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M. C. A ENTRANCE

NIMCET – 107

MAXIMUM TIME: 2 hrs 30 mts  
TOTAL QUESTIONS: 120

### DIRECTIONS

The NIMCET 07 examination will be for duration of 2 hours 30 minutes and consists of 120 objective type questions with four options for each question. Each correct answer carries FOUR marks and each wrongly answers question invites NEGATIVE ONE mark. The candidates have to mark the responses in the OMR sheets supplied at the time of examination. The question paper will contain 120 objective type questions covering the following topics:

Mathematics	: 40 Questions
Computer Awareness	: 15 Questions
Analytical ability and Logical Reasoning	: 50 Questions
General English	: 15 Questions
Total Questions	: 120 Questions

1. If A, G, H are arithmetic, geometric and harmonic means of two numbers a and b, then

- (a)  $A \leq G \leq H$  (b)  $A \geq G \geq H$   
(c)  $A \leq H \leq G$  (d)  $A \geq H \geq G$

2. Two finite sets m and n elements are such that the total number of subsets of the first set is 56 more than the total number of subsets of second set. The value of m and n are

- (a) 7, 6 (b) 6, 3  
(c) 5, 1 (d) 8, 7

3. If A, B are two square matrices such that  $AB = A$  and  $BA = B$ , then

- (a) only B is idempotent (b) A, B are idempotent  
(c) only A is idempotent (d) none

4. The total number of injective mappings from a set with m elements to a set with n elements,  $m \leq n$  is

- (a)  $m^n$  (b)  $n^m$   
(c)  $\frac{n!}{(n-m)!}$  (d)  $n!$

5. Simplify  $\frac{x^{7/2} \cdot \sqrt{y^3}}{x^{5/2} \cdot \sqrt{y}}$

- (a)  $x/y$  (b)  $xy$   
(c)  $x^2/y$  (d)  $x^3/y^2$

6. If one root of  $ax^2 + bx + c = 0$  is twice the other then

- (a)  $b^2 = 9ac$  (b)  $2b^2 = 9ac$   
(c)  $2ab = 9c^2$  (d) none of these

7. The sum of squares of deviations of a set of values is minimum when taken about

- (a) A.M. (b) H. M.  
(c) G. M. (d) none of these

8. Let X and Y be two random variable. The relationship  $E(XY) = E(X) \cdot E(Y)$  holds true

- (a) always  
(b) if  $E(X+Y) = E(X) + E(Y)$  is true  
(c) if X and Y are independent  
(d) if X and Y are dependent

9. Which of the following statement is not correct?

- (a)  $\sin \theta = -\frac{1}{5}$  (b)  $\cos \theta = 1$   
(c)  $\sec \theta = \frac{1}{2}$  (d)  $\tan \theta = 20$

10. If  $y = \sin^{-1} \left[ \frac{1-x^2}{1+x^2} \right]$ , then  $\frac{dy}{dx}$  is equal to

- (a)  $\frac{-2}{1+x^2}$  (b)  $\frac{2}{1+x^2}$   
(c)  $\frac{1}{2+x^2}$  (d)  $\frac{2}{2+x^2}$

11. Which of the following is true in any triangle A B C

- (a)  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$   
(b)  $a = b \cos C + c \cos B; b = c \cos A + a \cos C;$   
 $c = a \cos B + b \cos A$   
(c)  $a^2 = b^2 + c^2 - 2bc \cos A; b^2 = c^2 + a^2 - 2ac \cos B;$   
 $c^2 = a^2 + b^2 - 2ab \cos C$   
(d) All

12. Two events A and B have the following probabilities;

$P(A) = P(A|B) = 14$ ,  $P(B|A) = \frac{1}{2}$ . Which of the following

is correct?

