

## SECTION - 1 COMPUTER

- The sequence 10000, 121, 100, 31, 24, \_\_, 20 represent a number x with respect to different bases. The missing number in this sequence is :  
(a) 22 (b) 21 (c) 16 (d) 10
- Floating point numbers are normally used to represent  
(a) Very large or small numbers  
(b) only large positive numbers  
(c) only large negative numbers  
(d) negative numbers within computer
- The NAND can function as a NOT gate if  
(a) inputs are connected together  
(b) inputs are left open  
(c) on input is set to 0  
(d) one input is set to 1
- Which of the following boolean algebra expression is incorrect ?  
(a)  $A + \bar{A} = A + B$  (b)  $A + AB = B$   
(c)  $(A + B)(A + C) = A + BC$  (d)  $(A + \bar{B})(A + B) = A$
- If  $A \oplus B = C$ , then  
(a)  $A \oplus C = B$  (b)  $B \oplus C = A$   
(c)  $A \oplus B \oplus C = 1$  (d) None of the above
- Octal equivalent of the hexadecimal number  $(0.DC)_{16}$  is  
(a)  $(0.66)_8$  (b)  $(0.67)_8$  (c)  $(0.68)_8$  (d)  $(0.7)_8$
- The gray code of  $(01101010)_2$  is :  
(a) 01110111 (b) 01011111  
(c) 10001000 (d) 10101000
- How many 1's are present in the Binary representation of  $512 \times 3 + 64 \times 7 + 5 \times 8 + 3$ ?  
(a) 8 (b) 9 (c) 10 (d) 11
- 10's complement of  $37.263_{10}$  is :  
(a) 63.735 (b) 62.736 (c) 62.737 (d) 37.263
- The simplification of  $x + \bar{x}y$  in boolean algebra is :  
(a) Y (b)  $X + Y$  (c)  $x + \bar{y}$  (d)  $\bar{x} + y$

## Section-2 (Analytical Ability & Logical reasoning)

- 1, 6, 13, 22, 33, ....., 61  
(a) 44 (b) 45 (c) 46 (d) 47
- DF, GJ, KM, NQ, RT, .....  
(a) WW (b) VX (c) UW (d) UX

**Direction (13 and 14) :** Choose the correct answer to the given questions.

A farmer on being asked how many animals he had in his farm replied, they are all buffaloes except 48, all cows except 47, all goats except 46 and all horses except 45 and no animals other than these.

- How many animals did the farmer have ?  
(a) 186 (b) 124 (c) 93 (d) 62
- How many cows are there in the farm ?  
(a) 36 (b) 16 (c) 15 (d) 14

**Direction (15-17) :** Choose the correct answer to the following questions :

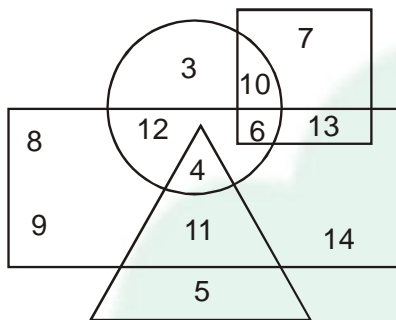
A blue box weights one-half of a red box.

A green box weight 3 kgs more than a blue box

A yellow box weight the average of the weights of a green and red box.

- Which colour box is the heaviest ?  
(a) Blue (b) Green or red  
(c) Green (d) Red or yellow
- Which colour box is the lightest ?  
(a) Green (b) Red or blue  
(c) Blue (d) Green of red
- If the blue box is 15 kg how much does the yellow box weight ?  
(a) 12 kg (b) 18 kg (c) 21 kg (d) 14 kg
- Ayush was born two years after his father's marriage. His mother is five years younger than his father but 20 years older than Ayush who is 10 years old. At what age did the father get married ?  
(a) 23 years (b) 25 years (c) 33 years (d) 35 years
- There are 50 students admitted to a nursery class. Some students can speak only English and some can speak only Hindi. Ten students can speak both English and Hindi. If the number of students who can speak English 21, then how many students can speak Hindi, how many can speak only Hindi and how many can speak only English ?  
(a) 39, 29 and 11 respectively  
(b) 37, 27 and 13 respectively  
(c) 28, 18 and 22 respectively  
(d) 21, 11 and 29 respectively

