1. The function $f(x)=x \vee$ real x is

   (A) Differentiable at $x = 0$
   (B) Not differentiable at $x = 0$
   (C) Not continuous at $x = 0$
   (D) None of the above

$$f(x)=\frac{\sin x}{x}, x \neq 0$$
$$=a \quad \text{if } x=0$$

2. The function f defined by

   (A) is continuous at $x = 0$
   (B) is not continuous at $x = 0$
   (C) is not continuous at $x = 0$ if $a = 1$
   (D) is continuous at $x = 0$ if $a = 1$

3. If $f: R \to R$ and $g: R \to R$ are given by $f(x)=x+1, g(x)=x^2$, then g of (x) =

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

4. $\sin x+\cos x$ attains its maximum at

   (A) $\frac{\pi}{2}$
   (B) $\frac{\pi}{4}$
   (C) π
   (D) $\frac{-\pi}{2}$

5. If log 2 = 0.30103, the number of digits in 2^{128} is

(A) 38
(B) 39
(C) 40
(D) 41

6. The product of two complex numbers 1 + i and 2 − 5i is

(A) 7 − 3i
(B) 3 − 4i
(C) −3 − 4i
(D) 7 + 3i

7. The function f defined by $f(z)=3+ix-iy$ is

(A) Discontinuous at $z = 0$
(B) Continuous at $z = 0$
(C) Analytic at $z = 0$
(D) None of the above

8. The real part of a non-constant analytic function is

(A) Discontinuous
(B) Continuous
(C) Analytic
(D) None of the above

9. Two stations A and B are 110 km apart on a straight line. One train starts from A at 7 a.m. and travels towards B at 20 kmph. Another train starts from B at 8 a.m. and travels towards A at a speed of 25 kmph. At what time will they meet?

(A) 9 a.m.
(B) 10 a.m.
(C) 10.30 a.m.
(D) 11 a.m.

10. A towel, when bleached, lost 20% of its length and 10% of its breadth. What is the percentage decrease in area?

(A) 30%
(B) 28%
(C) 32%
(D) 26%

11. $D^3\left(e^{2x}\right)$ is

(A) $8e^{2x}$
(B) $2e^{2x}$
(C) $4e^{2x}$
(D) None of the above

12. General solution of $\frac{d^3y}{dx^3} - 6\frac{d^2y}{dx^2} + 11\frac{dy}{dx} - 6y = 0$ is

(A) $y=Ae^{x}+Be^{2x}+Ce^{3x}$
(B) $y=3e^{x}$
(C) $y=A+Be^{2x}$
(D) $y = Ae^{x}+Be^{2x}$

13. Particular integral of differentiation equation $(D^3 + D)\, y = \cos x$ is

(A) $-\frac{x}{2}\sin x$

(B) $\frac{1}{4}\cos x$

(C) $-\frac{1}{2}\cos x$

(D) $-\frac{x}{2}\cos x$

14. The expression $1/\left(D_x^2 - D_y^2\right)\sin(x - y)$ is equal to

(A) $-x/2\cos(x - y)$
(B) $-x/2\sin(x - y) + \cos(x - y)$
(C) $-x/2\cos(x - y) + \sin(x - y)$
(D) $3x/2\sin(x - y)$

15. $y^2 + x^2 + c$ is the solution of the differential equation

(A) $\frac{dy}{dx} = x$

(B) $\frac{dy}{dx} = y$

(C) $\frac{dy}{dx} = \frac{x}{y}$

(D) $\frac{dy}{dx} = \frac{y}{x}$

16. Find $\int 4\cos(2x + 3)\,dx$

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

17. The integral $\int_1^3 \frac{1}{x}\,dx$ when evaluated by using Simpson's 1/3rd rule on two equal sub-intervals each of length 1, equals

(A) 1.000
(B) 1.098
(C) 1.111
(D) 1.120

18. Which of the following correctly evaluates the definite integral $\int^{3}(x^2+3x+2)\,dx$?

(A) 97/3
(B) 110/3
(C) 74/3
(D) 4

19. $\int_{0}^{\frac{\pi}{4}} \frac{(1-\tan x)}{(1+\tan x)}\,dx$ evaluates to

(A) 0
(B) 1
(C) ln 2
(D) ½(ln 2)

20. $\int \frac{dx}{\sqrt{ax+b}}$

(A) $\sqrt{ax+b}$
(B) $\frac{2\sqrt{ax+b}}{a}$
(C) $2\sqrt{ax+b}$
(D) $\frac{\sqrt{ax+b}}{a}$

21. If $u = x^x + y^y + z^z$, find $du/dx + du/dy + du/dz$ at $x = y = z = 1$

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

22. If Q = r cot θ, then $\frac{\partial q}{\partial r}$ is

(A) cot θ
(B) $-\text{cosec}^2\theta$
(C) cot θ - r $\text{cosec}^2\theta$
(D) ½ cot θ

23. Differentiating $i = 3\sin 2t - 2\cos 3t$ with respect to t gives

(A) $3\cos 2t + 2\sin 3t$
(B) $6(\sin 2t - \cos 3t)$
(C) $3/2\cos 2t + 2/3\ \sin 3t$
(D) $6(\cos 2t + \sin 3t)$

24. The growth of bacteria in a dish is modeled by the function $f(t) = 2^{\frac{t}{5}}$. For which value of t is $f(t) = 32$?