- (a) A and B are mutually exclusive  
(b) A and B are independent  
(c) A is null set  
(d) A is a subset of B

13. The eccentric angle at the point on the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ , the normal at which pass through an end of the minor axis is

- (a)  $\sin^{-1} \left( \frac{a^2}{a^2 + b^2} \right)$  (b)  $\sin^{-1} \left( \frac{b^2}{a^2 + b^2} \right)$   
(c)  $\sin^{-1} \left( \frac{b^2}{a^2 - b^2} \right)$  (d) none of these

14. A frequency distribution gives the following results. Coeff. of variation = 5, Karl Pearson's Coeff. of Skewness = 0.5 Standard deviation = 2. The mean of the distribution is

- (a) 40 (b) 30  
(c) 50 (d) none of these

15. The shortest distance of the point (0, c) where  $0 \leq c \leq 5$ , from the parabola  $y = x^2$  is

- (a)  $\sqrt{4c-1}$  (b)  $\frac{\sqrt{4c+1}}{2}$   
(c)  $\frac{\sqrt{4c-1}}{2}$  (d) none of these

16. If the points  $(x_1, y_1), (x_2, y_2), (x_3, y_3)$  are collinear then

the rank of matrix  $\begin{bmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{bmatrix}$  is

- (a) 0 (b) 1  
(c) 2 (d)  $< 3$

17. The equation  $ax + ay^2 + z = 0$ ,  $bx + b^2y + z = 0$ ,  $cx + c^2y + z = 0$  have only zero solution if common ratio of G.P. is not equal to (here  $a, b, c$  are in G.P.)

- (a)  $0, \pm 1$  (b)  $2, \pm 3$   
(c)  $4, \pm 5$  (d)  $6, \pm 7$

18. If  $A = \begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix}$  then  $A^{-1} =$

- (a)  $\begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix}$  (b)  $\begin{bmatrix} a^2 & 0 & 0 \\ 0 & ab & 0 \\ 0 & 0 & ac \end{bmatrix}$   
(c)  $\begin{bmatrix} 1/a & 0 & 0 \\ 0 & 1/b & 0 \\ 0 & 0 & 1/c \end{bmatrix}$  (d)  $\begin{bmatrix} -a & 0 & 0 \\ 0 & -b & 0 \\ 0 & 0 & -c \end{bmatrix}$

19. The coefficient of  $a^3.b^6.c^8.d^9.e.f$  the expansion of  $(a+b+c-e-f)^{20}$

- (a) 123450 (b) 213456  
(c) 256312 (d) none of these

20. The maximum value of  $x^2 + x + 1$  in the interval  $[-1, 1]$  is

- (a) 3 (b)  $3/4$   
(c)  $7/4$  (d) 1

21. The one which is a measure of the central tendency is

- (a) mean deviation  
(b) standard deviation  
(c) mode  
(d) coefficient of correlation

22. The number of ways in which we can post 5 letters in 10-letter boxes is

- (a) 50 (b)  $5^{10}$   
(c)  $10^5$  (d) none of these

23. The area of the region bounded by  $y = x^2$  and  $y = \frac{2}{1+x^2}$  is

- (a)  $\pi/2$  (b)  $\frac{\pi}{2} - 2$   
 (c)  $\frac{\pi}{3} - \frac{2}{3}$  (d)  $\pi - \frac{2}{3}$

24.  $\lim_{n \rightarrow \infty} \left[ \frac{n!}{n^n} \right]^{1/n} =$

- (a) 1 (b) -1  
 (c) 0 (d)  $n$

25. Length of latus rectum is half of minor axis, the eccentricity =

- (a)  $1/2$  (b)  $\sqrt{3}/4$   
 (c)  $\sqrt{3}/2$  (d)  $3/2$

26. The lines represented by  $Ax^2 + 2Bxy + Hy^2 = 0$  are perpendicular, if

- (a)  $b+H=0$  (b)  $A+B=0$   
 (c)  $A+H=0$  (d)  $A+B+H=0$

27.  $\int \frac{dx}{\sqrt{\sin^3 x \cdot \cos x}}$

- (a)  $\frac{2}{\sqrt{\tan x}} + C$  (b)  $2\sqrt{\tan x + c}$   
 (c)  $\frac{-2}{\sqrt{\tan x}} + c$  (d)  $-2\sqrt{\tan x + c}$