**Direction 20-24 :** In the given diagram the rectangle represents male, the triangle represents educated, the circle represents urban and the square represents civil servants. Study the diagram carefully and answer the following questions :



20. Number of an educated male who is not urban ?  
(a) 9 (b) 11 (c) 5 (d) 7
21. Number of urban which is not male and neither a civil servant educated.  
(a) 3 (b) 6 (c) 9 (d) 12
22. Number of female, urban residents who are civil servants?  
(a) 8 (b) 10 (c) 12 (d) 14

**Directions (Q.23 and 24) :** Read the following information carefully and answer the questions given below it :

At the end of a cricket series, when five players were arranged in the ascending order of runs scored by them, O was fourth while N was first. When they were arranged in descending order of wickets taken by them, K replaces O while O replaces L. M's position remains unchanged. K has scored more runs than M. L is having first rank in one ranking and fifth in another.

23. Who has scored the highest runs in the series ?  
(a) K (b) L (c) M (d) none
24. Who has taken the lowest number of wickets ?  
(a) L (b) M (c) P (d) none
25. A watch reads 4:30 if the minute hand points towards the east, in what direction will the hour hand point ?  
(a) North (b) South-East  
(c) North-west (d) North-East
26. If BHOPAL is written as EERMDI, how is POWDER written ?  
(a) SQZBHO (b) SLZAHO  
(c) SLZBHO (d) SLYAHO
27. In a certain code, '253' means "books are old", '546' means "man is old" and '378' means 'buy good books', what stands for "are in that code" ?  
(a) 2 (b) 4 (c) 5 (d) 6
28. If DELHI is coded as FGNJK, how is MADRAS coded ?  
(a) OCTFCU (b) OBFSCU  
(c) OCFTCU (d) OCETCV
29. A travels from B to C a distance at 250 miles in 5.5 hours. He returns to B in 4 hours 40 minutes. His average speed is :  
(a) 44 (b) 46 (c) 48 (d) 50

30. In a class, 20 opted for physics, 17 for maths, 5 for both and 10 for other subjects. The class contains how many students ?  
(a) 35 (b) 42 (c) 52 (d) 60
31. In a class of 35 students, Kunal is placed seventh from the bottom whereas Sonali is placed ninth from the top. Pulkit is placed exactly in between the two. What is Kunal's position from Pulkit ?  
(a) 9 (b) 10 (c) 11 (d) 13
32. What is the next number in the series 2, 5, 9, 14, 20 ?  
(a) 25 (b) 26 (c) 27 (d) 28

**Direction for Questions 33 to 37**

Rohit, Kunal, Ashish and John are students of a school. Three of them stay far from the school and one near it. Two study in class IV, one in class V and one in class VI. They study Hindi, Mathematics, Social Science and Science. One is good at all the four subjects while another is weak in all of these. Rohit stays far from the school and is good at Mathematics only while Kunal is weak in Mathematics only and stays close to the school. Neither of these two nor Ashish studies in class VI. One who is good at all the subjects studies in class V.

33. Other than Rohit and the boy good at all the subjects, who else stays far from the school ?  
(a) Rohit (b) Kunal (c) Ashish (d) John
34. Name the boy who is good at all the subjects.  
(a) Rohit (b) Kunal (c) Ashish (d) John
35. Name the boy who is weak in all the subjects.  
(a) Rohit (b) Kunal (c) Ashish (d) John
36. Which two boys are good at Hindi ?  
(a) Rohit and Kunal (b) Kunal and Ashish  
(c) Ashish and John (d) John and Rohit
37. Which two boys are good at Mathematics ?  
(a) Rohit and Ashish (b) Kunal and Ashish  
(c) John and Ashish (d) Rohit and John

**Directions (Q.38 to 40) :**

Four ladies A, B, C and D and four gentlemen E, F, G and H are sitting in a circle round a table facing each other.

(i) No two ladies or two gentlemen are sitting side by side.

(ii) C, who is sitting between G and E, is facing D.

(iii) F is between D and A and is facing G.

(iv) H is to the right of B.

