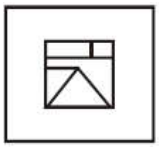
PART-I

IQ (MENTAL ABILITY)

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. Complete the given figure by choosing the correct alternative from the answer figures.
Question figure:

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

2. How many circles are there in this figure ?

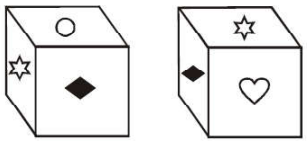
(1) 21 (2) 19 (3) 18 (4) 17

3. K is more beautiful than B. B is not as beautiful as Y. J is not beautiful like B or Y. Then who is at bottom of the series of beauty?
(1) Y (2) K (3) B (4) J

4. Pointing towards a girl on the stage Gourav said, "Her mother's brother is the only son of my mother's father". What is the relation of Gourav with mother of the Girl ?
(1) Sister (2) Mother
(3) Aunty (4) Grand Mother

5. A bus leaves for Chennai after every 30 minutes from a Bus Depot. An enquiry staff tells a passenger that bus for Chennai has left 10 minutes earlier and next bus is at 10:30 am in the morning. Then what was the time when the enquiry staff has given the information ?
(1) 10 : 20 am (2) 10 : 10 am
(3) 10 am (4) 9 : 50 am

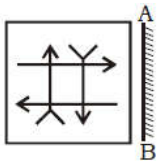
6. Two positions of a dice are shown below. When the shape ♡ is at the top what will be at the bottom ?

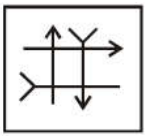
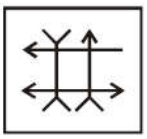
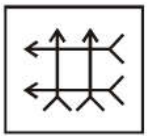
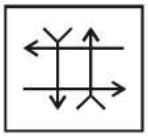


(1) ☆ (2) ◆ (3) ○ (4) ♡

7. My watch is 3 minutes behind at 2 pm on Monday and 5 minutes ahead at 2 pm on Wednesday. When had it shown the correct time ?
(1) Tuesday 6 am (2) Tuesday 8 am
(3) Wednesday 4 am (4) Wednesday 8 am

8. Which of the following figure is the correct mirror image of the given figure ?



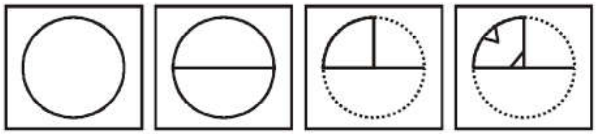
(1) 
(2) 
(3) 
(4) 

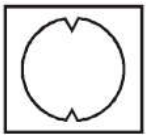
9. Select the missing number from the given responses.

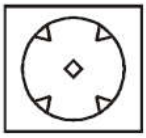
(1) 66 (2) 87 (3) 58 (4) 76

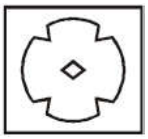
10. If 3rd December 1990 is Sunday then 3rd January 1991 will be
(1) Tuesday (2) Wednesday
(3) Thursday (4) Friday

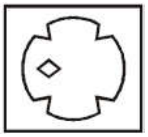
11. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened ?



(1) 

(2) 

(3) 

(4) 

12. A 12 hourly clock rings once at 1 'O'clock twice at 2 'O' clock, thrice at 3 'O' clock and it continued in the same manner. How many times will it ring in a day?

(1) 156 (2) 146 (3) 136 (4) 166

13. Fatima while introducing Mustafa to her husband said, "His brother's father is the only son of my grandfather." How is Fatima related to Mustafa?