28. If  $\int_0^{\pi/3} \frac{\cos x}{3+4\sin x} dx = k \log \left( \frac{3+2\sqrt{3}}{3} \right)$ , then  $k =$

- (a)  $1/2$  (b)  $1/3$   
 (c)  $1/4$  (d)  $1/6$

29. If  $\det(A_{4 \times 4}) = 5$ , then  $\det(\text{Adj } A)$  equals

- (a) 625 (b) 125  
 (c) 25 (d)  $1/5$

30. If the distance of a point  $(x_1, y_1)$  from each of two straight lines, which pass through the origin of coordinates is  $\delta$ , the two lines are given by

- (a)  $(x_1 y - x y_1)^2 = \delta^2 (x^2 + y^2)$   
 (b)  $(x_1 y + x y_1)^2 = \delta^2 (x^2 + y^2)$

(c)  $(x_1 y - x y_1)^2 = \delta^2 (x^2 - y^2)$

(d) none of these

31.  $\int_0^{\pi/2} \frac{1}{1+\cos x} dx$  is

- (a)  $\pi/2$  (b)  $1/2$   
 (c)  $\log(1+\cos \pi/2)$  (d) none of these

32.  $\lim_{x \rightarrow 0} (\cos x)^{1/x^2} =$

- (a) 1 (b)  $\sqrt{e}$   
 (c)  $1/\sqrt{e}$  (d) none of these

33. If  $\vec{a} + \vec{b} + \vec{c} = \vec{0}$  then

- (a)  $\vec{a} \times \vec{b} = \vec{b} \times \vec{c} = \vec{c} \times \vec{a}$  (b)  $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{c} = \vec{c} \cdot \vec{a}$   
 (c)  $\vec{a} \times \vec{b} = -\vec{b} \times \vec{c} = -\vec{c} \times \vec{a}$  (d) none of these

34. If  $\vec{a}, \vec{b}$  non-parallel vectors then  $\vec{a} \times \vec{b} = \vec{a} + \lambda \vec{b}$  is possible for

- (a)  $\lambda = 0$  (b)  $\lambda = 1$   
 (c)  $\lambda = 2$  (d) none of these

35. For the parabola  $y^2 = 4ax$ , the ratio of the subtangent to the abscissa is

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

36. The function  $f(x) = \frac{\sin x}{n!} - \frac{\cos x}{(n+1)!}$  is

- (a) not periodic  
 (b) periodic, with period  $2(n!)$   
 (c) periodic with period  $(n+1)$   
 (d) periodic, with period  $2\pi(n+1)!$

37. The equation  $a \sin x + b \cos x = c$ ,

where  $|c| > \sqrt{a^2 + b^2}$  has

- (a) unique solution (b) infinite solutions  
 (c) no solution (d) none of these

38. Given that  $\int_0^{\pi/2} \sin^4 x \cos^2 x dx = \frac{\pi}{32}$ , then the value of

$\int_0^{\pi/2} \cos^4 x \sin^2 x dx =$

- (a)  $\pi/32$  (b)  $3\pi/32$   
 (c)  $\pi/2$  (d) none of these

39.  $\int_0^{\pi/2} \frac{\sin 8x \log \cot x}{\cos 2x} dx =$

- (a)  $2\pi$  (b)  $\pi/2$   
(c)  $\pi$  (d) 0

40. Which of the following is a singleton set?

- (a)  $\{x : |x| = 3, x \in N\}$  (b)  $\{x : |x| = 3, x \in Z\}$   
(c)  $\{x : x^2 + 2x + 1 = 0, x \in N\}$  (d)  $\{x : x^2 = 5, x \in N\}$