38. Who is sitting to the left of A ?  
(a) E (b) F (c) G (d) H
39. E is facing whom ?  
(a) F (b) B (c) G (d) D
40. Who are immediate neighbours of B ?  
(a) G and H (b) E and F  
(c) E and H (d) F and H

## Directions (Q.41 to 43) :

If + is  $\times$ , - is +,  $\times$  is  $\div$  and  $\div$  is -, then answer the following questions based on this information.

41.  $21 \div 8 + 2 - 12 \times 3 = ?$   
(a) 14 (b) 9 (c) 13.5 (d) 11
42.  $6 + 7 \times 3 - 8 \div 20 = ?$   
(a) -3 (b) 7 (c) 2 (d) 1
43.  $15 \times 5 \div 3 + 1 - 1 = ?$   
(a) -1 (b) -2 (c) 3 (d) 1
44. Introducing a girl, Vipin said, "Her mother is the only daughter of my mother-in-law." How is Vipin related to the girl?  
(a) Uncle (b) Father (c) Brother (d) Husband
45. In A+B means 'A is the brother of B',  $A \div B$  means 'A is the father of B' and  $A \times B$  means 'A is the sister of B'. Which of the following means 'M' is the uncle of 'P'?  
(a)  $M \div N \times P$  (b)  $N \times P \div M$   
(c)  $M \times S \div R + P$  (d)  $M + K \div T \times P$
46. What is the day on 1st January 1901?  
(a) Monday (b) Wednesday  
(c) Sunday (d) Tuesday

## Directions (Q.47 to 49) :

Read the following information and answer the questions that follow :

A publishing firm publishes newspapers A, B and C. In an effort to persuade advertisers to insert advertisements in these newspaper, the firm sends out the following statements to possible advertisers :

A survey of representative sample of the whole population shows that -

Newspaper A is read by 26%.

Newspaper B is read by 25%.

Newspaper C is read by 14%.

Newspaper A and B are read by 11%.

Newspaper B and C are read by 10%.

Newspaper C and A are read by 9%.

Newspaper C only is read by 0%.

47. The percentage of readers who read all the three newspapers is :  
(a) 1 (b) 4 (c) 5 (d) 6
48. The percentage of readers who read A and B but not C, is :  
(a) 2 (b) 4 (c) 5 (d) 6
49. The percentage of readers who read at least one of the three newspapers is :  
(a) 40 (b) 50 (c) 60 (d) 65

50. 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

## Section-3 (Mathematical Ability)

51. The variance of 6, 8, 10, 12, 14 is :  
(a) 1 (b) 8 (c) 12 (d) 16
52. If the geometric mean of x, 16, 50 be 20, then the value of x is :  
(a) 40 (b) 20 (c) 10 (d) 4
53. The median of 0, 2, 2, 2, -3, 5, -1, 5, 5, -3, 6, 6, 5, 6 is  
(a) 0 (b) -1.5 (c) 3.5 (d) 2
54. The harmonic mean of 4, 8, 9 is :  
(a) 6.17 (b)  $\frac{1}{21}$  (c)  $\frac{1}{7}$  (d) 7
55. The mean deviation of the observations 3, 5, 6, 7, 8, 10, 11, 14 is :  
(a) 4 (b) 3.25 (c) 2.75 (d) 2.4
56. In a square matrix the elements of a column are 2,  $3P+1$ , 5 and the cofactors of another column are  $2-P$ , 2, -3. Then the value of P is :  
(a)  $9/4$  (b)  $8/3$  (c)  $9/2$  (d)  $1/6$
57. If X is a poisson variate such that  
 $P(2) = 9P(4) + 90P(6)$   
then the mean of X is  
(a)  $\pm 1$  (b)  $\pm 2$  (c)  $\pm 3$  (d)  $\pm 4$
58. In a binomial distribution the sum and the product of the mean and the variance are  $\frac{25}{3}$ , and  $\frac{50}{3}$  respectively. The distribution is :  
(a)  $\left(\frac{4}{5} + \frac{1}{5}\right)^{15}$  (b)  $\left(\frac{2}{3} + \frac{1}{3}\right)^{15}$  (c)  $\left(\frac{3}{4} + \frac{1}{4}\right)^{15}$  (d)  $\left(\frac{3}{5} + \frac{2}{5}\right)^{15}$
59. The locus of a point equidistant from two given points with position vectors  $\vec{a}$  and  $\vec{b}$  is :  
(a)  $(\vec{b} + \vec{a}) \left( \vec{r} - \frac{\vec{a} + \vec{b}}{2} \right) = 0$   
(b)  $(\vec{b} - \vec{a}) \left( \vec{r} - \frac{\vec{a} + \vec{b}}{2} \right) = 0$

$$(c) (\bar{b} - \bar{a}) \left( \bar{r} - \frac{\bar{a} + \bar{b}}{4} \right) = 0$$