(1) Aunt (2) Sister (3) Niece (4) Mother

14. One word has been shown through one number-set, as given in one of the options. Number-set given in the options have been shown through two categories of characters, as given in the two matrices below. Rows and columns of Matrix-I have been numbered from 0 to 4 and that of Matrix-II from 5 to 9. Through these matrices, each character can be first represented by its row and then its column. For example, 'A' can be represented as 24,33 etc. and 'D'can be represented as 56, 79 etc. Recognize the number-set for the given word:

'BEAD'

MATRIX-I

	0	1	2	3	4
0	I	E	A	O	U
1	A	O	U	I	E
2	E	I	O	U	A
3	O	U	E	A	I
4	U	A	I	E	O

MATRIX-II

	5	6	7	8	9
5	F	D	B	T	C
6	B	G	H	K	H
7	D	F	G	B	D
8	G	H	D	C	B
9	C	B	F	S	D

(1) 97, 32, 14, 56 (2) 88, 41, 20, 57

(3) 57, 32, 41, 87 (4) 75, 14, 20, 57

15. In a digital representation, if we write '6821' as 'ROSE', '73456' as 'CHAIR' and '961473' as 'PREACH', then in same representation how 'SEARCH' is written ?

(1) 214673 (2) 214763 (3) 214676 (4) 216743

16. **Direction :** Two statements are given which are followed by two conclusions. You have to consider the two statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements.

Statements :

Some mangoes are yellow.

Some taxi are mangoes.

Conclusions :

A. Some mangoes are green.

B. All taxi are yellow

(1) Only conclusion (A) follows

(2) Only conclusion (B) follows

(3) Both (A) or (B) follows

(4) Neither (A) nor (B) follows

17. A clock is showing 1 : 30. If the minute hand is in South direction, then the hour hand will be in which direction ?

(1) North (2) South-East

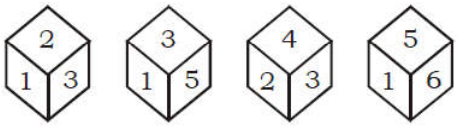
(3) East (4) North-East

18. If C = 4 and POLISH = 85, then find the value of POINTER.

(1) 102 (2) 103

(3) 104 (4) 105

19. Which digit will come opposite to digit 4 in given figure.



(1) 1 (2) 6

(3) 5 (4) 2

20. Gappu starts a journey by moving 8 kms from East to West. Then he takes a right turn and travels 2 kms. Again he turns right and travels 5 kms. Now finally in which direction is he from the initial point ?

(1) South-East (2) North-West

(3) West (4) North

PART-II
SECTION-A : PHYSICS

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

21. In a completely inelastic collision is one in which the two colliding particles.
(1) separated after collision
(2) remain together after collision
(3) break up in to small fragments flying in all direction
(4) None of above

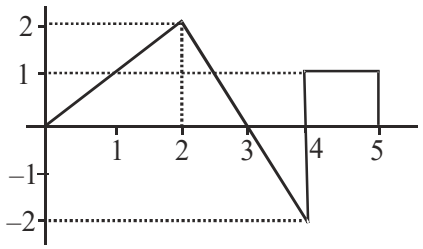
22. If force $= \frac{\alpha}{\text{density} + \beta^2}$, the dimensions of '$\alpha$' will be
(1) $M^2L^{-2}T^{-2}$ (2) ML^2T^{-2}
(3) ML^2T^2 (4) $M^{-2}L^2T^{-2}$

23. A thin rectangular plate with sides of length a and b has mass per unit area varying as $\sigma = \sigma_0\left(\frac{xy}{ab}\right)$ where σ_0 is a constant. The centre of mass co–ordinates of the plate are.

(1) $\left(\frac{a}{3},\frac{b}{3}\right)$ (2) $\left(\frac{a}{2},\frac{b}{2}\right)$

(3) $\left(\frac{a}{3},\frac{2b}{3}\right)$ (4) $\left(\frac{2a}{3},\frac{2b}{3}\right)$

24. The velocity (v) versus time (t) graph of a body moving along a straight line is shown below. Then the displacement of body in 5 seconds.



