Entrance Exam

2024



QUESTION PAPER

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1. If $\begin{bmatrix} -4.5 \\ -4 \\ 1 \end{bmatrix}$ is an eigenvector of $\begin{bmatrix} 8 & -4 & 2 \\ 4 & 0 & 2 \\ 0 & -2 & -4 \end{bmatrix}$, the eigenvalue corresponding to the eigenvector is?

(A) $\lambda = 1$
(B) $\lambda = -4.5$
(C) $\lambda = 4$
(D) $\lambda = 6$

2. A is an upper triangular with all diagonal entries zero, then $I + A$ is

(A) Idempotent
(B) Singular
(C) Nilpotent
(D) Invertible

3. If $x^2 - 41x + 400 = 0;\ y^2 - 29y + 210 = 0$, then choose the correct condition.

(A) $x > y$
(B) $x < y$
(C) $x \geq y$
(D) $x = y$

4. If α, β are the roots of the quadratic equation $x^2 - 8x + k = 0$, find the value of k such the $\alpha^2 + \beta^2 = 40$

(A) 14
(B) 16
(C) 10
(D) 12

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5. What is the minimum value of $f(x) = x^2 - 5x + 41$?

(A) $\frac{149}{4}$

(B) $\frac{139}{4}$

(C) $\frac{119}{4}$

(D) $\frac{129}{4}$

6. Given that $\log_{10} 2 = 0.3010$, then $\log_2 10$ is equal to?

(A) $\frac{1000}{301}$

(B) 0.6990

(C) 0.3010

(D) $\frac{699}{301}$

7. The greatest value assumed by the function $f(x) = 5 - |x - 3|$ is

(A) 5
(B) 3
(C) 6
(D) 8

8. Verify Euler's theorem for the following function, $u = ax^2 + 2hxy + by^2$

(A) Not Verified, Degree $n = 0$
(B) Verified, Degree $n = 1$
(C) Verified, Degree $n = 4$
(D) Verified, Degree $n = 2$

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9. For $\frac{x}{y^3}=1$, Find y' by solving the equation for y and differentiating directly

(A) $y'=\frac{1}{3}x^{2/3}$

(B) $y'=\frac{1}{3}x^{-2/3}$

(C) $y'=\frac{1}{3}x^{-1/3}$

(D) $y'=\frac{1}{3}x^{1/3}$

10. If A is a subset of B then

(A) The cardinalities may be same
(B) The cardinality of A is greater than B
(C) The cardinality of B is greater than A
(D) The cardinalities may be finite

11. Find the maximum and minimum of $f(x, y)=5x-3y$ subject to the constraint $x^2+y^2=136$.

(A) Minimum at (−10, 6); Maximum at (10, −6)
(B) Minimum at (10, 6); Maximum at (10, 6)
(C) Minimum at (−12, 6); Maximum at (12, −6)
(D) Minimum at (−10, 8); Maximum at (10, −8)

12. How many edges does a Null graph have?

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

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13. Consider a simple undirected unweighted graph with at least three vertices. If A is the adjacency matrix of the graph, then the number of 3-cycles in the graph is given by the trace of ?

(A) $\frac{A^3}{3}$

(B) $\frac{A^3}{6}$

(C) $\frac{A^2}{4}$

(D) $\frac{A^2}{8}$

14. The maximum number of edges possible in a graph G with 9 vertices which is 3 colourable is equal to

(A) 24
(B) 25
(C) 26
(D) 27

15. From a tower of 80 m high, the angle of depression of a bus is 30°. How far is the bus from the tower?

(A) 40 m
(B) 46.24 m
(C) 138.4 m
(D) 160 m

16. The half-interval method in numerical analysis is also known as

(A) Bisection method
(B) Newton-Raphson method
(C) Regula Falsi method
(D) Taylor's method

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17. Find $\int 6x\left(x^2+6\right)dx$

(A) $\frac{3x^4}{2}+18x^2+C$

(B) $\frac{3x^4}{2}-18x^2+C$

(C) $\frac{3x^4}{2}-18x^2-C$

(D) $\frac{3x^4}{2}+x^2+C$

18. Let $S = \{1, 2, 3, 5, 7, 10, 11\}$. The number of non-empty subsets of S that have the sum of all elements a multiple of 3, is

(A) 40
(B) 41
(C) 42
(D) 43

19. Complete the indefinite integral formula $\int x^n dx =$ ……..…

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

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

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

(D) $\frac{x^{n+1}}{(n-1)}+c$

20. ……. are entities whose value is determined from the solution of LPP

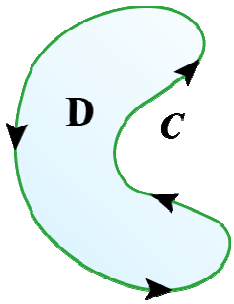
(A) Decision variable
(B) Constraints
(C) Objective function
(D) Opportunity cost