(d) None of these

60. In a binomial distribution, the mean is 4 and variance is 3. Then, its mode is :

(a) 5 (b) 6 (c) 4 (d) None

61. The length of the common chord of the ellipse

$$\frac{(x-1)^2}{9} + \frac{(y-2)^2}{4} = 1 \text{ and the circle}$$

$$(x-1)^2 + (y-2)^2 = 1$$

(a) 2 (b)  $\sqrt{3}$  (c) 4 (d) 0

62. In a  $\triangle ABC$ ,  $r_1 < r_2 < r_3$ , then

(a)  $a < b < c$  (b)  $a > b > c$   
(c)  $b < a < c$  (d)  $a < c < b$

63. In a  $\triangle ABC$  if  $3a = b + c$ , then  $\cot \frac{B}{2} \cdot \cot \frac{C}{2} =$

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

64. In a  $\triangle ABC$  if  $b = 20$ ,  $c = 21$  and  $\sin A = 3/5$ , then  $a =$

(a) 12 (b) 13 (c) 14 (d) 15

65. If  $D, E, F$  are respectively the mid points of  $AB, AC$  and  $BC$  in  $\triangle ABC$ , then  $\overrightarrow{BE} + \overrightarrow{AF} =$

(a)  $\overrightarrow{DC}$  (b)  $\frac{1}{2} \overrightarrow{BF}$  (c)  $2 \overrightarrow{BF}$  (d)  $\frac{3}{2} \overrightarrow{BF}$

66. If , are the roots of  $375x^2 - 25x - 2 = 0$  and

$$S_n = {}^n + {}^n, \text{ then } \lim_{n \rightarrow \infty} \sum_{r=1}^n S_r$$

(a) 7/12 (b) 1/12 (c) 35/12 (d) 1/2

67. If  $\vec{a}, \vec{b}, \vec{c}$  are three vectors such that  $\vec{a} = \vec{b} + \vec{c}$  and the angle between  $\vec{b}$  and  $\vec{c}$  is  $\pi/2$ , then

(a)  $a^2 = b^2 + c^2$  (b)  $b^2 = c^2 + a^2$   
(c)  $c^2 = a^2 + b^2$  (d)  $2a^2 - b^2 = c^2$   
(Note : Here  $a = |\vec{a}|$ ,  $b = |\vec{b}|$ ,  $c = |\vec{c}|$ )

68. Let  $\vec{a}, \vec{b}, \vec{c}$  be the position vectors of the vertices  $A, B, C$  respectively of  $\triangle ABC$ . The vector area of  $\triangle ABC$  is

$$(a) \frac{1}{2} \{ \vec{a} \times (\vec{b} \times \vec{c}) + \vec{b} \times (\vec{c} \times \vec{a}) + \vec{c} \times (\vec{a} \times \vec{b}) \}$$

$$(b) \frac{1}{2} (\vec{a} \times \vec{b} + \vec{b} \times \vec{c} + \vec{c} \times \vec{a})$$

$$(c) \frac{1}{2} (\vec{a} + \vec{b} + \vec{c})$$

$$(d) \frac{1}{2} \{ \vec{b} \cdot \vec{c} \} \vec{a} + (\vec{c} \cdot \vec{a}) \vec{b} + (\vec{a} \cdot \vec{b}) \vec{c}$$

69. If  $S_r$  and  $T_r$  denotes the sum of first  $r$  terms and  $r$ th

term of an A.P. and given that  $\frac{S_p}{S_q} = \frac{p^2}{q^2}$ , then  $\frac{T_p}{T_q}$  is :

