_5 60}\right)$ is

(a) 0 (b) 1 (c) 5 (d) 60

43. If $\log_{10} 5 + 1\log_{10}(5x + 1) = \log_{10}(x + 5)+1$, then x is equal

to
(a) 1 (b) 3 (c) 5 (d) 10

44. Solve for $x : -9x + 5 < 17$ and $13x : +25 < -1$

(a) $x < -2$ or $x > -\frac{4}{3}$ (b) $x < -2$

(c) $x > -\frac{4}{3}$ (d) there are no solutions

45. Choose the correct solution that best describes the following inequality :

$\frac{5x-32}{2} > 9$ and $\frac{1}{3}(12x-21) < 9$

(a) x< 4 (b) x $\leq$4 or x >10
(c) x < 4 or X >10 (d) x >10

46. If $|3-x| < 10$, then all values of x which make this inequality true is

(a) $\{x \mid x \in (-7, 13)\}$ (b) $\{x \mid x \in (-7, 7)\}$
(c) $\{x \mid x \in (-13, 13)\}$ (d) $\{x \mid x \in (-13, 7)\}$

47. If the matrix $A = \begin{bmatrix} 0 & a & 3 \\ 2 & b & 1 \\ c & 1 & 0 \end{bmatrix}$ is a skew-symmetric matrix, then the values of a, b and c are c
(a) (2,0,3) (b) (– 2, 0, – 3)
(c) (2, 0, – 3) (d) (– 2, 0, 3)

48. If A is a square matrix such that $A^2 = A$, then the value of $(I + A)^3$, where I is the identity matrix is
(a) 7A + I (b) 3A + 2/
(c) 4A + 3I (d) $7A + 2I$

49. If $A = \begin{pmatrix} 1 & 2 \\ 4 & 1 \end{pmatrix}$,then the value of A^2 + 2A - 5/ is

(a) $\begin{pmatrix} 6 & 8 \\ 16 & 6 \end{pmatrix}$ (b) $\begin{pmatrix} 6 & 16 \\ 8 & 6 \end{pmatrix}$

(c) $\begin{pmatrix} 11 & 8 \\ 16 & 11 \end{pmatrix}$ (d) $\begin{pmatrix} 11 & 16 \\ 8 & 11 \end{pmatrix}$

50. If A is a 3×3 non-singular matrix such that $AA' = A'A$ and $B = A^{-1}.A'$, then BB' equals (I is the identity matrix)

(a) $I + B$ (b) I
(c) B^{-1} (d) $(B^{-1})'$

51. If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & -2 \\ a & 2 & b \end{bmatrix}$ is a matrik satiafying the equation $AA' = 9I$, where I is 3×3 identity matrix then ordered pair (a, b) is equal to
(a) (-2,1) (b) (2, 1) (c) (– 2,– 1) (d) (2, –1)

52. If $A = \begin{bmatrix} 2 & 1 & 3 \\ 3 & 1 & 2 \\ 1 & 2 & 3 \end{bmatrix}$ then (adj A) A is (where adj is .adjoint)

(a) 4I (b) 5I (c) 6I (d) 8I

53. The value of $\begin{vmatrix} a+b & a & b \\ a & a+b & c \\ b & c & b+c \end{vmatrix}$ is

(a) abc (b) 4abc
(c) $a^2b^2c^2$ (d) $4a^2b^2c^2$

54. The system given by 2x – y +3z=. 4, x + y – 3z = -1 and 5x - y + 3z =7 has
(a) no solution (b) one solution
(c) two solutions (d) infinite number of solutions

55. If the equations x = ay + z, y = z + ax, z = x + y are consistent (have non-zero solution), then
(a) $a^2 + a = 1$ (b) $a^3 + 1 = 0$
(c) $a^3 - 1 = 0$ (d) $a^2 = 2$

56. If $\begin{vmatrix} 0 & c & b \\ c & 0 & a \\ b & a & 0 \end{vmatrix}^2 = pa^2b^2c^2$, then the value of p is :

(a) 4 (b) 3 (c) 2 (d) 1

57. If x, y, z (all are non-zero) are in AP and $\tan^{-1}x, \tan^{-1}y$ and $\tan^{-1}$ z are also in AP, then
(a) 2x = 3y = 6z (b) 6x = 3y = 2z
(c) 6x = 4y = 3z (d) x = y = z