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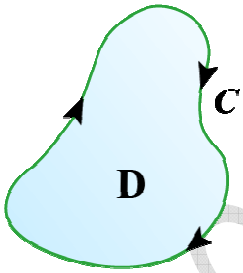
21. Mathematically, the functions in Green's theorem will be

(A) Continuous derivatives
(B) Discrete partial derivatives
(C) Continuous partial derivatives
(D) Discrete derivatives

22. Identify the orientations of two figures given below with respect to Green's Theorem



(Figure 1)



(Figure 2)

(A) Figure 1 – Positive Orientation, Figure 2 – Negative Orientation
(B) Figure 1 – Negative Orientation, Figure 2 – Positive Orientation
(C) Figure 1 – Downward Orientation, Figure 2 – Upward Orientation
(D) Figure 1 – Upward Orientation, Figure 2 – Downward Orientation

23. The divergence of the vector $-yi + xj$ is

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

24. Find the area bounded by the curve $y = x^2 + 2$ and straight line $y = x + 3$

(A) $A = 1.6$
(B) $A = 1.7$
(C) $A = 1.7655$
(D) $A = 1.8633$

25. Every mathematical model

(A) represents data in numerical form
(B) must be deterministic
(C) requires computer aid for its solution
(D) cannot be defined

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26. Which of the following is union of {1, 2, 5} and {1, 2, 6}?

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

27. If $x \in N$ and x is prime, then x is

(A) infinite set
(B) finite set
(C) empty set
(D) not a set

28. Let the players who play cricket be 12, the ones who play football 10, those who play only cricket are 6, then the number of players who play only football are ……, assuming there is a total of 16 players.

(A) 16
(B) 8
(C) 4
(D) 10

29. Which of the following function is also referred to as an injective function?

(A) Many-to-one
(B) Onto
(C) One-to-One
(D) None of the above

30. The positive integer just greater than $(1 + 0.0001)^{10000}$ is

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

31. The coefficients of x^p and x^q in the expression of $(1 + x)^{p+q}$ are

(A) equal
(B) equal with opposite signs
(C) reciprocals of each other
(D) None of the above

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32. Let p be a non singular matrix $1 + p + p^2 + \ldots + p^n = O$, then $p^{-1} = ?$
(O denotes the null matrix)

(A) p^n
(B) $-p^n$
(C) $-(1 + p + \ldots + p^n)$
(D) None of the above

33. For any square matrix A, AA^T is a

(A) unit matrix
(B) symmetric matrix
(C) skew symmetric matrix
(D) diagonal matrix

34. For two invertible matrices A and B of suitable orders, the value of $(AB)^{-1}$ is

(A) $(BA)^{-1}$
(B) $B^{-1} A^{-1}$
(C) $A^{-1} B^{-1}$
(D) $(AB')^{-1}$

35. If the system of linear equation $x + 2ay + az = 0$, $x + 3by + bz = 0$, $x + 4cy + cz = 0$ has a non zero solution, then a, b, c

(A) are in A.P.
(B) are in G. P.
(C) are in H. P.
(D) satisfy $a + 2b + 3c = 0$

36. If A is a square matrix of order 3, then the true statement is (where I is unit matrix)

(A) det $(-A) = -\det A$
(B) det $A = 0$
(C) det $(A + I) = 1 + \det A$
(D) det $2A = 2$ det A

37. The dimension of zero vector space is

(A) not defined
(B) 1
(C) 0
(D) infinite

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38. What is the quadratic polynomial whose sum and the product of zeroes is $\sqrt{2}, \frac{1}{3}$ respectively?

(A) $3x^2 - 3\sqrt{2}x + 1$
(B) $3x^2 + 3\sqrt{2}x + 1$
(C) $3x^2 + 3\sqrt{2}x - 1$
(D) None of the above

39. Let $D = a^2 + b^2 + c^2$; a, b being consecutive integers and $c = ab$ then $\sqrt{D}$ is

(A) always an even integer
(B) always an odd integer
(C) sometimes an odd integer, sometimes not
(D) sometimes a rational number, sometimes not

40. If $a^2 + b^2 + c^2 = 1$, then $ab + bc + ac$ lies in the interval

(A) $[1/2, 2]$
(B) $[-1, 2]$
(C) $[-1/2, 2]$
(D) $[-1, 1/2]$

41. If the roots of the quadratic equation $x^2 + px + q = 0$ are tan 30° and tan 15°, respectively then the value of $2 + q - p$ is

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

42. Which of the following is an example of an Ideal of Ring R?

(A) Z
(B) $\{0\}$
(C) Q
(D) $2Z$

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43. The field $Q\left(\sqrt{3}+\sqrt{7}\right)$ is isomorphic to

(A) Q
(B) R
(C) $Q\left(\sqrt{3},\sqrt{7}\right)$
(D) C

44. Find the fixed field of $Q\left(\sqrt{2}\right)$ of the mapping $\sqrt{2}$ goes to $-\sqrt{2}$

(A) Q
(B) R
(C) C
(D) Z

45. Number of zero divisors of Q is

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

46. In any Abelian group, every subgroup is

(A) normal
(B) finite
(C) cyclic
(D) zero

47. The number of normal subgroups in a nontrivial simple group is

(A) 2
(B) 1
(C) 0
(D) 4

48. Find the maximum order of an element in the permutation group S_5

(A) 2
(B) 6
(C) 3
(D) 10

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49. Find the number of units in the ring Z_5