(a)  $\frac{p+1}{p-1}$  (b)  $\frac{p-1}{q-1}$  (c)  $\frac{2p+1}{2q+1}$  (d)  $\frac{2p-1}{2q-1}$

70. If  $P(A \cup B) = 0.8$  and  $P(A \cap B) = 0.3$ , then  $P(\bar{A}) + P(\bar{B}) =$

(a) 0.3 (b) 0.5 (c) 0.7 (d) 0.9

71. Each of the five questions in a multiple choice test has 4 possible answers. The number of different sets of possible answer is :

(a)  $4^5 - 4$  (b)  $5^4 - 5$  (c) 1024 (d) 720

72. 
$$\begin{vmatrix} x & 1 & 1 \dots \\ 1 & x & 1 \dots \\ 1 \dots & 1 \dots & x \dots \end{vmatrix}_{n \times n}$$
 is equal to :

(a)  $(x-1)^{n-1}$  (b)  $(x-1)^{n-1}(x+n)$   
(c)  $(x-1)^{n-1}(x+n-1)$  (d)  $nx$

73. If the lines  $4x + 3y - 1 = 0$ ,  $x - y + 5 = 0$  and  $kx + 5y - 3 = 0$  are concurrent, then  $k =$

(a) 4 (b) 5 (c) 6 (d) 7

74. 
$$\int_2^7 \frac{\sqrt{x}}{\sqrt{x} + \sqrt{9-x}} dx =$$

(a) 2 (b)  $\frac{5}{2}$  (c)  $\frac{3}{7}$  (d) 3

75. If the circle  $x^2 + y^2 + 6x - 2y + k = 0$  bisects the circumference of the circle  $x^2 + y^2 + 2x - 6y - 15 = 0$ , then  $k =$

(a) 21 (b) -21 (c) 23 (d) -23

76. Two finite sets A and B are having  $m$  and  $n$  elements. The total number of subsets of the first set is 56 more than the total number of subset of the second set. The value of  $m$  and  $n$  are :