41. The first programmable machine developed was

- (a) Difference engine (b) Analytical engine  
(c) Soroban (d) Steam engine

42. Match the following

- |                       |   |
|-----------------------|---|
| 1. Data link layer    | (i) The lowest layer of OSI model                             |
| 2. Physical layer     | (ii) performs routing & communication                         |
| 3. Presentation layer | (iii) detection & recovery from error in the transmitted data |
| 4. Network layer      | (iv) provides syntax & semantics                              |
- |     |     |     |    |    |
|-----|-----|-----|----|----|
| (a) | 1   | 2   | 3  | 4  |
| (b) | ii  | iii | i  | iv |
| (c) | iii | i   | ii | iv |
| (d) | iv  | iii | i  | ii |

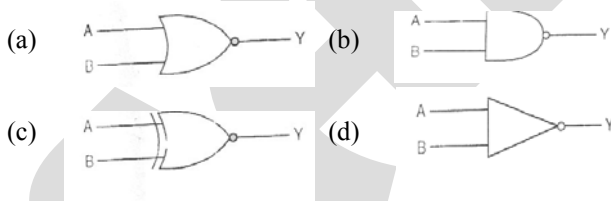
43. The binary equivalent to the octal number  $7326405_8$

- (a)  $110011010110100001101_2$   
(b)  $111011010110100000101_2$   
(c)  $111011101101000001101_2$   
(d) none of these

44. Number 84 in BCD is

- (a) 1100 0000 (b) 1010 0100  
(c) 1100 0110 (d) 1000 0100

45. Which figure corresponds to a NOR gate



46. A process is another name for

- (a) A problem  
(b) Part of I/O  
(c) a task  
(d) the operating system dispatcher

47. Where does the swap space reside

- (a) RAM  
(b) ROM  
(c) DISK  
(d) ON-Chip cache

48. Which of the following was the limitation of the first generation computers?

- (a) high power consumption  
(b) restricted computing capacity  
(c) slow operating speed  
(d) all of the above

49. The highest priority in 8085 microprocessor system is

- (a) TRAP (b) INTR  
(c) RST 7.5 (d) RST 6.5

50. On detection of an error a part of the memory can be erased in

- (a) PROM (b) EROM  
(c) EPROM (d) EAROM

51. The disadvantage of *dynamic RAM* over *static RAM* is

- (a) higher power consumption  
(b) variable speed  
(c) need to refresh the capacitor charge every once in two milliseconds  
(d) higher bit density

52. *Direct entry* data devices include

- (a) telephone, communication and bar codes  
(b) keyboards, cartridges and bar code reader  
(c) machine, communication, keyboards and data collection devices  
(d) analog computers, digital computers and time

53. The octal equivalent to the binary  $1101100.110_2$  is

- (a)  $153.4_8$  (b)  $152.6_8$   
(c)  $154.6_8$  (d)  $153.8_8$

54. The complement of  $(\bar{A}\bar{B} + C)\bar{D} + E$

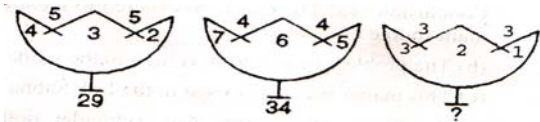
- (a)  $(\bar{A}\bar{B} + \bar{C})D + \bar{E}$  (b)  $(AB + C)D + E$   
(c)  $[(\bar{A} + B)\bar{C} + D]\bar{E}$  (d) none of these

55. In a Boolean algebra  $(B, +, \cdot, ')$ , the value of  $(a + a'.b).(a' + a.b)$

- (a) b (b)  $(a' + b)$   
(c) 1 (d)  $a'.b + a.b$

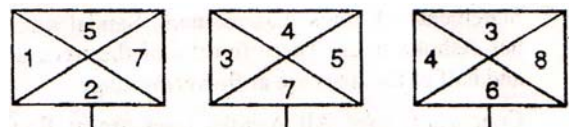
**Directions (Q. 56 – 57):** Find the missing number

56.