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

50. The principal value of $\tan^{-1}\left(\tan\frac{3\pi}{4}\right)$ is

(A) $\frac{2\pi}{4}$
(B) $-\frac{2\pi}{4}$
(C) $\frac{3\pi}{4}$
(D) $-\frac{\pi}{4}$

51. The domain of $\sin^{-1}(2x)$ is

(A) [0, 1]
(B) [– 1, 1]
(C) $[-1/2, 1/2]$
(D) [–2, 2]

52. Which of the following is the principal value branch of $\cos^{-1} x$?

(A) $[-\pi/2, \pi/2]$
(B) $(0, \pi)$
(C) $[0, \pi]$
(D) $(0, \pi) - \{\pi/2\}$

53. The domain of $y = \cos^{-1}(x^2 - 2^2)$ is

(A) [3, 5]
(B) $[0, \pi]$
(C) $\left[-\sqrt{5}, -\sqrt{3}\right] \cap \left[-\sqrt{5}, \sqrt{3}\right]$
(D) $\left[-\sqrt{5}, -\sqrt{3}\right] \cup \left[-\sqrt{3}, \sqrt{5}\right]$

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54. $\sin(\tan^{-1} x)$, where $|x| < 1$, is equal to

(A) $\dfrac{x}{\sqrt{1-x^2}}$

(B) $\dfrac{1}{\sqrt{1-x^2}}$

(C) $\dfrac{1}{\sqrt{1+x^2}}$

(D) $\dfrac{x}{\sqrt{1+x^2}}$

55. If the length of the shadow of a tree is decreasing, then the angle of elevation is

(A) increasing
(B) decreasing
(C) remains the same
(D) None of the above

56. The angle of elevation of the top of a building from a point on the ground, which is 30 m away from the foot of the building, is 30°. The height of the building is



(A) 10 m

(B) $\dfrac{30}{\sqrt{3}}$ m

(C) $\dfrac{\sqrt{3}}{10}$ m

(D) 30 m

57. If the height of the building and distance from the building foot's to a point is increased by 20%, then the angle of elevation on the top of the building

(A) increases
(B) decreases
(C) do not change
(D) None of the above

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58. If $f(x) = 2x^3 - 3x^2 - 12x + 5$ and x belongs to $[-2, 4]$, then the maximum value of function is at the following value of x

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

59. Given function $f(x) = \left(\frac{e^{2x} - 1}{e^{2x} + 1}\right)$ is

(A) strictly increasing
(B) strictly decreasing
(C) even
(D) oscillating

60. If $ab = 2a + 3b$; $a > 0$, $b > 0$ then the minimum value of ab is

(A) 12
(B) 24
(C) $\frac{1}{4}$
(D) $\frac{1}{2}$

61. Which of the following functions has a finite number of points of discontinuity in R ([.] represents the greatest integer function)?

(A) $\tan x$
(B) $x[x]$
(C) $|x|/x$
(D) $\sin[\pi x]$

62. The number of values of $x \in [0, 2]$ at which $f(x) = |x - (1/2)| + |x - 1| + \tan x$ is not differentiable is

(A) 0
(B) 1
(C) 3
(D) 1.5

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63. A and B are standing on ground 50 meters apart. The angles of elevation for these two to the top of a tree are 60° and 30°. What is height of the tree?

(A) 503 m
(B) $\frac{25}{3}$ m
(C) $25\sqrt{3}$ m
(D) $\frac{25}{4}$ m

64. The area of the triangle ABC with the vertices $A(-5, 7)$, $B(-4, -5)$ and $C(4, 5)$ is

(A) 63
(B) 35
(C) 53
(D) 36

65. If $y = mx + 4$ is a tangent to both the parabolas, $y^2 = 4x$ and $x^2 = 2by$, then b is equal to

(A) −64
(B) 128
(C) −128
(D) −32

66. Two common tangents to the circle $x^2 + y^2 = 2a^2$ and parabola $y^2 = 8ax$ are

(A) $x = \pm(y + 2a)$
(B) $y = \pm(x + 2a)$
(C) $x = \pm(y + a)$
(D) $y = \pm(x + a)$

67. Let P be the point (1, 0) and Q a point on the locus $y^2 = 8x$. The locus of midpoint of PQ is

(A) $y^2 - 4x + 2 = 0$
(B) $y^2 + 4x - 2 = 0$
(C) $x^2 + 4y + 2 = 0$
(D) $x^2 - 4y + 2 = 0$

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68. The normal at the point $(bt_1^2, 2bt_1)$ on a parabola meets the parabola again in the point $(bt_2^2, 2bt_2)$ then