(A) 8
(B) 2
(C) 15
(D) 16

25. What is the solution set of the inequality $x^2 + 3x - 10 > 8$?

(A) $\{x \mid -6 < x < 3\}$

(B) $\{x \mid x < -6 \text{ or } x > 3\}$

(C) $\{x \mid -3 < x < 6\}$

(D) $\{x \mid x < -3 \text{ or } x > 6\}$

26. Consider the system of simultaneous equations

$x + 2y + z = 6$
$2x + y + 2z = 6$
$x + y + z = 5$

The system has

(A) a unique solution
(B) infinite number of solutions
(C) no solution
(D) exactly two solutions

27. $2x-\frac{x}{3}+\frac{(2x)^2}{2!}-\frac{\left(\frac{x}{3}\right)^2}{2!}+\frac{(2x)^3}{3!}-\frac{\left(\frac{x}{3}\right)^3}{3!}+\ldots$ is

(A) $e^{\frac{5x}{3}}$

(B) $e^{x}-e^{\frac{x}{3}}$

(C) $e^{2x}.e^{\frac{x}{3}}$

(D) $e^{2x}-e^{\frac{x}{3}}$

28. $1+n\left(1-\frac{1}{x}\right)+\frac{n(n+1)}{1.2}\left(1-\frac{1}{x}\right)^2+\ldots$ is equal to

(A) $\left(1-\frac{1}{x}\right)^{-n}$

(B) $\left(1-\frac{1}{x}\right)^{n}$

(C) $\left(1+\frac{1}{x}\right)^{-n}$

(D) x^n

29. $1+\log x+\frac{(\log x)^2}{2!}+\frac{(\log x)^3}{3!}+\ldots$ is equal to

(A) $\log x$
(B) e^x
(C) x
(D) None of the above

30. Which equation is equivalent to $1-\frac{6}{t^2}=\frac{1}{t}$?

(A) $(t-3)(t+2)=0$

(B) $(t-2)(t+3)=0$

(C) $(2t+1)(3t-1)=0$

(D) $(2t - 1)(3t + 1) = 0$

31. If $x^2 + x - 1 = 0$, what is the value of $x^4 + \frac{1}{x^4}$?

(A) 1
(B) 5
(C) 9
(D) 8

32. If x is a whole number, then $x^2(x^2-1)$ is always divisible by

(A) 12
(B) 24
(C) 12-x
(D) multiple of 12

33. If ✔, 🚲, ■ are the roots of $x^3 - 17x + 9 = 0$, then

(A) ✔ + 🚲 = ■
(B) 🚲 + ■ = ✔
(C) ■ + ✔ = 🚲
(D) ✔ + 🚲 = −■

34. If ✔ and 🚲 are the roots of $x^2 - 4x + 3 = 0$, then $\frac{\alpha+\beta}{\alpha\beta}$ is

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

35. The equation $x^3 - 3x + 2 = 0$ has

(A) 3 real roots
(B) no real root
(C) all imaginary roots
(D) None of the above

36. If $A = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$, then A^{50} is

(A) $\begin{bmatrix} 1 & 0 & 0 \\ 50 & 1 & 0 \\ 50 & 0 & 1 \end{bmatrix}$

(B) $\begin{bmatrix} 1 & 0 & 0 \\ 48 & 1 & 0 \\ 48 & 0 & 1 \end{bmatrix}$

(C) $\begin{bmatrix} 1 & 0 & 0 \\ 25 & 1 & 0 \\ 25 & 0 & 1 \end{bmatrix}$

(D) $\begin{bmatrix} 1 & 0 & 0 \\ 24 & 1 & 0 \\ 24 & 0 & 1 \end{bmatrix}$

37. What values of x, y and z satisfy the following system of linear equations?

$$\begin{bmatrix} 1 & 2 & 3 \\ 1 & 3 & 4 \\ 2 & 2 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 6 \\ 8 \\ 12 \end{bmatrix}$$

(A) $x = 6, y = 3, z = 2$
(B) $x = 12, y = 3, z = -4$
(C) $x = 6, y = 6, z = -4$
(D) $x = 12, y = -3, z = 0$

38. What are the three characteristics roots of the matrix A= $\begin{bmatrix} 1 & 2 & 3 \\ 0 & 2 & 3 \\ 0 & 0 & 2 \end{bmatrix}$?