- (a) 18 (b) 39  
(c) 27 (d) 34

57.



- (a) 713713  
(c) 771313

- (b) 137137  
(d) 131377

- (a) H  
(c) J

- (b) C  
(d) either H or C

**Directions (Q. 58 – 59):** A solid cube has been painted yellow, blue and black on the pair of opposite surface. The cube is then cut into 36 smaller cubes such that 32 cubes are of the same size while four others are of bigger size. Also no face of any of the bigger cubes is painted blue.

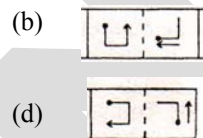
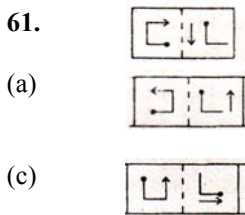
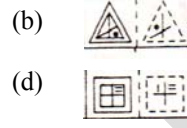
**58.** How many cubes have only two faces painted – one yellow and other black?

- (a) 4  
(c) 12
- (b) 18  
(d) 16

**59.** How many cubes have two or more faces painted?

- (a) 36  
(c) 24
- (b) 28  
(d) 20

**Directions (Q. 60 – 61):** In each of the following problems a pair of figure is followed by four numbered pairs of figures. Select the pair that has a relationship closest to that in the original pair.



**62.** A car driver goes to a school every day at 4 p.m. and pick up the children home. One day it happened so, that the school was over by 3 p.m. and the children started walking home. The driver met them on their way and returned home 20 minutes earlier. How long did the children had to walk? Assume the driver drives the car at a uniform speed

- (a) 50 min  
(c) 70 min
- (b) 55 min  
(d) 40 min

**Directions (Q. 63 – 64):** Read the following information and answer the question based on it. Ten students A, B, C, D, E, F, G, H, I and J are sitting in a row facing west.

- (i) B and F are not sitting on either of the edges  
(ii) G is sitting to the left of B and H is sitting to the right of F  
(iii) There are four persons between E and A  
(iv) I is to the north of B and F is to the south of D.  
(v) J is in between A and D and G is in between E and F  
(vi) There are two persons between H and C.

**63.** Who is sitting at the seventh place counting from the left?

**64.** If G and A interchange their positions then who become the immediate neighbor of E

- (a) G and F  
(c) A only
- (b) F only  
(d) J and H

**Directions (Q. 65– 66):** are based on the following

- (i) All S's are P's  
(ii) All T's are S's  
(iii) All R's are both P's and Q's

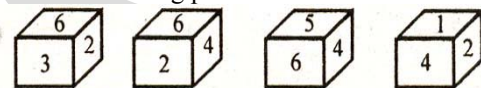
**65.** Which of the following statements must be true?

- (I) There are more R's than are P's than are T's  
(II) There are more P's than R's  
(III) There are more P's than T's
- (a) I  
(c) I, II and III
- (b) I and II only  
(d) III

**66.** If all Q's are R's, it can be inferred that

- (a) all P's are Q's  
(c) all Q's are P's
- (b) all P's are R's  
(d) some R's are not Q's

**67.** Consider the following pictures of a dice:



What is the number opposite 1?

- (a) 2  
(c) 5
- (b) 3  
(d) 6

**68.** A sum of Rs.5,000/- amounts to Rs.6050/- in two years at compound interest. What is the rate of interest?

- (a) 15%  
(c) 11 %
- (b) 13 %  
(d) none of these

**69.** A shopkeeper sells milk which contains 5% water. What quantity of pure milk should be added to 2 litres of milk (containing 5% water) so that proportion of water becomes 4%?