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

77. The eccentricity of the ellipse

$$9x^2 + 5y^2 - 18x - 2y - 16 = 0 \text{ is}$$

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



78. The area of the triangle formed by the positive x-axis and the normal and the tangent to the circle  $x^2 + y^2 = 4$  at  $(1, \sqrt{3})$  is :  
(a)  $\sqrt{3}$  (b)  $2\sqrt{3}$  (c)  $4\sqrt{3}$  (d) 6
79.  $\int \frac{f(x) \cdot f'(x) + (x)f'(x)}{(f(x) \cdot (x) + 1)\sqrt{(x)f'(x) - 1}} dx$   
(a)  $\sin^{-1} \sqrt{\frac{f(x)}{(x)}}$  (b)  $\cos^{-1} \sqrt{(f(x))^2 - (x)^2}$   
(c)  $\sqrt{2} \tan^{-1} \left( \sqrt{\frac{(x)f'(x) - 1}{2}} \right) + c$  (d) none
80.  $\int_0^2 \frac{\sec^2 x}{(\sec x + \tan x)^n} dx =$   
(a)  $\frac{2n}{n^2 - 1}$  (b)  $\frac{n}{n^2 - 1}$  (c)  $\frac{2n}{n^3 - 1}$  (d)  $\frac{n}{n + 1}$
81. The area bounded by the curves  $y^2 = 4 + x$  and  $x + 2y - 4$  is :  
(a) 9 (b) 18 (c) 72 (d) 36
82. A minimum value of  $\int_0^x te^{-t^2} dt$  is  
(a) 1 (b) 2 (c) 3 (d) 0
83. The angle between the curves  $y = \sin x$  and  $y = \cos x$  is  
(a)  $\tan^{-1}(2\sqrt{2})$  (b)  $\tan^{-1}(3\sqrt{2})$   
(c)  $\tan^{-1}(3\sqrt{3})$  (d)  $\tan^{-1}(5\sqrt{2})$
84.  $\int \frac{1+x+\sqrt{x+x^2}}{\sqrt{x}+\sqrt{1+x}} dx =$   
(a)  $\frac{1}{2} \sqrt{1+x} + c$  (b)  $\frac{2}{3} (1+x)^{3/2} + c$   
(c)  $\sqrt{1+x} + c$  (d)  $2(1+x)^{3/2} + c$
85. If a, h, b are in A.P. then the area of triangle formed by the lines  $ax^2 + 2hxy + by^2 = 0$  and the line  $x - y + 2 = 0$  is :  
(a)  $\left| \frac{a+b}{a-b} \right|$  (b)  $\left| \frac{a-b}{a-2b} \right|$  (c)  $\left| \frac{a-b}{a+b} \right|$  (d)  $\left| \frac{a+b}{2a-b} \right|$
86. If A is  $3 \times 3$  matrix and B is the adjoint of A and  $|B| = 225$  then  $|A| =$   
(a)  $\pm 25$  (b)  $\pm 10$  (c)  $\pm 15$  (d)  $\pm 16$
87. If  $\vec{a}, \vec{b}, \vec{c}$  are unit vectors then  $|\vec{a} - \vec{b}|^2 + |\vec{b} - \vec{c}|^2 + |\vec{c} - \vec{a}|^2$  does not exceed :  
(a) 4 (b) 9 (c) 8 (d) 6
88. If  $e^{f(x)} = \frac{10+x}{10-x}$ ,  $x \in (-10, 10)$  and  $f(x) = kf\left(\frac{200x}{100+x^2}\right)$ , then  $k =$   
(a) 0.5 (b) 0.6 (c) 2 (d) 1
89. The minimum value of  $2x^2 + x - 1$  is  
(a)  $-\frac{1}{4}$  (b)  $\frac{3}{2}$  (c)  $-\frac{9}{8}$  (d)  $\frac{9}{4}$
90. If  $\alpha, \beta, \gamma$  are the roots of the equation  $x^3 + 4x + 1 = 0$ , then  $(\alpha + \beta)^{-1} + (\beta + \gamma)^{-1} + (\gamma + \alpha)^{-1} =$   
(a) 2 (b) 3 (c) 4 (d) 5
91. The equations of four circles are  $(x \pm a)^2 + (y \pm a)^2 = a^2$  the radius of a circle touching all the four circles is :  
(a)  $(\sqrt{2}a \pm a)$  (b)  $(\sqrt{2}a \pm 3a)$   
(c)  $(3a \pm \sqrt{2}a)$  (d) none of these
92. If  $\tan \frac{5}{9}, x$  and  $\tan \frac{5}{18}$  are in A.P. and  $\tan \frac{5}{9}, y$  and  $\tan \frac{7}{18}$  are also in A.P. Then :  
(a)  $2x = y$  (b)  $x > y$  (c)  $x = y$  (d)  $2y = x$
93.  $\int \frac{\cos 4x + 1}{\cot x - \tan x} dx = 1$   
(a)  $\frac{1}{8} \cos 4x + C$  (b)  $\frac{1}{4} \cos 4x + C$   
(c)  $-\frac{1}{4} \cos 4x + C$  (d)  $-\frac{1}{8} \cos 4x + C$
94. The number of solutions of the system of equations  $2x + y - z = 7$ ,  $x - 3y + 2z = 1$ ,  $x + 4y - 3z = 5$  is  
(a) 3 (b) 2 (c) 1 (d) 0

95.  $\cos \alpha \cdot \sin (\beta - \gamma) + \cos \beta \cdot \sin (\gamma - \alpha)$   
 $+ \cos \gamma \cdot \sin (\alpha - \beta) =$   
 (a) 0 (b)  $1/2$   
 (c) 1 (d)  $4 \cos \alpha \cos \beta \cos \gamma$
96.  $\sin 47^\circ - \sin 25^\circ + \sin 61^\circ - \sin 11^\circ =$   
 (a)  $\cos 7^\circ$  (b)  $\sin 7^\circ$  (c)  $2 \cos 7^\circ$  (d)  $2 \sin 7^\circ$
97. If  $A + B + C = 270^\circ$ , then  
 $\cos 2A + \cos 2B + \cos 2C + 4 \sin A \sin B \sin C =$   
 (a) 0 (b) 1 (c) 2 (d) 3
98. The solution set of  $(5 + 4 \cos \theta)(2 \cos \theta + 1) = 0$  in the interval  $[0, 2\pi]$  is  
 (a)  $\left\{\frac{\pi}{3}, \frac{2\pi}{3}\right\}$  (b)  $\left\{\frac{\pi}{3}, \pi\right\}$  (c)  $\left\{\frac{2\pi}{3}, \frac{4\pi}{3}\right\}$  (d)  $\left\{\frac{2\pi}{3}, \frac{5\pi}{3}\right\}$
99.  $\cos \left[ \cos^{-1} \left( \frac{-1}{7} \right) + \sin^{-1} \left( \frac{-1}{7} \right) \right] =$   
 (a)  $-1/3$  (b) 0 (c)  $1/3$  (d)  $4/9$
100. If the sum of two of the roots of  $x^3 + px^2 + qx + r = 0$  is zero, then  $pq =$   
 (a)  $-r$  (b)  $r$  (c)  $2r$  (d)  $-2r$