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

39. The matrix $\begin{bmatrix} a & 0 & 0 \\ a & b & 0 \\ a & b & 0 \end{bmatrix}$ is invertible if

(A) $abc \neq 0$
(B) $a(a+b)(a+b+c) \neq 0$
(C) One of *a, b, c* is non-zero
(D) One of *a, b,* or *c* takes a positive value

40. The inverse of $\begin{pmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{pmatrix}$ is

(A) $\begin{pmatrix} -\cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{pmatrix}$

(B) $\begin{pmatrix} \cos\theta & \sin\theta \\ \sin\theta & -\cos\theta \end{pmatrix}$

(C) $\begin{pmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{pmatrix}$

(D) $\begin{pmatrix} -\cos\theta & -\sin\theta \\ -\sin\theta & -\cos\theta \end{pmatrix}$

41. L(1) = ?

(A) $\frac{1}{s}$

(B) $\frac{1}{s^2}$

(C) $\frac{2}{s}$

(D) $\frac{2}{s^2}$

42. The inverse Laplace transform of the function $\frac{1}{(s+2)^2}$ is

(A) t
(B) te^{-t}
(C) t^2
(D) $t^2 e^{-t}$

43. The Laplace transform of t^n is

(A) $\frac{1}{s^{n+1}}$

(B) $\frac{n}{s^{n+1}}$

(C) $\frac{n!}{s^{n+1}}$

(D) None of the above

44. The inverse Laplace transform of $\frac{1}{(s+a)(s+b)}$ is

(A) $\frac{e^{-at}-e^{-bt}}{b-a}$

(B) $\frac{e^{at}-e^{bt}}{b-a}$

(C) $\frac{e^{at}+e^{bt}}{b+a}$

(D) $\frac{e^{at}+e^{bt}}{b-a}$

45. A rectangular field has to be fenced on three sides leaving a side of 20 feet uncovered. If the area of the field is 680sq. feet, how many feet of fencing will be required?

(A) 9595
(B) 9292
(C) 8888
(D) 82

46. If points of straight line are M(7, 1) and N(7, 2), then line MN is

(A) horizontal line with equation x = 1
(B) vertical line with equation x = 2
(C) vertical line with equation x = 7
(D) horizontal line with equation x = 7

47. The angle made by the line $y = x + 1$ with x axis is

(A) 90°
(B) 60°
(C) 30°
(D) 45°

48. The plane $x + 2y + 3z + 4 = 0$ passes through

(A) (0, 0, 0)
(B) (0, –2, 0)
(C) (0, 0, 1)
(D) (1, 0, 1)

49. The equation to the plane passing through (1, 3, –2) parallel to $x + y - z = 3$ is

(A) $x + y - z = 5$
(B) $x + y - z = 4$
(C) $x + y - z = 6$
(D) $x + y - z = 0$

50. The line $x = 4$ is

(A) parallel to y axis
(B) parallel to x axis
(C) passes through origin
(D) None of the above

51. The area of an equilateral triangle is $\sqrt{3}$. What is the perimeter of the triangle?

(A) 2
(B) 4
(C) 6
(D) 8

52. In triangle ABC, angle $C = 30°$ if

(A) AB = AC
(B) Angle $B = 120°$
(C) $AB = AC$ and angle $B = 120°$
(D) ° ABC is an isosceles triangle

53. The area of the triangle with sides 3, 4, 5 cm is

(A) 5
(B) 6
(C) 8
(D) 9

54. If a vertex of a triangle is (1, 1) and the mid-points of two sides through this vertex are (-1, 2) and (3, 2), then the centroid of the triangle is

(A) (-1, 7/3)
(B) (-1/3, 7/3)
(C) (1, 7/3)
(D) (1/3, 7/3)

55. If in a triangle ABC, the altitudes from the vertices A, B, C on opposite sides are in H.P., then sin A, sin B, sin C are in

(A) G.P.
(B) A.P.
(C) Arithmetic – Geometric Progression
(D) H.P.

56. A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?

(A) 3/4
(B) 4/7
(C) 1/8
(D) 3/7

57. What is the probability of getting a sum 9 from two throws of a dice?

(A) 1/6
(B) 1/8
(C) 1/9
(D) 1/12

58. For a die, the probabilities for the different faces to form up are

Face	1	2	3	4	5	6
P	0.1	0.32	0.21	0.15	0.05	0.17

This die is tossed and you are told that either face 1 or face 2 has turned up, then the probability that it is face 1 is

(A) 16/21
(B) 1/10
(C) 5/16
(D) 5/21

59. A list of 5 pulse rates is: 70, 64, 80, 74, 92. What is the median for this list?

(A) 74
(B) 76
(C) 77
(D) 80

60. k is an even number. p is an odd number. Which of the following statement is not correct?