(A) $t_2 = -t_1 - 2/t_1$

(B) $t_2 = -t_1 + 2/t_1$

(C) $t_2 = t_1 - 2/t_1$

(D) $t_2 = t_1 + 2/t_1$

69. 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) (1, 0)
(C) (0, 1)
(D) (2, 0)

70. If $a \neq 0$ and the line $2bx + 3cy + 4d = 0$ passes through the points of intersection of the parabolas $y^2 = 4ax$ and $x^2 = 4ay$ then

(A) $d^2 + (2b + 3c)^2 = 0$

(B) $d^2 + (3b + 2c)^2 = 0$

(C) $d^2 + (2b - 3c)^2 = 0$

(D) $d^2 + (3b - 2c)^2 = 0$

71. The locus of a point $P(\alpha, \beta)$ moving under the condition that the line $y = \alpha x + \beta$ is a tangent to the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is

(A) an ellipse
(B) a circle
(C) a hyperbola
(D) a parabola

72. If a hyperbola passes through the point $P(10, 16)$ and it has vertices at $(\pm 6, 0)$, then the equation of the normal at P is

(A) $3x + 4y = 94$
(B) $x + 2y = 42$
(C) $2x + 5y = 100$
(D) $x + 3y = 58$

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73. The objective function of a linear programming problem is

(A) a constraint
(B) a function to be optimized
(C) a relation between the variables
(D) None of the above

74. In 30 balls, a batsman hits the boundaries 6 times. What will be the probability that he did not hit the boundaries?

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

75. What will be the probability of an impossible event?

(A) 0
(B) 1
(C) Infinity
(D) −1

76. Mark the object that does not follow the rule



(A) I
(B) B
(C) E
(D) H

77. Arrange the given words in a logical and meaningful order

1. Pupa 2. Larva 3. Moth 4. Eggs

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

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78. Find the next number in the sequence:

16, 30, 54, 88, 132…

(A) 206
(B) 186
(C) 188
(D) 190

79. Which of the following set is equivalent to set $A = \{a, b, c, d, e\}$?

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

80. Arrange the following words according to dictionary

1. Fenestration 2. Feather 3. Feed head 4. Feature 5. Feminine

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

81. If the word "RED" is coded "UHG", then what is the code for "NOT"?

(A) QRW
(B) NOY
(C) NOT
(D) TOT

82. **Direction**: Read the following information carefully and answer the question.

A ÷ B means A is the son of B

A – B means A is the wife of B

A × B means A is the brother of B

A + B means A is the mother of B

A = B means A is the sister of B

What does P × R + Q mean?

(A) P is the father of Q
(B) P is the brother of Q
(C) P is the uncle of Q
(D) P is the sister of Q

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83. If it is 9:20, then what is the angle between the hands of the clock?

(A) 190°
(B) 150°
(C) 180°
(D) 160°

84. Which of the following come in place of **?**

AB, DEF, HIJK, **?** , STUVWX

(A) LMN
(B) LMNO
(C) MNOPQ
(D) QRSTU

85. Two bus tickets from city A to B and three tickets from city A to C cost ₹77 but three tickets from city A to B and two tickets from city A to C cost ₹73. What are the fares for cities B and C from A?

(A) ₹12, ₹13
(B) ₹15, ₹16
(C) ₹4, ₹20
(D) ₹13, ₹17

86. A monkey climbs 30 feet at the beginning of each hour and rests for a while when he slips back 20 feet before he again starts climbing at the beginning of the next hour. If he begins his ascent at 8.00 a.m., at what will he first touch a flag at 120 feet from the ground?

(A) 8:00 pm
(B) 6:00 pm
(C) 5:00 pm
(D) 7:00 pm

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87. Here are some words translated from an artificial language

gemolinea means fair warning

gerimitu means report card

gilageri means weather report

Which word could mean "fair weather"?

(A) gemogila
(B) gerigeme
(C) gerimita
(D) gemomitu

88. Here are some words translated from an artificial language

tamceno means sky blue

cenorax means blue cheese

aplmitl means star bright

Which word could mean "bright sky"?

(A) raxmitl
(B) cenotam
(C) mitltam
(D) aplceno

89. Harry wants to go to the university. He starts from his home, which is in the East and comes to a crossing. The road to the left ends in a theatre, straight ahead is the hospital. In which direction is the university?

(A) South
(B) North
(C) East
(D) West

90. If A is to the south of B and C is to the east of B, in what direction is A with respect to C?

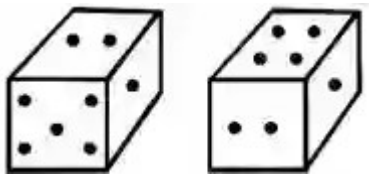
(A) South-West
(B) North-West
(C) South-East
(D) North-East

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91. I am facing west. I turn 45° in the clockwise direction and then 180° in the same direction and then 270° anti-clockwise. Which direction am I facing now?