- (a) 100 ml  
(c) 400 ml
- (b) 250 ml  
(d) none of these

**70.** What is the greatest possible number of intersections of two circles of different sizes?

- (a) none of these  
(c) 2
- (b) 1  
(d) Infinite

**Directions (Q. 71 – 73):** In each question below is given a statement followed by two conclusions numbered I and II. You have to assume everything in the statement to be true, even if they are at variance with the commonly known facts. Then consider the two conclusions together ignoring the commonly known facts and decide which of them logically follows beyond a reasonable doubt from the information given in the statement. Give answer

- (a) if only conclusion I follows.  
(b) if only conclusion II follows.

- (c) if either I or II follows.  
 (d) if neither I nor II follows.

71. Statements:

1. All parrots are ducks.
2. All ducks are hens.

Conclusions:

- I. All parrots are hens.
- II. All ducks are parrots.

72. Statements:

1. Some books are pencils.
2. Class is a book.

Conclusions:

- I. Some pencils are books.
- II. No pencil is book.

73. Statements:

1. All articles are coats.
2. Some coats are tables.

Conclusion:

- I. Some articles are tables
- II. Some tables are articles

74. Six persons sat around a circular table facing towards centre. Only A sat between C and D. Only B sat between E and F. Which of the following statements (I and II) is/are necessary to answer the question given?

Question: Who is facing C?

- A. E is adjacent to C  
 B. F is not adjacent to D.

- (a) Only A (b) Only B  
 (c) Only either A or B (d) neither A nor B

75. The least number which when divided by 13, 15 and 19 leaves the remainders 2, 4 and 8 respectively is

- (a) 3694 (b) 3684  
 (c) 3680 (d) none of these

76. 20 liters of a mixture of milk and water contain 85% milk. Some more water is mixed so that milk content becomes 75%. Find the quantity of water added.

- (a) 8 / 3 (b) 8 / 5  
 (c) 7 / 3 (d) none of these

**Directions (Q. 77 – 80):** Study the following information carefully to answer the questions given below:

(i) A group of five men, viz A,B,C,D, and E, and a group of five women, viz F, G, H, I and J standing in rows facing each other not necessarily in the same order.

(ii) C is facing J, who is second to the left of H. B is at one of the ends. F is second to the right of I, who is facing E. C is on the immediate left of D and is not in the middle.

77. Which of the following indicates the pair of men standing at the ends of the row?

- (a) BD (b) BE  
 (c) FG (d) none of these

78. Which of the following is not true on the basis of the given information?

- (a) A is second to the left of C  
 (b) F is at one of the ends  
 (c) B is the right most among the men  
 (d) G is standing opposite D

79. Who is standing on the immediate left of C?

- (a) A (b) B  
 (c) D (d) none of these

80. Where is H standing?

- (a) Opposite E  
 (b) On the immediate left of J  
 (c) Third to right of G  
 (d) data inadequate

81. If  $a/b = c/d$  which of the following is not true?

- (a)  $(a + 3c)/(b + 3d) = (a - b)/(c - d)$   
 (b)  $(a + c)/(b + d) = (a - c)/(b - d)$   
 (c)  $(a + b)/(c + d) = (b - a)/(d - c)$   
 (d)  $(a + b)/(c + d) = (a - b)/(c - d)$

82. A radio is sold at Rs. 1150. Repairing charges amounted to Rs.50. If there is a profit of 15% find cost price

- (a) 1000 (b) 950  
 (c) 1050 (d) 1045

83. x men can do a piece of work in y days. How many men are required to do it in z days?

- (a)  $zy/x$  (b)  $xy/z$   
 (c)  $xz/y$  (d)  $z/(xy)$

84.  $2^{\log_2 1} + 3^{\log_3 2} + \dots + n^{\log_n (n-1)}$ . Find the sum of the above series for  $n = 100$ .

- (a) 4950 (b) 5050  
 (c)  $\log_{100}(5050)$  (d) none of these

85. A rectangle l cm long and w cm wide is made 3 cm longer. The area has increased by

- (a) 3 lw (b) 3 w  
 (c) 3l (d)  $3l + 3w + 9$

**Directions (Q. 86 – 90):** In the following questions, the symbols,  $\beta$ ,  $\gamma$ ,  $\eta$ ,  $\alpha$  and  $\delta$  are used with the following meaning.