(A) $p - k - 1$ is an odd number
(B) $p + k + 1$ is an even number
(C) $p \times k + p$ is an odd number
(D) $p^2 + k^2 + 1$ is an even number

61. Vector a= 3i+2j-6k and b=4i-3j+k, angle between above vectors is

(A) 90 degrees
(B) 0 degrees
(C) 45 degrees
(D) 60 degrees

62. Rank of the matrix $\begin{bmatrix} 3 & 2 & -9 \\ -6 & -4 & 18 \\ 12 & 8 & -36 \end{bmatrix}$ is

(A) 4
(B) 2
(C) 3
(D) 1

63. The maximum value of $f(x) = x^3-9x^2+24x+5$ in the interval [1, 6] is

(A) 21
(B) 25
(C) 46
(D) 41

64. Div (grad $\hat{r}$) is equal to

(A) 0
(B) div $\hat{r}$
(C) grad $\hat{r}$
(D) $\nabla^2 \varnothing$

65. A set of vectors which contains the zero vector is

(A) linearly independent
(B) a basis
(C) linearly dependent
(D) None of the above

66. The value of the expression $\lim_{x \to 0} \frac{\sin(x)}{(e^x x)}$ is

(A) 0
(B) 1/2
(C) 1
(D) 1/(1+e)

67. $\lim_{x \to 0}\left(\frac{1-\cos(x)}{x^2}\right)$ is

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

68. $\lim_{x \to 1}\frac{\sin(x-1)}{x-1}$ is

(A) 0
(B) 1
(C) $\square$
(D) None of the above

69. $\lim_{x \to \infty}\frac{9x^3-3x^2-5x-1}{1-x^3}$ is

(A) –9
(B) 9
(C) 1
(D) –1

70. $\lim_{n \to \infty}\left(1-\frac{m}{n}\right)^n$ is equal to

(A) e^{-m}
(B) e^{n}
(C) $e^{\left(\frac{m}{n}\right)}$
(D) $e^{\frac{m}{n}}$

71. $\frac{1}{1+\sin\theta}+\frac{1}{1-\sin\theta}=?$

(A) $\sec^2\theta$

(B) $2\sec^2\theta$

(C) $\text{cosec}^2\theta$

(D) $2\text{cosec}^2\theta$

72. $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right)$ is

(A) $\frac{\pi}{4}$

(B) $\frac{\pi}{4}+\frac{n\pi}{2}$

(C) $\frac{\pi}{4}+n\pi$

(D) $\frac{\pi}{4}+2n\pi$

73. $\sin^{-1}x+\cos^{-1}x$ is

(A) $\frac{\pi}{2}$

(B) $\frac{\pi}{4}$

(C) $\frac{\pi}{3}$

(D) $\frac{\pi}{6}$

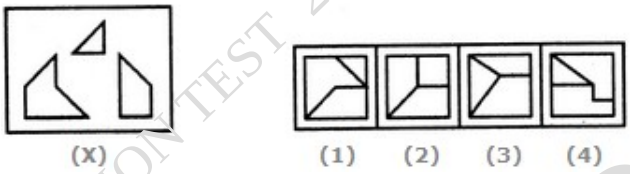
74. A focus of an ellipse is at the origin. The directrix is the line x = 4 and the eccentricity is 1/2. Then the length of the semi−major axis is

(A) 4/3
(B) 8/3
(C) 7/3
(D) 5/3

75. A parabola has the origin as its focus and the line x = 2 as the directrix. Then the vertex of the parabola is at

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

76. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).

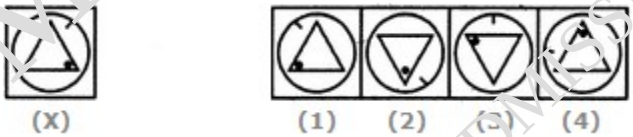


(A) 1
(B) 2
(C) 3
(D) 4

77. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).