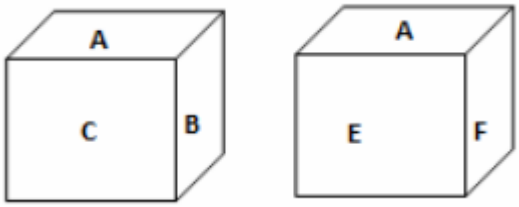
(A) South-East
(B) East
(C) North-West
(D) South-West

92. Two positions of dice of the figure are shown below. Find how many points will appear on the face opposite of face 5 points?



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

93. Two positions of a cube with its surfaces are shown below. When the surface 'D' touch the bottom, what surface will be on top?



(A) A
(B) B
(C) F
(D) C

Direction (Question No. 94 to 98) : Read the passage given below carefully and answer the question from**.**

Eight friends – P, Q, R, S, T, U, V and W are sitting around a circle facing the centre. V is third to the right of Q and second to the left of R. Q is second to the left of T and immediate right of S. U is between Q and T. P is not at the left of R

94. Who is second at right of S?

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(A) U
(B) P
(C) R
(D) T

95. Who is exactly at left of S?

(A) Q
(B) U
(C) P
(D) V

96. What is the exact position of W?

(A) Just right of V
(B) Just left of V
(C) Immediate right to R
(D) In between U and V

97. In which of the following pairs first person sits exactly at right of second person?

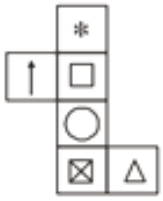
(A) UT
(B) VT
(C) WR
(D) WT

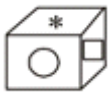
98. Who is second to right of T?

(A) R
(B) W
(C) P
(D) V

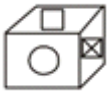
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99. Which of the following cubes can be created by folding the given figure?



(A) 

(B) 

(C) 

(D) 

100. Asuthosh ranked sixteenth from the top and twenty ninth from the bottom among those who passed an examination. Six boys did not participate in the competition and five failed in it. How many boys were there in the class?

(A) 55
(B) 50
(C) 65
(D) 60

101. In a row of children facing North, John is 12^{th} from the left end. Sanjay, who is 22^{nd} from the right end, is 4^{th} to the right of John. Total how many children are there in the row?

(A) 35
(B) 37
(C) 36
(D) 34

FOR REFERENCE ONLY

Direction (Question No. 102 to 103): On the basis of the data given answer the following question

A, B and C are three boys while R, S and T are three girls.
They are sitting in such a way that the boys are facing the girls.
A and R is diagonally opposite to each other.
C is not sitting at any of the ends.
T is just left of R but opposite to C

102. Who is sitting diagonally opposite to B ?

(A) A
(B) R
(C) T
(D) S

103. Who is sitting opposite to B?

(A) A
(B) C
(C) R
(D) T

104. Fill in the blanks

SCD, TEF, UGH, ……, WKL

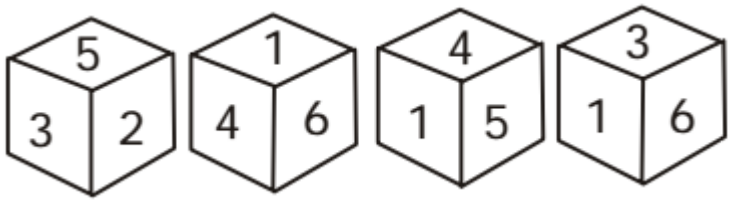
(A) VIJ
(B) CMN
(C) UJI
(D) IJT

105. In a certain code, TRIPPLE is written as SQHOOKD. How is DISPOSE written in that code?

(A) DSOESPI
(B) CHRONRD
(C) ESJTPTF
(D) ESOPSID

FOR REFERENCE ONLY

106. Four positions of a dice are given below. Identify the number at the bottom when top is 1



(A) 4
(B) 6
(C) 5
(D) 2

107. There are four towns P, Q, R and T. Q is to the south-west of P, R is to the east of Q and south-east of P, and T is to the north of R in line with QP. In which direction of P is T located?

(A) North
(B) South-East
(C) North-East
(D) East

108. The number in the question below is to be codified in the following code

Digit: 5 3 7 1 4 9 6 2 8

Letter: C J O X N Q T Z F

Find the code for 163542

(A) XTJCNZ
(B) XTCJNZ
(C) XTJCZN
(D) TXJCNZ

FOR REFERENCE ONLY

Direction (Question No. 109 to 113): Read the following information carefully and then answer the question below.

Following are the criteria of admitting a student in the first year Engineering course in a college:

The student must

a. have passed XII standard examination in Science with at least 80% marks
b. not be more than 20 years old as on 1st August 1994.
c. have secured at least 90 marks in the entrance test out of the total of 150 marks
d. be able to pay ₹15,000 as tuition fee for 1st semester and ₹5,000 admission charges at the time of taking admission.