58. If the 2nd, 5th and 9th terms of a non-constant AP are in GP, then the common ratio of this GP is

(a) $\frac{8}{5}$ (b) 1 (c) $\frac{4}{3}$ (d) $\frac{7}{4}$

59. Three positive numbers form an increasing GP. If the middle term in this GP is doubled, the new numbers are in AP, then the common ratio of the GP is

(a) $\sqrt{2}+\sqrt{3}$ (b) $3+\sqrt{2}$ (c) $3-\sqrt{3}$ (d) $2+\sqrt{3}$

60. If m is AM of two distinct real numbers p and q (p, q >1) and G_1, G_2 and G_3 are three geometric means between p and q, then $G_1^4 + 2G_2^4 + G_3^4$ equals

(a) $4pm^2q$ (b) $4pmq^2$
(c) $4p^2m^2q^2$ (d) $4p^2mq$

61. The nth term of the following sequence 5 + 55 + 555 + .. is

(a) $5(10^n - 1)$ (b) $5^n(10^n - 1)$

(c) $\left(\frac{5}{9}\right)(10^n - 1)$ (d) $\left(\frac{5}{9}\right)^n (10^n - 1)$

62. The term independent of x in $\left(x^2 - \frac{1}{x}\right)^{12}$ is

(a) 275 (b) 355 (c) 495 (d) 512

63. The term which is numerically greatest in the expansion of $(2x\ 3y)^{12}$, when x = 1, y = 2 is

(a) 9th (b) 10th (c) 11th (d) 12th

64. The sum of the even powers of x in the expansion of $(1 + x + x^2)^{15}$ is :

(a) $\frac{3^{15}+1}{2}$ (b) $\frac{3^{15}-1}{2}$

(c) 8220 (d) 10220

65. If c_0, c_2, c_4, are the binomial coefficients in the expansion of $(1 + x)^9$, then $c_0 + c_2 + c_4 + c_6 + c_8 =$

(a) 2^7 (b) 256 (c) 2^9 (d) 258

66. If $x = \frac{1}{5} + \frac{1.3}{5.10} + \frac{1.3.5}{5.10.15} + \ldots\ldots$, then $3x^2 + 6x =$

(a) 0 (b) 1 (c) 2 (d) – 1

67. The number of ways of distributing 8 identical balls in 3 distinct boxes so that none of the boxes is empty is

(a) 5 (b) 21 (c) 3^8 (d) $^8C_3$

68. A polygon has 54 diagonals. The total number of distinct triangles that can be formed using the vertices is

(a) 220 (b) 165 (c) 286 (d) 216

69. Number of divisors of the form 4n + 2 ($n \geq 0$) of the integer 240 is

(a) 4 (b) 8 (c) 10 (d) 3

70. The value of $^{50}C_4 + \sum_{r=1}^{6} {}^{56-r}C_3$

(a) $^{55}c_4$ (b) $^{55}c_3$ (c) $^{56}c_3$ (d) $^{56}c_4$

71. How many ways are there to arrange the letters in the word GARDEN with the vowels in alphabetical order?

(a) 120 (b) 240 (c) 360 (d) 480

72. The number of ways in which 6 men and 4 women can dine at a round table, if no -two women are to sit together, is given by

(a) 30 (b) 5! × 5! (c) 5! × 4! (d) 7! × 5!

73. If repetition of the digits is allowed, then the number of even natural numbers having three digits is

(a) 250 (b) 350 (c) 450 (d) 550

74. If $^nc_{r-1} = 36$, $^nc_r = 84$ and $^nc_{r+1} = 126$, then r is

(a) 1 (b) 2 (c) 3 (d) 4

75. A five digit number divisible by 3 is to be formed using the numerals 0, 1, 2, 3, 4 and 5 without repetition. The total number of ways in which this can be done is

(a) 216 (b) 600 (c) 240 (d) 3125

76. The number of integers greater than 6000 that can be formed, using the digits 3, 5, 6, 7 and 8 without repetition is

(a) 192 (b) 120 (c) 72 (d) 216

77. If $x^2 - 7x + a$ has a remainder 1 when divided by x +1, then

(a) a = – 7 (b) a = 7 (c) a = 0 (d) a = 1

78. If a < 0, then function $f(x) = ax^2 + bx + c$ has a maximum value at

(a) $x = \frac{a}{2b}$ (b) $x = -\frac{a}{2b}$ (c) $-\frac{b}{2a}$ (d) $\frac{b}{2a}$