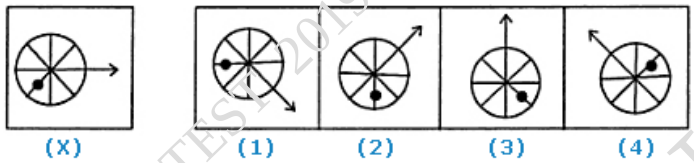
(A) 1
(B) 2
(C) 3
(D) 4

78. Find out how the key figure (X) will look like *after rotation*



(A) 1
(B) 2
(C) 3
(D) 4

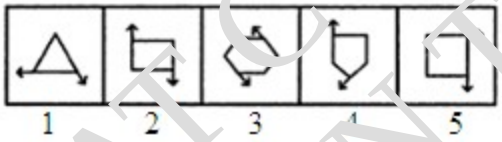
79. Find out how the key figure (X) will look like *after rotation*



(A) 1
(B) 3
(C) 2
(D) 4

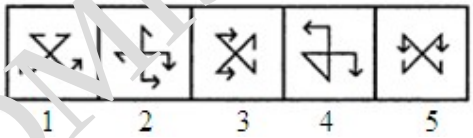
Direction: In each of the following questions there are five figures 1, 2, 3, 4 and 5. Out of these five figures four are similar in a certain way. However, one figure is not like the other four. Choose the figure which is ***different from the rest***

80.



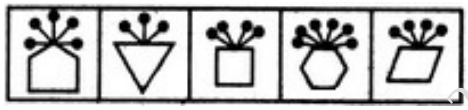
(A) 1
(B) 3
(C) 2
(D) 4

81.



(A) 1
(B) 3
(C) 2
(D) 5

82.



(1) (2) (3) (4) (5)

(A) 1
(B) 2
(C) 3
(D) 4

83.

(1) (2) (3) (4) (5)

(A) 1
(B) 2
(C) 3
(D) 4

Directions: There is some relationship between the figures '1' and '2'. The same relationship exists between the figure 3 and one of the four alternatives (a), (b), (c) and (d). Choose the alternative figure.

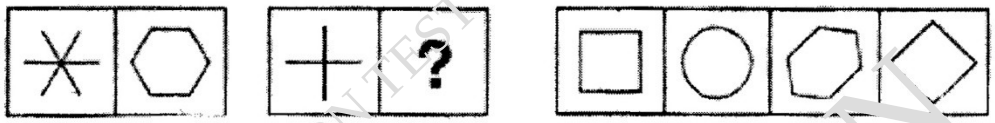
84.

1 2 3 4 a b c d

(A) a
(B) b
(C) c
(D) d

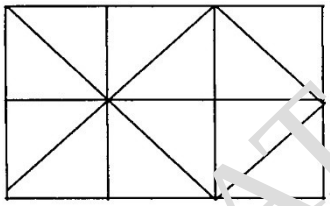
Directions: There is some relationship between the figures '1' and '2'. The same relationship exists between the figure 3 and one of the four alternatives (a), (b), (c) and (d). Choose the alternative figure

85.



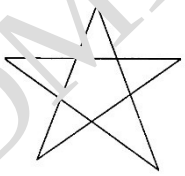
(A) a
(B) b
(C) c
(D) d

86. How many squares does the figure have?



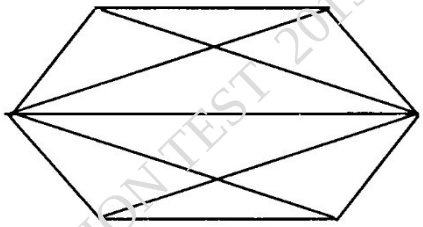
(A) 6
(B) 7
(C) 9
(D) 10

87. How many triangles are there in the figure below?



(A) 5
(B) 6
(C) 8
(D) 10

Direction: Analyse the following figure and choose the correct answer.



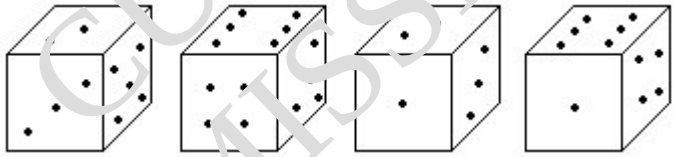
88. Find the number of quadrilaterals.

(A) 6
(B) 7
(C) 9
(D) 10

89. Find the number of pentagons.

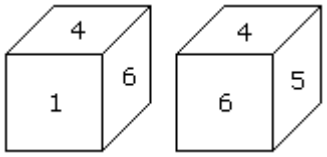
(A) 2
(B) 3
(C) 4
(D) 6

90. How many points will be on the face opposite to the face which contains 2 points?



(A) 1
(B) 5
(C) 4
(D) 6

91. Two positions of a dice are shown below. When number '1' is on the top, what number will be at the bottom?



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

92. Replace the Question Mark with correct alternative 13, 35, 57, 79, 911, ……**?**…….

(A) 1110
(B) 1112
(C) 1113
(D) 1315

93. Replace the Question Mark with correct alternative 567, 189, 63, 21, ….....**?**….....

(A) 12
(B) 1
(C) 7
(D) 9

94. Replace the Question Mark with correct alternative 5, 12, 26, 54, 110, ….....**?**….....

(A) 220
(B) 222
(C) 210
(D) 156

95. In a survey of 150 readers it has been found that 75 read newspaper A, 90 read newspaper B and 70 read newspaper C. 40 read A and B, 35 read B and C, 30 read A and C and 10 read all the three. If so how many read exactly one newspaper?