In the case of a candidate, who satisfies all other criteria except at

I. c. above but can pay, at least 60% of the stipulated fees, the case may be referred to the Admission Committee.
II. d. above but has secured more than 95% marks in XII standard examination, the case may be referred to Chairman – Admissions

You are given the following cases as on 1st August 1994. Depending upon the information provided in each case and based on the criteria mentioned above, recommend your decision. You are not to assume anything. If the information provided is not adequate to take a decision, mark `data inadequate' as the answer.



109. Sandhu was born on 25th September 1975. He has secured 85% and 65% marks in XII standard examination in Science stream and the entrance test, respectively. He can pay the requisite tuition fee and admission charges.

(A) Admit
(B) Don't Admit
(C) Refer to Chairman - Admissions
(D) Refer to Admission Committee

110. Sharmila has secured 95% marks in XII standard Science stream and 70% marks in the entrance test. She can pay only 65% of the requisite tuition fee and admission charges

(A) Admit
(B) Don't Admit
(C) Data Inadequate
(D) Refer to Admission Committee

FOR REFERENCE ONLY

111. Harini was 19 years old as on 20th December 1993. She has secured 98% marks in XII standard examination with Science and has secured 80% marks in the entrance test. She can pay the requisite tuition fees and admission charges

(A) Refer to Admission Committee
(B) Don't Admit
(C) Data Inadequate
(D) Admit

112. Noorzana was born on 20th July, 1974. She has secured 85% and 75% marks in XII standard with Science and the entrance test, respectively. She can pay the requisite tuition fees and admission charges

(A) Refer to Admission Committee
(B) Refer to Chairman of Admissions
(C) Data Inadequate
(D) Don't Admit

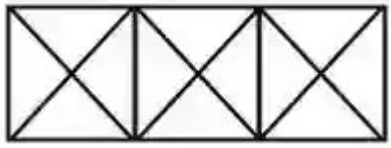
113. Ashok was born on 27th November, 1974. He has secured 90% marks in XII standard examination with Science and 95% marks in the entrance test. He can pay ₹10,000 tuition fees and ₹3,500 admission charges

(A) Refer to Admission Committee
(B) Don't Admit
(C) Data Inadequate
(D) Refer to Chairman of Admissions

114. Which of the following year is not a leap year?

(A) 2024
(B) 2100
(C) 2080
(D) 1960

115. How many triangles are there in a given figure?



(A) 24
(B) 25
(C) 26
(D) 28

FOR REFERENCE ONLY

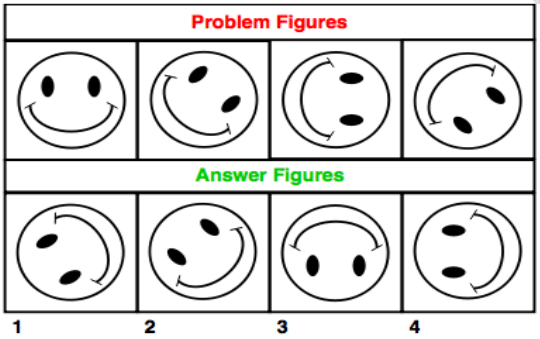
116. A dice is numbered from 1 to 6 in different ways. If 1 is adjacent to 2, 3 and 5, then which of the following statements is necessarily true?

(A) 4 is adjacent to 6
(B) 1 is adjacent to 6
(C) 1 is adjacent to 4
(D) 2 is adjacent to 5

117. *A* is *D*'s brother. *D* is *B*'s father. *B* and *C* are sisters. How is *C* related to *A*?

(A) Aunt
(B) Niece
(C) Nephew
(D) Cousin

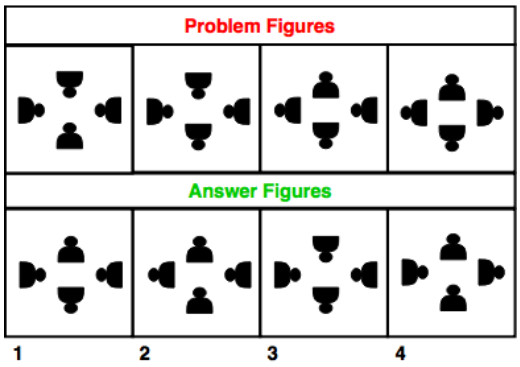
118. Find out the correct answer figure that should come next in the sequence of problem figures.



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

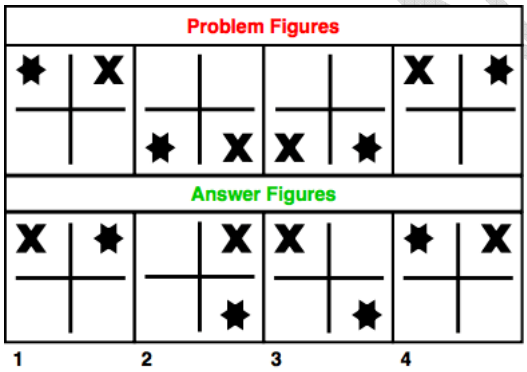
FOR REFERENCE ONLY

119. Find out the correct answer figure that should come next in the sequence of problem figures.



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

120. Find out the correct answer figure that should come next in the sequence of problem figures.



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

121. If AIRLINE is written as ENILRIA7, then RAILWAY will be written as

(A) YAWLIAR7
(B) YAWLIAR8
(C) YAWILAR7
(D) YAWILAR8

FOR PRACTICE ONLY

122. In the following question, arrange the given words in the sequence in which they occur in the dictionary and then choose the correct sequence