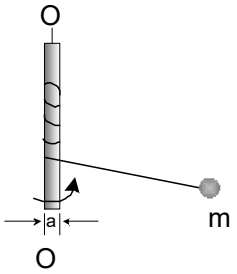
(1) 2m (2) 3m (3) 5m (4) zero

25. Weight W rest on a horizontal plane, what will be the least horizontal force required to move the body along the plane, if angle of friction is 'θ'
(1) W (2) W$\tan\theta$ (3) W$\sin\theta$ (4) W$\cos\theta$

26. The spoker used in the wheel of a bicycle increase its.
(1) total momentum
(2) tangential velocity
(3) centripetal acceleration
(4) moment of inertia

27. A car of mass 'M' is driven with acceleration 'α' along a straight level road against a constant external resistive force R when velocity of the car is v, the rate at which engine of car is doing work is
(1) Rv (2) R α v
(3) (R + $M\alpha$)v (4) (Mα – R) v

28. A small particle of mass m is given an initial high velocity in the horizontal plane and winds its cord around the fixed vertical shaft of radius a. All motion occurs essentially in horizontal plane. If the angular velocity of the cord is ω_0 when the distance from the particle to the tangency point is r_0, then the angular velocity of the cord ω after it has turned through an angle θ is.



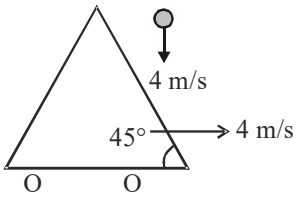
(1) $\omega = \omega_0$

(2) $\omega = \frac{a}{r_0}\omega_0$

(3) $\omega = \frac{\omega_0}{1-\frac{a}{r_0}\theta}$

(4) $\omega = \omega_0\theta$

29. A small ball falling vertically downwards with constant velocity $4ms^{-1}$ strikes elastically a massive inclined cart moving with velocity 4 m/s horizontally as shown. The velocity of rebound of ball is



(1) $4\sqrt{2}$ (2) $4\sqrt{3}$ (3) 4 (4) $4\sqrt{5}$

30. The distance travelled by a body is directly proportional to the time taken. Then the speed of the body.
(1) decreases (2) increases
(3) becomes zero (4) remains constant

31. A car makes a turn around a circular curve. If it turns at double the speed, the tendency to overturn is
(1) halved (2) doubled
(3) quadrupled (4) unchanged

32. If a shell at rest explodes. The centre of mass of the fragments.
(1) moves along a parabolic path
(2) moves along a straight line
(3) moves along an elliptical path
(4) remains at rest

33. A rod elongates l when a body of mass 'm' is suspended from it then work done due to its weight is
(1) mgl (2) $\frac{mgl}{2}$ (3) 2mgl (4) zero

34. If a rod is placed vertically up in unstable equillibrium then on disturbing it it's centre of mass will
(1) rises (2) falls
(3) remain constant (4) first rises then falls

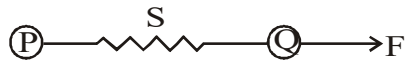
35. What is the smallest radius of a circle at which a cyclist travel if its speed is 10 m/s. Take $g = 10\ m/s^2$ and angle of inclination as 45°
(1) 10m (2) 15m (3) 20m (4) 40m

36. If horizontal range of a projectile is equal to the maximum height reached, then the corresponding angle of projection is given by
(1) $\tan^{-1}(3)$ (2) $\tan^{-1}(4)$
(3) $\tan^{-1}(1)$ (4) $\tan^{-1}\sqrt{3}$

37. A force $F = 6\hat{i} + 2\hat{j} - 3\hat{k}$ acts on a particle and produces a displacement $\vec{S} = 2\hat{i} - 3\hat{j} + \lambda\hat{k}$ if work done is zero then 'λ' is

(1) $\frac{1}{2}$ (2) –2 (3) 2 (4) 6

38. Two masses P and Q each of mass 'm' are fixed together by a massless spring 'S'. A force F acts on mass Q as shown. At this instant the mass P has acceleration 'a' what is the accelration of mass Q.