(A) 35
(B) 55
(C) 235
(D) 120

96. Complete the series: $\frac{3}{2}, \frac{1}{3}, \frac{1}{2}, \frac{1}{6}, \frac{1}{12}, \ldots\ldots\ldots$

(A) $\frac{1}{72}$

(B) $\frac{2}{72}$

(C) $\frac{3}{72}$

(D) None of the above

97. Complete the series: 17, 11, 15, 13, 13, 15, 11, ……..

(A) 11
(B) 13
(C) 15
(D) 17

98. Fill up the blanks

2, 4, 5, 10, 11, 22, ___, ___

(A) 22, 45
(B) 23, 46
(C) 22, 46
(D) 23, 45

99. Fill up the blanks

8, 3, 6, 4, 4, 5, ___, ___

(A) 2, 6
(B) 1, 5
(C) 1,6
(D) 2, 5

100. Fill up the blanks

3, 2, 11, 6, __, 10, 27, __

(A) 18, 15

(B) 19, 14
(C) 19, 15
(D) 18, 14

101. Fill up the blanks

ak, eo, is, qa, ue, ___

(A) *lv*
(B) *mw*
(C) *nx*
(D) *lw*

102. Fill up the blanks

P3C, R5F, T8I, V12L, __

(A) Y17O
(B) X17M
(C) X17O
(D) X16O

103. Fill up the blanks

$\frac{2}{3}, 1\frac{1}{3}, 2, 2\frac{2}{3}, 3\frac{1}{3}, \_\_, \_\_$

(A) $3, 3\frac{2}{3}$

(B) $4, 4\frac{2}{3}$

(C) $3, 4\frac{2}{3}$

(D) $4, 3\frac{2}{3}$

104. Fill up the blanks

QPO, NML, KJI, _____, EDC

(A) HGF
(B) CAB

(C) JKL
(D) GHI

105. Fill up the blanks

$P_5QR, P_4QS, P_3QT, \_\_\_\_\_, P_1QV$

(A) PQW
(B) PQV_2
(C) P_2QU
(D) PQ_3U

106. If 'MEAT' is written as 'TEAM', then 'BALE' is written as

(A) ELAB
(B) EABL
(C) EBLA
(D) EALB

107. If WATER is written as 'YCVGT', then what is written as 'HKTG'?

(A) IRFE
(B) FIRE
(C) RIFE
(D) ERIF

108. In a certain code, 12456 is coded as ROPE, 15526 is coded as APPLE, then how is 54613 coded?

(A) RPPLO
(B) ROPEA
(C) POEAR
(D) PAREO

109. If in a certain language MYSTIFY is coded as NZTUJGZ, how is NEMESIS coded in that language?

(A) MDLHRDR
(B) OFNFTJT
(C) FONFTJT
(D) OFNFTTJ

110. If SHARP is coded as 58034 and PUSH as 4658 then, RUSH is coded as

(A) 3568
(B) 3658
(C) 3685
(D) 3583

111. If the word 'TABLECLOTH' is coded as 'XEMPANRIXT', how can 'HOTEL' be coded?

(A) RIXAT
(B) TIXAR
(C) TAXIR
(D) RAXIT

112. If TAP is coded as SZO, then how is FREEZE coded?

(A) EQDFYG
(B) ESDFYF
(C) GQFDYF
(D) EQDDYD

113. If SWITCH is written as TVISDG, which word would be written as CQFZD?

(A) BREAD
(B) BARED
(C) BRADE
(D) BRAED

114. A party consists of grandmother, father, mother, four sons and their wives and one son and two daughters to each of the sons. How many females are there in all?

(A) 14
(B) 16
(C) 18
(D) 24

115. What is once in TEA and twice in COFFEE but not in MILK?

(A) Sugar

(B) Flavour
(C) The letter E
(D) Water

116. **Arrange in order**

(1) Animal (2) Biology (3) Science (4) Lion (5) Zoology

(A) 3,2,5,1,4
(B) 3,5,2,1,4
(C) 3,1,2,5,4
(D) 3,1,4,5,2

117. **Arrange in Order**

(1) Community (2) Locality (3) Family (4) Country (5) Person

(A) 4,1,2,3,5
(B) 4,2,1,3,5
(C) 5,3,2,1,4
(D) 5,3,1,4,2

118. Rajat correctly remembers that his mother's birthday is not after 18th of June. His sister correctly remembers that their mother's birthday is before 20th June but after 17th June. On which day in June was definitely their mothers birthday?