$P \beta Q$  means P is not smaller than Q

$P \gamma Q$  means P is neither greater than nor smaller than Q.

$P \eta Q$  means that P is not greater than Q

$P \alpha Q$  means P is neither smaller than nor equal to Q

$P \delta Q$  means P is neither greater than nor equal to Q.

Now in each of the following questions; assuming the given statements to be true, find which of the two conclusion I and II given below them is / are definitely true. Give answer

- (a) If only conclusion I is true  
 (b) If only conclusion II is true

- (c) If either I or II is true  
(d) Neither I nor II is true.

86. Statement:  $B \alpha R, L \gamma B, O \delta R, L \eta K$

Conclusion: I.  $\beta \delta K$ , II  $L \alpha R$

87.  $A \gamma J, C \delta D, J \beta G, D \alpha A$

Conclusion I:  $A \alpha G$ , II  $C \gamma A$

88.  $P \beta M, Q \gamma N, P \delta H, M \gamma Q$

Conclusion I.  $P \gamma N$ , II.  $P \alpha N$

89.  $Z \eta Y, K \gamma L, Y \delta X, Z \alpha K$

Conclusion: I.  $Y \alpha L$ , II  $Y \gamma L$

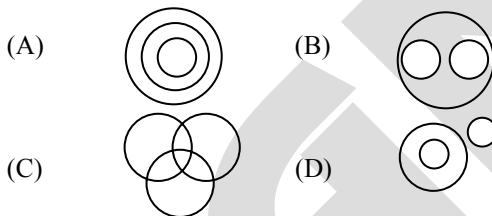
90.  $T \delta I, S \gamma C, S \beta I, C \alpha Q$

Conclusion: I.  $C \delta I$ , II  $S \alpha T$

91. If the radius of a circle is 0.5 meters. How many revolutions does the wheel make per kilometer?

- (a) 1000 (b) 2000  
(c)  $1000/\pi$  (d)  $2000/\pi$

**Directions (Q. 92 – 96):** Study the following information carefully and answer the questions following it. In each of the following questions three words are given which are related in some way. This relationship is indicated by one of the four diagrams given below. The diagram showing the relationship among the words in the question is your answer.



92. State, Country, City

- (a) 1 (b) 2 (c) 3 (d) none of these

93. Table, Chair, Furniture

- (a) 1 (b) 2 (c) 3 (d) none of these

94. Dog, Cat, Mammal

- (a) 1 (b) 2  
(c) 3 (d) none of these

95. Teacher, Graduate, Player

- (a) 1 (b) 2  
(c) 3 (d) none of these

96. Copper, Paper, Wire

- (a) 1 (b) 2

- (c) 3

- (d) none of these

97. A alone would take 6 hours more to complete the job than both A and B together. If B worked alone, he would take  $1\frac{1}{2}$  hours more to complete the job than A and B worked together. What time would they take if both A and B worked together?

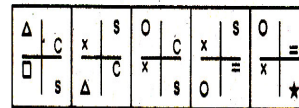
- (a) 3 hrs (b) 4 hrs  
(c)  $3\frac{1}{2}$  hrs (d)  $2\frac{1}{2}$  hrs





98. If 'M×N' means 'M is the daughter of N', 'M + N' means 'M is the father of N', 'M ÷ N' means 'M is the mother of N' and 'M – N' means 'M is the brother of N' then in the expression 'P ÷ Q + R – T × K', how 'P' is related to 'K'?

- (a) Daughter-in-law (b) Sister-in-law  
(c) Aunt (d) Mother-in-law

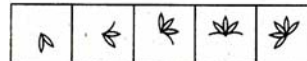
**Directions (Q. 99 – 102):** Each of the following questions consists of unmarked figures followed by the four figures marked 1, 2, 3, 4. Select a figure from the marked figures which will continue the series established by the unmarked figures.