(1) $\frac{F}{m} + a$ (2) $\frac{F}{m} - a$ (3) $\frac{F}{m}$ (4) –a

39. If a metallic disc is melted and is moulded in the form of a sphere then its moment of inertial.
(1) increases
(2) decreases
(3) remain same
(4) first increases then decreses

40. Bernoulli's equation is important in the field of
(1) flow of liquids (2) magnetism
(3) electrical circuits (4) all of the above

SECTION-B : CHEMISTRY

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

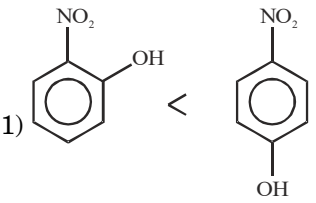
41. A balloon filled with CO is pricked with a sharp object and quickly plunged into a tank containing N_2 under same pressure and temperature. The balloon will :
(1) be enlarged
(2) shrink
(3) remains unchanged in size
(4) collapse completely

42. Which of the following carbide do not undergo hydrolysis ?
(1) Be_2C (2) Mg_2C_3 (3) Al_4C_3 (4) SiC

43. Which of the following species are planer ?
(i) BF_3 (ii) PCl_3 (iii) $BeCl_2$ (iv) NH_4^+
(1) i & ii (2) ii & iii
(3) iii & iv (4) i & iii

44. $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ the K_p value for reaction is 4×10^{-3} at 27°C, when 2 mole H_2 and 3 moles of I_2 taken initially. If later 3 moles of HI are added to the system, what will be the K_c for the reaction ?
(1) 8×10^{-6} (2) 4×10^{-3}
(3) 10^{-3} (4) Data insufficient

45. Which of the following order is not correct against of their indicated property ?

(1)  (Boiling point)

(2) $BF_3 = BCl_3 = BI_3$ (Dipole moment)
(3) $CH_4 > CCl_4$ (Bond angle)
(4) $NH_3 > PH_3 > AsH_3$ (Basic nature of hydrides)

46. The % of Fe in vitamin K is 0.08%, if one vitamin molecule contains four Fe atom. The molecular weight of vitamin is
(1) 28,00,00 g/mole (2) 2800 g/mole
(3) 324 g/mole (4) 28 g/mole

47. What will the molarity of $[H^+]$ in the resultant solution obtained by mixing 50 ml 2.5M H_2SO_4 with 50 ml 5M HCl solution?
(1) 27M (2) 27.5M
(3) 7.5M (4) 5M

48. Which of the following hydride conduct electricity in molten state ?

(1) SiH_4 (2) C_3H_8

(3) B_2H_6 (4) KH

49. Calculate at which temperature CO_2 gas has same root mean square speed as that of O_2 at STP.

(1) 375.38 K (2) 373.15 K

(3) 273.15 K (4) 100 K

50. $LiNO_3 \xrightarrow{\Delta} Li_2O + X(g) + Y(g)$

X and Y gases are

(1) N_2, O_2 (2) N_2O, O_2

(3) NO_2, O_2 (4) NO_2, N_2

51. Boron in solid state forms icosahedron. Total number of faces in icosahedron is

(1) 12 (2) 20

(3) 8 (4) 16

52. An electron transit from n = 7 to n = 1, the number of total spectral line will be excluding Balmer lines.

(1) 21 (2) 16

(3) 15 (4) 5

53. At low pressure vander Waal's equation is reduced to $\left(P + \frac{a}{V^2}\right) V = RT$, the compressibility factor can be given as