(A) 17^{th}
(B) 19^{th}
(C) 18^{th}
(D) 17^{th} or 18^{th}

119. **Direction:** Choose the pair that best represents a similar relationship to the one expressed in the original pair of words.

Melt : Liquid : : Freeze : ?

(A) Ice
(B) Condense
(C) Solid
(D) Crystal

120. **Direction :** Choose the pair that best represents a similar relationship to the one expressed in the original pair of words

Reading : Knowledge : : Work : ?

(A) Experience
(B) Engagement
(C) Employment
(D) Experiment

121. **Direction :** Choose the pair that best represents a similar relationship to the one expressed in the original pair of words

Moon : Satellite : : Earth : ?

(A) Sun
(B) Planet
(C) Solar system
(D) Asteroid

Read the following information and answer the question given below.

L and **N** are good in English and History, **O** and **L** are good in History and Civics, **N** and **M** are good in Economics and English. **O, M** and **P** are good in Civics and Economics. **P** and **O** are good in Civics and Mathematics.

122. Who is good in Civics, Economics, History and Mathematics?

(A) O
(B) M
(C) N
(D) L

123. Who is good in Civics, Economics and English?

(A) L
(B) O
(C) N

(D) M

124. Who is good in Civics, English and History?

(A) O
(B) M
(C) N
(D) L

125. Who is good in History, Economics and English?

(A) N
(B) M
(C) L
(D) O

126. Who is good in Civics, Economics, Mathematics, but not in History?

(A) P
(B) M
(C) N
(D) L

Read the following information and answer the question given below:

Five cities all got more rain than usual this year. The five cities are: **Aurangabad, Ahmednagar, Pune, Mumbai** and **Nagpur**. The cities are located in five different areas of the country: **the mountains, the forest, the coast, the desert,** and **in a valley**. The rainfall amounts were: **24 inches, 54 inches, 64 inches, 88 inches** and **130 inches.**

The city in the desert got the least rain; the city in the forest got the most rain.
Pune is in the mountains.
Aurangabad got more rain than Mumbai.
Ahmednagar got more rain than Nagpur, but less rain than Pune.
Mumbai got 88 inches of rain.
The city in the mountains got 64 inches of rain; the city on the coast got 54 inches of rain.

127. Which city is in the desert?

(A) Aurangabad
(B) Ahmednagar
(C) Pune
(D) Nagpur

128. Which city got the most rain?

(A) Aurangabad
(B) Ahmednagar
(C) Pune
(D) Mumbai

129. How much rain did Ahmednagar get?

(A) 24 inches
(B) 54 inches
(C) 64 inches
(D) 88 inches

130. Where is Mumbai located?

(A) In the mountains
(B) In the coast
(C) In a valley
(D) In the desert

Read the following information and answer the question given below:

(i) **A, B, C, D, E, F**, and **G** are sitting along a circle facing at the center and are playing cards
(ii) **E** is the neighbor of **A** and **D**
(iii) **G** is not between **F** and **C**
(iv) **F** is on the immediate right of **A**

131. Who are the neighbours of B?

(A) C and D
(B) F and C
(C) A and F
(D) Data inadequate

132. Which pair given below has the second person sitting immediatley to the right of the first?

(A) CB
(B) DG
(C) EA
(D) AB

133. Which of the following has the persons sitting adjacent to each other left to right in order as given?

(A) CDG
(B) EDG
(C) BGC
(D) FBC

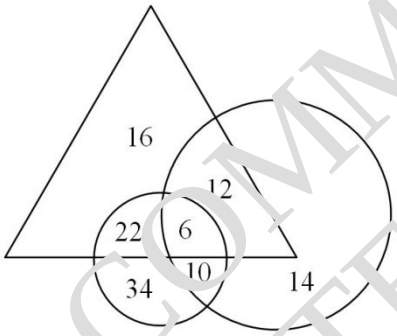
134. What is the position of F?

(A) To the immediate left of A
(B) To the immediate right of B
(C) 2nd to immediate left of C
(D) None of the above

135. Which of the following does not have the pair sitting adjacent to each other?

(A) BA
(B) CB
(C) DE
(D) GD

Directions: In the following diagram, the triangle represents educated youth. The small circle represents the youth from backward classes. The large circle represents employed youth.



136. How many youths uneducated are from backward classes?

(A) 36
(B) 28
(C) 6
(D) 44

137. How many educated youths are employed?

(A) 36
(B) 40
(C) 30
(D) 18

138. How many educated youths are from backward classes?

(A) 56
(B) 28
(C) 12
(D) 18

139. How many uneducated youths from backward classes are employed?

(A) 14
(B) 22
(C) 28
(D) 10

140. How many youths are unemployed?

(A) 72
(B) 38
(C) 50
(D) 52

141. How many youths are employed?

(A) 24
(B) 32
(C) 20
(D) 42

Direction: Each problem consists of three statements. Based on the first two statements, the third statement may be true, false, or uncertain.