#### **SECTION - 4 ENGLISH**

**Directions for Que.101 to Que.103 :** A part of each of the following sentences is italicised from the answer choices which follow pick up one which can substitute the italicised part correct.

101. It is a *general practic* of the educated people :  
 (a) habit (b) convention (c) thinking (d) custom
102. He has grown quite *feeble* :  
 (a) poor (b) weak (c) strong (d) rich
103. It was a *patry* sum :  
 (a) poor (b) sultry (c) unimportant (d) small

**Directions for Que.104 to Que.106 :** There is a blank space in each of the following sentences. Pick up one which may complete the sentence correctly :

104. I ..... on these line before I realised my mistake :  
 (a) worked (b) was worked  
 (c) am working (d) had been working
105. I think I ..... this news yesterday.  
 (a) would read (b) have read  
 (c) read (d) had read
106. They ..... the crime during the day :  
 (a) committed (b) performed  
 (c) prosecuted (d) discharged

**Directions for Que.107 :** For each of the following words in CAPITAL letters pick up correct antonym from the answer choices :

107. DISSENT  
 (a) renounce (b) adopt (c) agree (d) give

**Direction Question 108 and 109 :** Read each sentence to find out whether there is any errors in any of the parts. Errors of any, are any one of the parts no sentence has more than one errors.

108.  
 (a) I gave him a chair to sit on  
 (b) He married with an Indian lady  
 (c) He accompanied his friends  
 (d) No error
109.  
 (a) Our school is built by bricks  
 (b) Owing to illness, I can not go to school  
 (c) He was prevented from coming  
 (d) No errors

**Direction Question 110 :** In each of the following questions, a related pair of words or phrase is followed by four pairs of words or phrase, selected the pair that best expresses a relationship similar to that expressed in the original pair.

110. Necromancy : Ghosts  
 (a) Romance : Stories (b) Magic : Amulets  
 (c) Alchemy : Gold (d) Sorcery : Spirits

**Directions for Q.111 & Q.112 :** In the following questions, fill in the blanks with the correct prepositions :

111. All of us have been invited ..... tea.  
 (a) for (b) to (c) at (d) on
112. If your servant is lazy, why don't you turn him ..... ?  
 (a) out (b) up (c) in (d) of

**Directions for Que.113 to Que.115 :** A part of each of the following sentences is italicised from the answer choices which follow pick up one which can substitute the italicised part correct.

113. It is a *general practic* of the educated people :  
 (a) habit (b) convention (c) thinking (d) custom
114. He has grown quite *feeble* :  
 (a) poor (b) weak (c) strong (d) rich
115. It was a *patry* sum :  
 (a) poor (b) sultry (c) unimportant (d) small

**Directions for Q.116 to Q.120 :** There is a blank space in each of the following sentences. Pick up one which may complete the sentence correctly :

116. The girl .... a ruffian.  
 (a) called the boy that (b) called the boy  
 (c) said the boy (d) called the boy as
117. We rested ..... the shade of the tree.  
 (a) in (b) under  
 (c) ourselves under (d) ourselves in
118. They ..... the crime during the day :  
 (a) committed (b) performed  
 (c) prosecuted (d) discharged
119. I ..... on these line before I realised my mistake :  
 (a) worked (b) was worked  
 (c) am working (d) had been working
120. For quite a long time he bore the burden but finally he had to .....  
 (a) yield (b) reconcile (c) succumb (d) leave