(1) $1 - \frac{a}{RTV}$ (2) $1 - \frac{RTV}{a}$

(3) $1 + \frac{a}{RTV}$ (4) $1 + \frac{RTV}{a}$

54. How much ammonium dicromate $[(NH_4)_2Cr_2O_7]$ contains 11.2 gm oxygen ?

(1) 0.1 mole (2) 0.7 mole

(3) 0.05 mole (4) 0.35 mole

55. $MgO(s) \rightleftharpoons Mg(s) + \frac{1}{2}O_2(s)$ $K_p = 10^{-5}$

$HgO(s) \rightleftharpoons Hg(s) + \frac{1}{2}O_2(g)$ $K_p = 10^{3}$

$Ag_2O \rightleftharpoons Hg(s) + \frac{1}{2}O_2(g)$ $K_p = 10^{5}$

$Cu_2O \rightleftharpoons 2Cu(s) + \frac{1}{2}O_2(g)$ $K_p = 10^{-1}$

Which of the above oxide is most stable ?

(1) HgO (2) Cu_2O (3) Ag_2O (4) MgO

56. Which of the following order is not correct ?

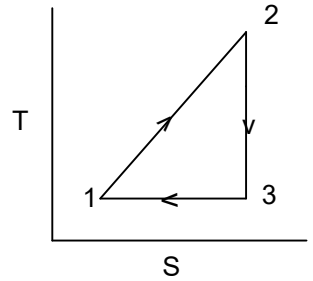
(1) $Ge^{+2} < Sn^{+2} < Pb^{+2}$ (stability of ion)

(2) $Ge^{+4} < Sn^{+4} < Pb^{+4}$ (stability of ion)

(3) $Yb^{+3} < Pm^{+3} < Ce^{+3} < La^{+3}$ (ionic radius)

(4) $F_2 < Cl_2$ (Bond Energy)

57. A working substance goes through a cycle within which the absolute temperature varies n-fold and the shape of the cycle is shown in the adjoining figure. The efficiency of the cycle is



(1) $\frac{n-1}{2n}$ (2) $\frac{n+1}{2n}$ (3) $\frac{n-1}{n+1}$ (4) $\frac{n+1}{n-1}$

58. The orbital angular momentum for 4s electron is

(1) $\sqrt{24}\frac{h}{2\pi}$ (2) $\sqrt{12}\frac{h}{2\pi}$ (3) 0 (4) $\sqrt{2}\frac{h}{2\pi}$

59. Which is not a conjugate pair of acid-base ?

(1) HS^-, S^{-2}

(2) H_3O^+, OH^-

(3) HONO, NO_2^-

(4) C_6H_5COOH, $C_6H_5COO^-$

60. A certain buffer solution contains equal concentration of X^- and HX. The K_b value of X^- is 10^{-10}, the pH of buffer is

(1) 4 (2) 7

(3) 10 (4) 14

Attempt any one of the section C or D

SECTION-C MATHEMATICS

FOR ADMISSION IN ENGINEERING STREAM

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

61. A line L is perpendicular to the line $5x - y = 1$ and the area of the triangle formed by the line L and coordinate axes is 5. The equation of the line L is

(1) $x + 5y = 5\sqrt{2}$ (2) $x + 5y = \pm 5\sqrt{2}$

(3) $x - 5y = \pm 5\sqrt{2}$ (4) $x + 5y = -5\sqrt{2}$

62. Number of values of x ($x \in N$), satisfying the inequality

$$\frac{x+1}{x^2+1} \le \frac{2}{3-x}$$

(1) Infinite (2) 2 (3) 3 (4) 1

63. If the sum of two extreme numbers of an A.P. with four terms is 8 and product of remaining two middle term is 15, then greatest number of the series will be

(1) 5 (2) 7 (3) 9 (4) 11

64. Which of the following point satisfying the inequalities :

$2x + y - 1 \le 0$

$y + 1 \ge 0$

$y - 4x - 7 \le 0$

(1) (1, 1) (2) (0, –2)

(3) (–1, 0) (4) (0, 2)