1. Eagle 2. Earth 3.Eager 4. Early 5. Each

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

123. Which number comes next in the series?

1536, 384, 96, ……

(A) 23
(B) 24
(C) 28
(D) 18

124. If PINK is coded as 1691411, then RED will be coded as

(A) 1963
(B) 1854
(C) 1853
(D) 1954

125. Choose the next word:

Linear, Planar, Spatial, ...

(A) Temporal
(B) Multidimensional
(C) Unidimensional
(D) Bidimensional

126. Complete the sequence:

Verbal, Nonverbal, Paraverbal, ...

(A) Meta verbal
(B) Intraverbal
(C) Extraverbal
(D) Trans verbal

FOR REFERENCE ONLY

127. Find the next in the series:

Perpendicular, Parallel, Collinear, ...

(A) Intersecting
(B) Coplanar
(C) Concurrent
(D) Orthogonal

128. Which is the odd one out?

Thesis, Dissertation, Manuscript, Article.

(A) Thesis
(B) Dissertation
(C) Manuscript
(D) Article

129. Find the sum of the infinite series:

$$1-\frac{1}{3}+\frac{1}{9}-\frac{1}{27}+.....$$

(A) $\frac{3}{4}$

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

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

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

130. In a financial model, if an initial investment of ₹1000 is compounded annually at 10% interest, what will be the total value after 10 years?

(A) ₹2593.74
(B) ₹10000.74
(C) ₹5000.74
(D) ₹2000.74

FOR REFERENCE ONLY

131. What will come in place of question mark (?) in the following series?

132 156 182 210 240 ?

(A) 272
(B) 284
(C) 296
(D) 302

132. What will come in place of question mark (?) in the following series?

508 53 212 29 60 ?

(A) 15
(B) 19
(C) 23
(D) 13

133. What will come in place of question mark (?) in the following series?

2299 2203 2109 2017 ? 1839

(A) 1935
(B) 1927
(C) 1946
(D) 1953

134. What will come in place of question mark (?) in the following series?

16800 4200 1050 262.5 ? 16.40625

(A) 64.725
(B) 60.225
(C) 65.625
(D) 68.428

135. On a Big Billion day sale, Google flagship mobile phone was available at a discount of 20% on Flipkart. The customers who are purchasing for the first time on Flipkart will get additional cashback of 10% on the billing amount. Suraj being 1st time user of Flipkart purchases the mobile phone for ₹36000, find the actual cost price of the mobile phone.

(A) ₹50000
(B) ₹45000
(C) ₹52250
(D) ₹47250

FOR REFERENCE ONLY

136. As per a company policy only 25% of the female employees and 20% of the male employees can hold the positions higher than level 2. If the ratio of female and male employees in the company is 3 : 2, then find the percentage of employees which are working below level 2.

(A) 75
(B) 77
(C) 70
(D) 72

137. Find the value of (?)

$$221 \div 13 \times \sqrt{576} + 100 = ?$$

(A) 628
(B) 428
(C) 408
(D) 508

138. Find the value of (?)

$$6 \times 6 \times 6 \times 6 \times 6 + 6 \times 6 \times 6 \times 6 = 81 \times 3.5 \times ?$$

(A) 64
(B) 16
(C) 32
(D) 36

139. Find the value of (?)

$$19\% \text{ of } 250 + ? = 2^7$$

(A) 85.50
(B) 75.50
(C) 80.50
(D) 70.50

140. Find the value of (?)

$$(6 \times 6 \times 6 \times 6 \times 6)^5 \times (9 \times 9 \times 9)^5 \div (18 \times 18 \times 18)^3 = 2^{16} \times 3^?$$

(A) 36
(B) 39
(C) 37
(D) 41

FOR REFERENCE ONLY

141. The cost of 1 dozen banana is ₹72 and the cost of one apple is 50% more than the cost of one banana. Anumol purchased x banana and $(x + 4)$ apples and spent ₹186. Find the total number of fruits that he purchased.

(A) 16
(B) 20
(C) 24
(D) 30

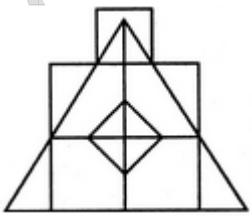
142. If the numerator of a fraction is increased by 150% and the denominator of a fraction increased by 200%, fraction becomes 10/19 . Find the fraction.

(A) $\frac{12}{17}$
(B) $\frac{10}{16}$
(C) $\frac{12}{19}$
(D) $\frac{9}{11}$

143. In a group of persons travelling in a bus, 6 persons can speak Tamil, 15 can speak Hindi and 6 can speak Gujarati. In that group, none can speak any other language. If 2 persons in the group can speak two languages and one person can speak all the three languages, then how many persons are there in the group?