79. If α and β are roots of $x^2 - 2x + 3 = 0$, then equation with roots $\frac{1}{\alpha}, \frac{1}{\beta}$ is

(a) $x^2 - 6x + 11 = 0$ (b) $x^2 + 6x - 11 = 0$

(c) $x^2 - 11x + 6 = 0$ (d) $3x^2 - 2x + 1 = 0$

80. If $a \in R$ and the equation $-3(x - [x])^2 + 2(x - [x]) + a^2 = 0$ (where [x] denotes the greatest integer $\leq x$ has no integral solution, then all possible values of a lie in the interval

(a) $(-1, 0) \cup (0, 1)$ (b) $(1, 2)$

(c) $(-2, -1)$ (d) $(-\infty, -2) \cup (2, \infty)$

81. Let α and β be the roots of equation $x^2 - 6x - 2 = 0$. If $a_n = a^n - \beta^n$, for $n \geq 1$, then the value of $\frac{a_{10} - 2a_8}{2a_9}$ is equal to tag

(a) – 6 (b) 3 (c) – 3 (d) 6

82. The value of a for which the sum of the squares of the roots of the equation $x^2 - (a - 2)x - a - 1 = 0$ assume the least value is

(a) 1 (b) 0 (c) 3 (d) 2

83. If the roots of the equation $x^2 - bx + c = 0$ be two consecutive integers, then $b^2 - 4c$ equals

(a) -2 (b) 3 (c) 2 (d) 1

84. Let R = {(3,3),(6,6),(9,9),(12,12),(6,12),(3,9), (3,12),(3,6)} be a relation on the set A = { 3, 6, 9,12}. The relation is
(a) reflexive and transitive
(b) reflexive only
(c) an equivalence relation
(d) reflexive and symmetric only

85. Let R = {(1, 3), (4, 2), (2, 4), (2, 3), (3,1)} be a relation on the set A ={1,2,3,4). The relation R is
(a) a function (b) transitive
(c) not symmetric (d) reflexive

86. The range of the function $f(x) = {}^{7-x}P_{x-3}$ is
(a) {1,2,3} (b) (1, 2, 3, 4, 5,6)
(c) (1,2, 3,4} (d) { 1, 2,3, 4,5}

87. If f : $R \to S$ defined by $f(x) = \sin x - \sqrt{3}\cos x + 1$ is onto, then the interval of s is
(a) [0, 3] (b) [-1, 1] (c) (0,1) (d) [-1,3]

88. The domain of definition of the function $y = \frac{1}{\log_{10}(1-x)} + \sqrt{x+2}$ is
(a) (– 3, – 2) excluding– -2.5
(b) [0, 1] excluding 0.6
(c) [– 2,1] excluding 0.5
(d) [1, 2] excluding 1.5

89. If g[f (x)] = | sin x | and f {g (x)]. $(\sin\sqrt{x}\ )^2$, then
(a) $f(x) = \sin^2 x, g(x) = \sqrt{x}$
(b) $f(x) = \sin x, g(x) = |x|$
(c) $f(x) = x^2, g(x) = \sin\sqrt{x}$
(d) f and g cannot be determined

90. If $f(x) = 3x - 5$, then $f^{-1}(x)$
(a) is given by $\frac{1}{3x-5}$ (b) is given by $\frac{x+5}{3}$
(c) does not exist because *f* is not one -one
(d) does not exist because f is not onto

91. The domain of definition of the function y (x) as given by the equation $2^x + 2^y = 2$ is
(a) $0 < x \le 1$ (b) $0 \le x \le 1$
(c) $-\infty < x \le 0$ (d) $-\infty < x < 1$

92. If E = {1, 2, 3, 4) and F = {1, 2} then the number of onto functions from E to F is
(a) 14 (b) 16 (c) 12 (d) 8

93. If z is a complex number such that $|z| \ge 2$, then the minimum value of $\left|z + \frac{1}{2}\right|$
(a) is equal to $\frac{5}{2}$ (b) lies in (1, 2)
(c) is strictly greater than $\frac{5}{2}$ (d) lies in (0, 1)

94. A value of 0 for which $\frac{2 + 3i\sin\theta}{1 - 2i\sin\theta}$ is purely imaginary is
(a) $\frac{\pi}{6}$ (b) $\sin^{-1}\left(\frac{\sqrt{3}}{4}\right)$ (c) $\sin^{-1}\left(\frac{1}{\sqrt{3}}\right)$ (d) $\frac{\pi}{3}$