99.



- (a)  (b)   
(c)  (d) 





100.



- (a)  (b)   
(c)  (d) 

101.

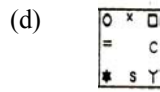
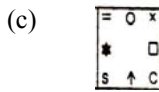
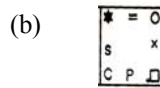
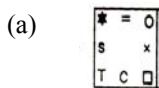


- (a)  (b)   
(c)  (d) 

102.







**103.** Ram says, "The weight of my brother Shyam is more than 88 kg but less than 92 kg." But Hari says, "The weight of Ram's brother Shyam is more than 90 kg but less than 94 kg." Assuming both the statements to be true, which of the following represents the exact weight of Shyam?

- (a) Data inadequate (b) 91 kg (c) 92 kg (d) 90 kg

**104.** What should come in the place of question mark (?) in the following series?

BZA DYCFX ? JVI

- (a) WHG (b) HUG (c) HWG (d) UHG

**105.** What is the value of the following?

$$\left[ \sqrt{\frac{4}{3}} - \sqrt{\frac{3}{4}} \right]^3 \dots\dots$$

- (a)  $\left( \frac{1}{\sqrt{2}} \right)^3$  (b)  $\left( \frac{1}{2} \right)^3$  (c)  $\left( \frac{\sqrt{2}}{3} \right)^3$  (d) none

**Directions (106-110):** Each of the questions below has a blank from the alternatives given, choose the appropriate words to fill in its place.

**106.** Unless you read the newspaper daily, it is impossible for you to keep ..... the news.

- (a) In at (b) In with (c) Up with (d) to

**107.** The ability to blush is not present from birth; it is a ..... action which develops between the ages of two & four.

- (a) Precipitous (b) Sympathetic  
(c) Reflex (d) Voluntary

**108.** She just could not ..... his leaving her in such a dastardly manner.

- (a) get on with (b) get along with  
(c) get over (d) get off with

**109.** Uranium's radioactive properties were discovered accidentally, not .....

- (a) deliberately (b) intentionally  
(c) by volition (d) by design

**110.** The ..... brilliance of Roman Orator Cicero resulted in his head and right hand being cut off and nailed to the rostrum from which he had made some of his great speeches.

- (a) oral (b) unusual

(c) emotional

(d) verbal

**Direction (111-112):** Pick out the word opposite or nearly so in the meaning of the given words

**111.** Virtuous

- (a) vicious (b) vulgar (c) miserly (d) insincere

**112.** Urban

- (a) rustic (b) rural (c) civil (d) domestic

**Directions(113-114):** The following questions comprise two words each that have a certain relationship between them, followed by four lettered pair of words. Select the lettered pair that has the same relationship as the original pair of words.

**113.** Shrub: Prune

- (a) beard: shave (b) hair: trim  
(c) lawn: mow (d) wool: shear

**114.** Hillock: Mountain

- (a) hare: animal (b) ant: elephant  
(c) bush: forest (d) grass: tree

**Direction(115-118):** Choose the most appropriate preposition:

**115.** There was no agreement ..... the great powers ..... a treaty to ban nuclear weapons.

- (A) between; about (b) among; on  
(c) in; for (d) with; about

**116.** The problem ..... housing ..... India is a complex one.

- (a) about; in (b) of; in (c) in; of (d) for; in

**117.** I must hold discussions ..... you ..... that matter shortly.

- (a) about; in (b) with; on  
(c) with; for (d) about; for

**118.** ..... the topmost branch of the tree sat a monkey making faces ..... us.

- (a) on; at (b) on; to (c) over; to (d) in; for

**Direction(119-120):** Against each key word are given some suggested meanings. Choose the word or phrase which is nearest in meaning to the key word.

**119.** Aromatic

- (a) crippled (b) fragrant (c) sentimental (d) stinking

**120.** Nostalgic

- (a) indolent (b) diseased (c) homesick (d) soothing