65. If $z = x + iy$ satisfies $\arg(z + 2) = \arg(z + i)$, then

(1) $x + 2y + 1 = 0$ (2) $x + 2y + 2 = 0$

(3) $x - 2y + 1 = 0$ (4) $x - 2y - 2 = 0$

66. In ΔABC, if $(a + b + c)(a - b + c) = 3ac$, then

(1) $\angle B = 60^o$ (2) $\angle B = 30^o$

(3) $\angle C = 60^o$ (4) $\angle A + \angle C = 90^o$

67. A point (h, k) lies on the parabola $y^2 = 4ax$. The condition that 3 distinct normals can be drawn to the parabola passing through this point is :

(1) $h > 2a$ (2) $h > 8a$

(3) $h < 8a$ (4) $h < 2a$

68. The ratio of the maximum value to minimum value of $\cos 2\theta + \cos\theta + 2$ is -

(1) 32 : 7 (2) 32 : 9

(3) 4 : 1 (4) 2 : 1

69. In a triangle ABC if $2a^2b^2 + 2b^2c^2 = a^4 + b^4 + c^4$, then angle B is equal to

(1) 45° or 135° (2) 135° or 120°

(3) 30° or 60° (4) 135° or 225°

70. Find the sum of infinite terms of the series

$$S = \frac{1}{2.4} + \frac{1}{3.5} + \frac{1}{4.6} + \ldots\ldots + \infty \text{ terms}$$

(1) $\frac{5}{6}$ (2) $\frac{5}{12}$ (3) $\frac{1}{2}$ (4) $\frac{5}{3}$

71. The coefficient of x^{100} in the expansion of $\sum_{j=0}^{200}(1+x)^j$ is

(1) $\binom{200}{100}$ (2) $\binom{201}{102}$

(3) $\binom{200}{101}$ (4) $\binom{201}{100}$

72. The lines

$(p - q)x + (q - r)y + (r - p) = 0$

$(q - r)x + (r - p)y + (p - q) = 0$

$(r - p)x + (p - q)y + (q - r) = 0$ are

(1) Parallel

(2) Perpendicular

(3) Concurrent

(4) Nothing can be said

73. If the coefficients of x^7 and x^8 in $\left(2 + \frac{x}{3}\right)^n$ are equal, then n is

(1) 56 (2) 55 (3) 45 (4) 15

74. If the ratio of the roots of the equation $ax^2 + bx + c = 0$ be $p : q$, then

(1) $pqb^2 + (p+q)^2 ac = 0$ (2) $pqb^2 - (p+q)^2 ac = 0$

(3) $pqa^2 - (p+q)^2 bc = 0$ (4) $pqa^2 + (p+q)^2 bc = 0$

75. If $z = i\bar{z}$, then

(1) z is purely real

(2) z is purely imaginary

(3) $z = x(1+i), x \in R$

(4) $z = 0$

76. TP and TQ are any two tangents to a parabola and the tangent at a third point R cuts them respectively at P' and Q'. Then the value of the expression $\frac{TP'}{TP} + \frac{TQ'}{TQ} =$

(1) 4 (2) 2

(3) 1 (4) None of these

77. If $x^2 - hx - 21 = 0, x^2 - 3hx + 35 = 0$ $(h > 0)$ has a common root, then the value of h is equal to

(1) 1 (2) 2

(3) 3 (4) 4

78. If the sum of first 6 term is 9 times to the sum of first 3 terms of the same G.P., then the common ratio of the series will be

(1) -2 (2) 2

(3) 1 (4) 1/2

79. If $x = 3 + i$, then $x^3 - 3x^2 - 8x + 15 =$

(1) 6 (2) 10

(3) – 18 (4) – 15

80. If $\alpha = 22°30'$, then

$(1+\cos\alpha)(1+\cos 3\alpha)(1+\cos 5\alpha)(1+\cos 7\alpha)$ equals

(1) 1/8 (2) 1/4

(3) $\frac{1+\sqrt{2}}{2\sqrt{2}}$ (4) $\frac{\sqrt{2}-1}{\sqrt{2}+1}$

SECTION-D : BIOLOGY
FOR ADMISSION IN MEDICAL STREAM

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

81. Read the given statements carefully :-

(a) A chordate animal having flame cells as excretory structures.