95. The argument of the complex number $\frac{1+2i}{1-3i}$ is
(a) $\frac{\pi}{4}$ (b) $\frac{3\pi}{4}$ (c) $\frac{5\pi}{9}$ (d) 2π

96. Area of the triangle formed by the three complex numbers $1+i, 1-i$ and $2i$ in the Argand diagram is
(a) $\frac{1}{2}$ (b) 1 (c) $\sqrt{2}$ (d) 2

97. If $z = \cos\theta + i\sin\theta$, then $\frac{z^{2n} - 1}{z^{2n} + 1} =$
(a) $\cos n\theta$ (b) $\sin n\theta$ (c) $-i\sin n\theta$ (d) $-i\tan n\theta$

98. If the circles $x^2 + y^2 = a$ and $x^2 + y^2 - 6x - 8y + 9 = 0$ touch externally, then a =
(a) 1 (b) –1 (c) 21 (d) 16

99. The area of an equilateral triangle inscribed in the circle $x^2 + y^2 - 6x - 8y - 25 = 0$ is
(a) $\frac{225\sqrt{3}}{6}$ (b) 25π (c) $50\pi - 100$ (d) 225

100. A circle S passes through the point (0,1) and is orthogonal to the circles $(x-1)^2 + y^2 = 16$ and $x^2 + y^2 = 1$. Then
(a) radius of S is 8 (b) radius of S is. 7
(c) centre of S is (– 8, 1) (d) centre of S is (– 9,1)

101. The length of the latus-rectum of the parabola $4y^2 + 2x - 20y + 17 = 0$ is
(a) 3 (b) 6 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$

102. The equation to the common tangent of $y^2 = 2x$ and $x^2 = 16y$ is
(a) x + 2y – 2 = 0 (b) x + 2y + 2 = 0
(c) x + 2y = 0 (d) 2x + y – 4 = 0

103. The eccentricity of the ellipse $9x^2 + 25y^2 - 18x - 100y - 116$ is

(a) $\frac{25}{16}$ (b) $\frac{4}{5}$ (c) $\frac{16}{25}$ (d) $\frac{5}{4}$

104. The minimum area (in sq. units) of triangle formed by the tangent to the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ and coordinate axes is

(a) ab (b) $\frac{a^2+b^2}{2}$

(c) $\frac{(a+b)^2}{2}$ (d) $\frac{a^2+ab+b^2}{3}$

105. The eccentricity of the hyperbola $x=\frac{a}{2}\left(t+\frac{1}{t}\right), y=\frac{a}{2}\left(t-\frac{1}{t}\right)$ is

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

106. If the line $2x+\sqrt{6}y=2$ touches the hyperbola $x^2-2y^2=4$, then the point of contact is

(a) $(-2,\sqrt{6})$ (b) $(-5,2\sqrt{6})$ (c) $\left(\frac{1}{2},\frac{1}{\sqrt{6}}\right)$ (d) $(4,-\sqrt{6})$

107. Two disc are thrown simultaneously. What is the probability of getting two numbers whose product is

(a) $\frac{3}{4}$ (b) $\frac{1}{4}$ (c) $\frac{7}{4}$ (d) $\frac{1}{2}$

108. A speaks truth in 75% of cases and B in 80% of cases. In what percentage of cases are they likely to contradict each other, narrating the same incident?

(a) 30 (b) 32 (c) 35 (d) 40

109. The probability of a razor blade to be defective is 0.002, the blades are in packet of 10. The number of packets containing no defective blades in a stock of 10000 packets is

(a) 2000 (b) 9802 (c) 9950 (d) 8000

110. The minimum number of times a fair coin needs to be tossed, so that the probability of getting at least two heads is at least 0.96 is

(a) 4 (b) 6 (c) 8 (d) 10

111. A six faced fair dice is thrown until 1 comes, then the probability that 1 comes in even no. of trials is

(a) $\frac{5}{11}$ (b) $\frac{5}{6}$ (c) $\frac{6}{11}$ (d) $\frac{1}{6}$

112. A determinant is chosen at random from the set of all determinants of matrices of order 2 with elements 0 and 1 only. The probability that the determinant chosen is non-zero is