142. Tanya is older than Eric.
Cliff is older than Tanya.
Eric is older than Cliff.
If the first two statements are true, the third statement is

(A) true
(B) false
(C) uncertain
(D) None of the above

143. All the trees in the park are flowering trees.
Some of the trees in the park are dogwoods.
All dogwoods in the park are flowering trees.
If the first two statements are true, the third statement is

(A) true
(B) false
(C) uncertain
(D) None of the above

Direction : In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

144. **Statements:** All bags are cakes. All lamps are cakes.
Conclusions:

I. Some lamps are bags.

II. No lamp is bag.

(A) Only conclusion I follows
(B) Only conclusion II follows
(C) Either I or II follows
(D) Neither I nor II follows

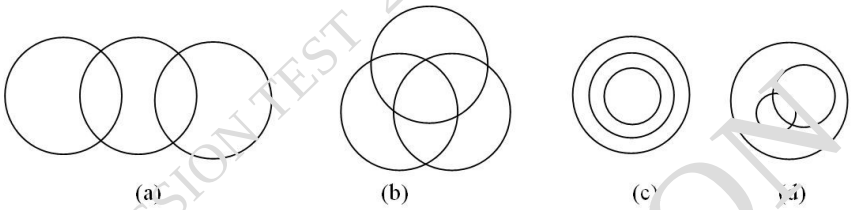
145. **Statements:** All mangoes are golden in colour. No golden coloured things are cheap.
Conclusions:

I. All mangoes are cheap.

II. Golden coloured mangoes are not cheap.

(A) Only conclusion I follows
(B) Only conclusion II follows
(C) Either I or II follows
(D) Neither I nor II follows

Direction: Choose which of the following diagram represents relationship among the given elements in a much logical way



146. Flowers, Clothes, White

(A) a
(B) b
(C) c
(D) d

147. Tennis fan, Cricket Players, Students

(A) a
(B) b
(C) c
(D) d

148. Rhombus, Quadrilateral, Polygon

(A) a
(B) b
(C) c
(D) d

Directions: In the following question, one statement is followed by two possible implications. Study them and mark one of the following answer choices

149. ***Statement*:**

Ignorance of law is no excuse.

1. One should not be ignorant of law.
2. Man tries to find an excuse.

(A) Statement 1 is implied
(B) Statement 2 is implied
(C) Both the statements are implied
(D) Both the statements are not implied

150.

Directions: In the following question, one statement is followed by two possible implications. Study them and mark one of the following answer choices

***Statement*:** By giving up smoking the incidence of lung cancer can be reduced.

1. The incidence of lung cancer is very high.
2. Smoking causes lung cancer.

(A) Statement 1 is implied
(B) Statement 2 is implied
(C) Both the statements are implied
(D) Both the statements are not implied

MCA - ANSWER KEY

TEST CODE: 501

QN. NO.	KEY	QN. NO.	KEY	QN. NO.	KEY	QN. NO.	KEY	QN. NO.	KEY
1	B	26	C	51	C	76	A	101	B
2	D	27	D	52	C	77	C	102	C
3	A	28	D	53	B	78	D	103	B
4	B	29	C	54	C	79	A	104	A
5	B	30	A	55	B	80	B	105	C
6	A	31	C	56	B	81	D	106	D
7	B	32	A	57	C	82	C	107	B
8	B	33	D	58	D	83	D	108	C
9	B	34	B	59	A	84	C	109	B
10	B	35	A	60	A	85	D	110	B
11	A	36	C	61	A	86	C	111	B
12	A	37	C	62	D	87	D	112	D
13	D	38	B	63	D	88	C	113	A
14	A	39	A	64	D	89	D	114	A
15	C	40	C	65	C	90	D	115	C
16	C	41	A	66	C	91	B	116	A
17	C	42	B	67	B	92	C	117	C
18	C	43	C	68	B	93	C	118	C
19	D	44	A	69	A	94	B	119	C
20	B	45	C	70	A	95	B	120	A
21	D	46	C	71	B	96	A	121	B
22	A	47	D	72	D	97	D	122	A
23	D	48	B	73	A	98	B	123	D
24	C	49	C	74	B	99	A	124	D
25	B	50	A	75	C	100	B	125	A

QN. NO.	KEY
126	A
127	D
128	A
129	B
130	C
131	B
132	C
133	D
134	D
135	A
136	D
137	D
138	B
139	D
140	A
141	D
142	B
143	A
144	C
145	B
146	A
147	B
148	C
149	D
150	B