(b) Cortical portions projecting between medullary pyramids in the human kidney

(c) A loop of capillary running parallel to the Henle's loop.

Now select the options with appropriate term:-

(1) Tapeworm, Renal columns of Bertin, vasa recta.

(2) Roundworm, Renal columns of Bertin, Vasa recta.

(3) Amphioxus, Renal columns of Bertin, Vasa recta.

(4) Tadpole, Renal columns of Bertin, Vasa recta

82. How many of the following are **correct** ?

(A) Schwann concluded that cell wall is a unique character of the plant cells.

(B) The cytoplasm is the main arena of cellular activities in both the plant and animal cells.

(C) In animal cells lipid like steroidal hormones are synthesised in SER.

(D) In oocytes of some invertebrates, diplotene can last for months or years.

(E) Prophase I is much simpler than prophase II.

(F) Meiosis occurs in the diploid cells, which are destined to form gametes.

(1) 3 (2) 4

(3) 5 (4) 6

83. Indefinite stamens and monoadelphous condition is found in :-

(1) Solanaceae

(2) Mimosoideae

(3) Malvaceae

(4) Cruciferae

84. A parent cell has 38 chromosomes and 42 pg of DNA content. What must be the number of chromosomes and DNA content at the given stages:-

	End of S-phase		Anaphase	
	Number of chromosomes	DNA(pg)	Number of chromosomes	DNA(pg)
(1)	38	42	76	42
(2)	76	84	76	84
(3)	38	84	76	84
(4)	38	84	38	84

85. Read the following four statements [A-D].

(A) All protozoans are heterotrophs

(B) Protozoans are believed to be primitive relatives of animals

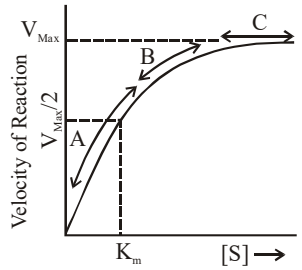
(C) *Paramecium* move and capture their prey by putting out psuedopodia.

(D) Amoeboid protozoans live in fresh water and sea water.

How many of the above statements are correct -

(1) Four (2) Three (3) Two (4) One

86. Which of the following statements is **not** correct with respect to the relationship between substrate concentration and rate of enzyme catalysed reaction as depicted in the graph ?



(1) In segment 'C' of the curve the enzyme molecules are fewer than the substrate molecules and after saturation of these molecules, there are no free enzyme molecules to bind with the additional substrate molecules.

(2) There is a decrease in reaction velocity in segment 'B' of the curve with the increase in substrate concentration.

(3) With the increase in substrate concentration, the velocity of the enzymatic reaction rises in segment 'A' of the curve.

(4) Increase in [S] gives a linear curve in segment A.

87. Study the statements given below carefully and give the answer :-

A. Taxonomists also prepare and disseminate informations through manuals and monographs.

B. Taxonomic keys help in identification based on characters.

C. All the taxonomic categories constitute a hierarchy of nomenclature

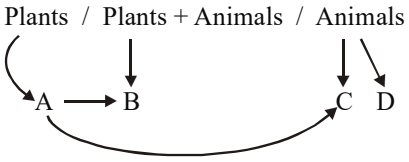
D. Taxonomy is useful in agriculture, forestry, industry and knowing biodiversity.

How many statements are **correct** from them ?

(1) One (2) Two

(3) Three (4) Four

88. Identify the likely organisms A, B, C and D in the flow chart given below-



In all respiratory organs are lungs and all contain four chambered heart.

'D' is the animal which is exception among its category.