(a) $\frac{3}{16}$ (b) $\frac{3}{8}$ (c) $\frac{1}{4}$ (d) $\frac{2}{7}$

113. For $x \in R$, $f(x)=|\log 2-\sin x|$ and $g(x)=f(f(x))$. then

(a) $g'(0)=\cos(\log 2)$ (b) $g'(0)=-\cos(\log 2)$

(c) $g'(0)=-\sin(\log 2)$ (d) g is not differentiable at x = 0

114. If a curve y = f (z) passes through the point (1, –1) and satisfies the differential equation $y(1+xy)dx = xdy$, then $f\left(-\frac{1}{2}\right)$ is equal to 2

(a) $-\frac{4}{5}$ (b) $\frac{2}{5}$ (c) $\frac{4}{5}$ (d) $-\frac{2}{5}$

115. Let y (x) be the solution of the differential equation (x log x) $\frac{dy}{dx}$ + y 2x log x, ($x \geq 1$). Then y (e) is equal to

(a) 0 (b) 2 (c) 2e (d) e

116. $\lim_{x\to 0} \frac{(1-\cos 2x)(3+\cos x)}{x\tan 4x}$ is equal to

(a) 3 (b) 2 (c) 1 (d) $\frac{1}{4}$

117. The area (in sq. units) of the region described by (x, y) : $y^2 \leq 2x$ and $y \geq 4x-1\}$ is

(a) $\frac{5}{64}$ (b) $\frac{15}{64}$ (c) $\frac{9}{32}$ (d) $\frac{7}{32}$

118. The integral $\int \frac{dx}{x^2(x^4+1)^{3/4}}$ equals

(a) $(x^4+1)^{1/4}+c$ (b) $-(x^4+1)^{1/4}+c$

(c) $-\left(\frac{x^4+1}{x^4}\right)^{1/4}+c$ (d) $\left(\frac{x^4+1}{x^4}\right)^{1/4}+c$

119. The value of integral $\int_0^{\pi/2} \log\tan x\, dx$ is

(a) π (b) $\frac{\pi}{2}$ (c) $\frac{\pi}{3}$ (d) 0

120. If $f(x)-\int_0^x t\sin t\, dt$ then $f'(x)$ is

(a) cosx+x sinx (b) x sinx

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

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1. (d)	**2.** (b)	**3.** (b)	**4.** (b)	**5.** (c)	**6.** (d)	**7.** (a)	**8.** (b)	**9.** (c)	**10.** (c)
11. (b)	**12.** (b)	**13.** (a)	**14.** (d)	**15.** (c)	**16.** (b)	**17.** (a)	**18.** (a)	**19.** (d)	**20.** (d)
21. (a)	**22.** (c)	**23.** (c)	**24.** (c)	**25.** (a)	**26.** (b)	**27.** (d)	**28.** (b)	**29.** (b)	**30.** (a)
31. (d)	**32.** (c)	**33.** (c)	**34.** (c)	**35.** (b)	**36.** (a)	**37.** (b)	**38.** (a)	**39.** (c)	**40.** (b)
41. (c)	**42.** (b)	**43.** (b)	**44.** (d)	**45.** ()	**46.** (a)	**47.** (b)	**48.** (a)	**49.** (a)	**50.** (b)
51. (c)	**52.** (c)	**53.** (b)	**54.** (d)	**55.** ()	**56.** (a)	**57.** (d)	**58.** (c)	**59.** (d)	**60.** (a)
61. (c)	**62.** (c)	**63.** (b)	**64.** (a)	**65.** (b)	**66.** (c)	**67.** (b)	**68.** (a)	**69.** (a)	**70.** (d)
71. (c)	**72.** ()	**73.** (c)	**74.** (c)	**75.** (a)	**76.** (a)	**77.** (a)	**78.** (c)	**79.** (d)	**80.** (a)
81. (b)	**82.** (a)	**83.** (d)	**84.** (a)	**85.** (c)	**86.** (a)	**87.** (d)	**88.** ()	**89.** (a)	**90.** (b)
91. (d)	**92.** (a)	**93.** (b)	**94.** (c)	**95.** (b)	**96.** (b)	**97.** (c)	**98.** (a)	**99.** (a)	**100.** (b)
101. (c)	**102.** (b)	**103.** (b)	**104.** (a)	**105.** (a)	**106.** (d)	**107.** (a)	**108.** (c)	**109.** (b)	**110.** (c)
111. (a)	**112.** (b)	**113.** (a)	**114.** (c)	**115.** (b)	**116.** (b)	**117.** (c)	**118.** (c)	**119.** (d)	**120.** (b)