(A) 21
(B) 22
(C) 23
(D) 24

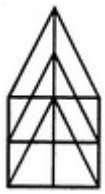
144. Count the number of triangles and squares in the given figure.



(A) 21 triangles, 7 squares
(B) 18 triangles, 8 squares
(C) 20 triangles, 8 squares
(D) 22 triangles, 7 squares

FOR REFERENCE ONLY

145. How many parallelograms are there in the following figure?



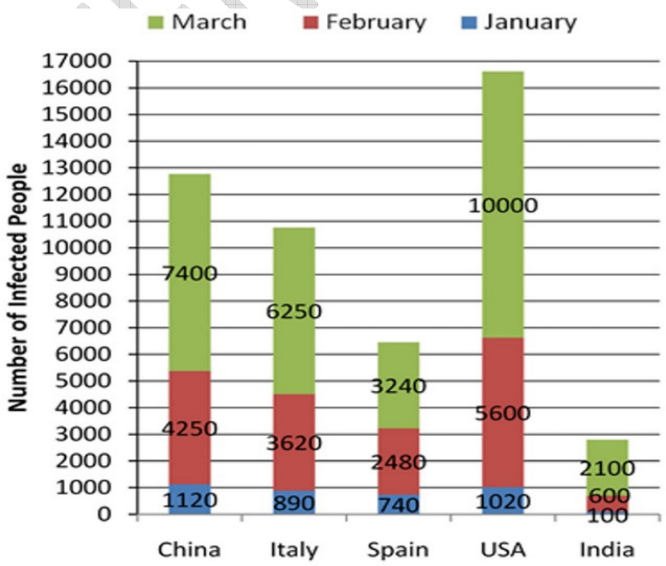
(A) 17
(B) 19
(C) 21
(D) 15

146. If it was Sunday on January 1st 2006, the day of the week on January 1st 2010 is

(A) Sunday
(B) Friday
(C) Saturday
(D) Monday

Direction (Question No. 147 to 150): Study the following bar chart carefully and answer the question given below:

Data regarding the number of people who were tested positive with COVID-19 during January, February and March in five countries is given in the stack bar chart.



FOR REFERENCE ONLY

147. Find the average number of people per day who were tested positive in India in March.

(A) 60.73
(B) 67.74
(C) 72.34
(D) 76.47

148. Which countries in February showed more than 3000 positive tests?

(A) China and Italy only
(B) China, Italy, Spain and the USA only
(C) China, Italy and the USA only
(D) China and the USA only

149. By what percent the number of positive tested people grew in Spain in February from January?

(A) 335.13%
(B) 235.13%
(C) 353.13%
(D) 253.13%

150. Japan in January had twice the number of cases that India had in January while 50% more cases in February than India that India had in February. Find the number of cases in Japan in March if cases in March were twice the total cases till February end.

(A) 2300
(B) 2100
(C) 2200
(D) 2400

FOR REFERENCE ONLY

ANSWER KEY

Subject Name: 501 MCA

SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key
1	C	31	A	61	C	91	D	121	A
2	D	32	A	62	C	92	C	122	B
3	A	33	B	63	C	93	A	123	B
4	D	34	B	64	C	94	A	124	B
5	B	35	C	65	C	95	C	125	B
6	A	36	A	66	B	96	A	126	C
7	A	37	C	67	A	97	B	127	C
8	D	38	A	68	A	98	B	128	D
9	B	39	B	69	B	99	B	129	A
10	C	40	C	70	A	100	A	130	A
11	A	41	D	71	C	101	B	131	A
12	A	42	B	72	C	102	D	132	D
13	B	43	C	73	B	103	C	133	B
14	D	44	A	74	B	104	A	134	C
15	C	45	D	75	A	105	B	135	A
16	A	46	A	76	D	106	D	136	B
17	A	47	C	77	A	107	C	137	D
18	D	48	B	78	B	108	A	138	C
19	B	49	B	79	A	109	A	139	C
20	C	50	D	80	B	110	C	140	C
21	C	51	C	81	A	111	D	141	C
22	A	52	C	82	C	112	D	142	C
23	A	53	D	83	D	113	B	143	C
24	D	54	D	84	C	114	B	144	A
25	A	55	A	85	D	115	D	145	A
26	C	56	B	86	B	116	A	146	B
27	A	57	C	87	A	117	B	147	B
28	C	58	D	88	C	118	B	148	C
29	C	59	A	89	B	119	C	149	B
30	B	60	B	90	A	120	D	150	C

FOR REFERENCE ONLY

Entrance Exams

- Agricultural Entrance Exams
- Architecture Entrance Exam
- Arts and Humanities Entrance Exams
- Commerce Entrance Examinations
- Common Entrance Examinations
- Computer Application Entrance Exams
- Design Entrance Exams
- Education Entrance Exams
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- Medical Entrance Exams
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- Lateral Entry