	A	B	C	D
(1)	Human	Lion	Crocodile	Frog
(2)	Rabbit	Human	Lion	Frog
(3)	Rabbit	Human	Lion	Crocodile
(4)	Rabbit	Human	Lion	Fish

89. Find the **incorrect** statement from the followings:

(1) Most abundant micro-organisms on earth are bacteria

(2) The vast majority of bacteria are autotrophs

(3) The majority of bacteria are decomposers

(4) Many bacteria have significant impact on human affairs

90. What is characterisation of organisms ?

(1) Identification of them by the help of specific characters

(2) To put them into different groups

(3) To know inter-relations between them

(4) To search them on the earth by telescope

91. Which one of the following options gives the correct categorisation of six plants according to the type of symmetry (A, B, C) they exibit.

	A ACTINOMORPHIC	B ZYGOMORPHIC	C ASYMMETRIC
(1)	*Datura*, mustard	Pea, bean, gulmohur	Canna
(2)	Pea, bean, gulmohur	*Datura*, mustard	Canna
(3)	Pea, bean, gulmohur	Canna	*Datura*, mustard
(4)	Canna	Pea, bean, gulmohur	*Datura*, mustard

92. How many of the following statements are correct?

(a) Synaptonemal complex formed during meiosis-I helps in genetic recombination

(b) Chromatid separation takes place at metaphase of mitosis

(c) Segregation of homologous chromosomes takes place at anaphase-II of meiosis.

(d) In some organisms karyokinesis is not followed by cytokinesis as a result of which multinucleate condition arises leading to the formation of syncytium.

(e) Daughter cells of meiosis are different from each other.

(1) Two (2) Three

(3) Four (4) One

93. Read the following statements (A-E) and answer as asked next to then :-

(A) Peptide bonds are not broken in denaturation of protein

(B) Sol-gel interconversion is a type of biophysiochemical change

(C) Both +ve and –ve charge are present in equal amount on isoelectric point on amino acid.

(D) Haemoglobin is a type of multimeric protein

(E) Tertiary configuration of protein is soluble in water.

How many of above statements are correct ?

(1) 3 (2) 4

(3) 5 (4) 1

94. How many of the following statements are true for classification proposed by Bentham & Hooker :-

(a) It was mainly based on floral characters

(b) It was a natural classification

(c) It was based on actual observations

(d) It has 165 families of monocotyledonae

(e) Phylogeny was not followed in this

(1) Four

(2) Three

(3) Two

(4) One

95. Which one of the following options gives the correct categorisation of six animals according to the type of nitrogenous wastes (A, B, C), they give out

96. The examples of inferior ovary containing flowers are :-

(1) Guava, Cucumber and Apple

(2) Guava, Cucumber and Peach

(3) Plum, Peach & Rose

(4) Mustard, China rose and brinjal

97. Flame cells are excretory structures found in :-

(1) Platyhelminthes

(2) Rotifers

(3) Some annelids

(4) All the above

98. A plant cell has 24 chromosomes and 2C content of DNA at G_1. What must be the chromosome number and DNA content inside one cell at anaphase of mitosis ?

(1) 24, 4C (2) 48, 2C (3) 48, 4C (4) 24, 2C

99. Select true & false statement/s :-

(a) The cork (phellem), cork cambium (phellogen) and the secondary cortex (phelloderm) are collectively known as the periderm

(b) In the internal structure of isobilateral leaf two distinct patches of parenchyma are present above and below each of the large vascular bundles and extend up to the upper and lower epidermal layers, respectively

(c) In a dicot stem vascular bundles are usually *wedge* shaped whereas in a monocot stem vascular bundles are usually oval shaped

(d) Mostly polyarch root is found in dicotyledons

	True	**False**
(1)	a & d	b & c
(2)	a & b	c & d
(3)	a, b & c d	
(4)	a & c	b & d

100. Neo systematics aims at :

(1) Delimiting various taxa of organisms and establishing their relationship

(2) Identification and arrangement of organisms on the basis of their cytological characterastics

(3) The classification of organisms based on broad morphological characters

(4) The classification of organisms based on their evolutionary history and establishing their phylogeny on the totality of various parameter from all field of studies

SPACE FOR ROUGH WORK