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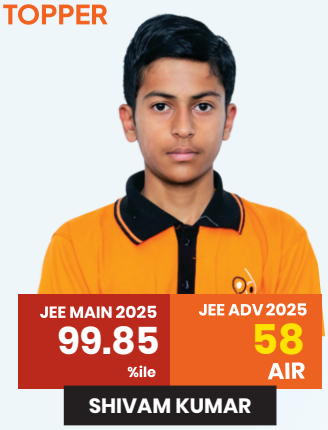

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Priyanka

636 | 720

GMCH CHD

Bhawna

604 | 720

GMC PATIALA

Balwinder Singh

599 | 720

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598 | 720

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What Makes Pinnacle Unique?

Teachers
- Best Faculty Team
- Hi-Tech Classrooms
- Customized Study material
- Personal Attention
- Unlimited Doubt Sessions
- Best Testing Methodology


Lecture recoding lab

Student Performance and Analysis Report


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Extra Support to weaker students

Smart & AC Classrooms


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Biometric Attendance

CLASSROOM PROGRAM

1 Comprehensive Classroom Lectures

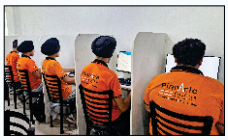
All classes at Pinnacle are conducted by highly qualified and experienced faculty members, mostly IITians. Each chapter is started at the grass root level and is dealt to an extent which is the requirement of competitive examinations, with an aim of enabling the students to develop a comprehensive view of the whole chapter with a thorough understanding.

2 Personalised Doubt Session

"If you ask a question, you may appear fool for some time, but if you don't, you'll remain a fool for whole life.
"System at Pinnacle encourages all students to ask their doubts and questions.

3 Regular Tests Online and Offline

As JEE Mains and Advanced have gone completely online and NEET is in the pipeline, we have launched a dedicated online testing platform where students can practice over CBT (Computer Based Tests). The combination of online and offline testing modes based on latest JEE/NEET patterns ensure that students are at par with the recent changes. Students can check their test reports and performance analysis via a unique online login ID. Their results are also communicated to parents via SMS.



4 Addressing The board exam

Pinnacle has a very distinct methodology for preparing the students for competitive examinations while in full synchronization with Board Exams as well. Board level tests are conducted alongside the regularJEE/NEET tests and the copies are graded at very meticulous level by teachers. Students receive methodological tips so as to perform excellent in the board Exams as well.

Section – A
Physics

This section contains **25 Multiple Choice Questions**. Each question has four options out of which **ONLY ONE** is correct.

1. Find the derivative of given function w.r.t. corresponding independent variable.

$y = x^2+x+8$

(a) $\frac{dy}{dx} = 2x-1$

(b) $\frac{dy}{dx} = x+1$

(c) $\frac{dy}{dx} = x-1$

(d) $\frac{dy}{dx} = 2x+1$

2. $s = 5t^3-3t^5$

(a) $\frac{ds}{dt} = 15t^2+15t^4$

(b) $\frac{ds}{dt} = 15t^2-5t^4$

(c) $\frac{ds}{dt} = 15t^2-15t^4$

(d) $\frac{ds}{dt} = 15t^2+5t^4$

3. Y = 5 sin 5 x

(a) $\frac{dy}{dx} = 15 \cos 5x$

(b) $\frac{dy}{dx} = \cos 5x$

(c) $\frac{dy}{dx} = 25 \cos 5x$

(d) $\frac{dy}{dx} = 10 \cos 5x$

4. Find derivative of given functions w.r.t. the independent variable x.
X sin x
(a) sin x – x cos x
(b) sin x + 2x cos x
(c) sin x + x cos x
(d) sin 2x – 2x cos x

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

(a) $\frac{dy}{dx}=2x^2$

(b) $\frac{dy}{dx}=3x^2$

(c) $\frac{dy}{dx}=5x^2$

(d) $\frac{dy}{dx}=3x$

6. Water in bucket is whirled in a vertical circle with a string attached to it. The water does not fall down even when the bucket is inverted at the top of its path. We conclude that:

(a) $mg=\frac{mv^2}{R}$

(b) $mg>\frac{mv^2}{R}$

(c) $mg<\frac{mv^2}{R}$

(d) None of these

7. A body is allowed to slide on a frictionless track from rest position under gravity. The track ends into a circular loop of diameter D. What should be the minimum height of the body in terms of D so that it may complete successfully the loop?

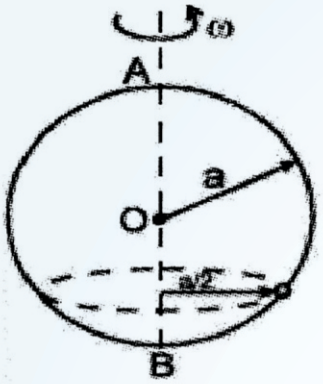
(a) $\frac{4}{5}D$

(b) $\frac{5}{4}D$

(c) 1 D
(d) 2 D

8. A smooth wires is bent into a vertical circle of radius a. A bead P can smoothly on the wire. the circle is rotated about vertical diameter AB as axis with a speed ω as shown in figure. The bead P is at

rest w.r.t. the circular ring in the position shown. Then ω^2 is equal to:



(a) $\frac{2g}{a}$

(b) $\frac{2g}{a\sqrt{3}}$

(c) $\frac{g\sqrt{3}}{a}$

(d) $\frac{2a}{g\sqrt{3}}$

9. A particle is rotated in a vertical circle by connecting it to a light rod of length l and keeping the other end of the rod fixed. The minimum speed of particle when the light rod is horizontal for which the particle will complete the circle is

(a) $\sqrt{gl}$

(b) $\sqrt{2gl}$

(c) $\sqrt{3gl}$

(d) None

10. A particle suspended from a fixed point, by a light inextensible thread of length L is projected horizontal from its lowest position with velocity $\sqrt{\frac{7gL}{2}}$. The thread will slack that θ equal

(a) 30°

(b) 135°

(c) 120°

(d) 150°

11. A block of weight 9.8 N is placed on a table. The table surface exerts an upward force of 10N on the block. Assume g = 9.8 m/s²

(a) The block exerts a force of 10N on the table

(b) The block exerts a force of 19.8N on the table

(c) The block exerts a force of 9.8N on the table

(d) The block is at rest

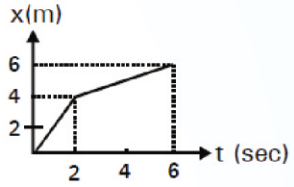
12. A box is lying on the floor of a train. The coefficient of static and kinetic friction between the box and the train's floor are 0.4 and 0.3 respectively. Find the maximum acceleration of the train so that the block does not slip

(Take g = 10 m/s²)

(a) 1 m/s² (b) 3 m/s²

(c) 4 m/s² (d) 7 m/s²

13. In the figure given below, the position-time graph of a particle of mass 0.1 kg is shown. The impulse at t = 2 sec is



(a) zero

(b) —0.1 kg m sec^{-1}

(c) 0.15 kg m sec^{-1}

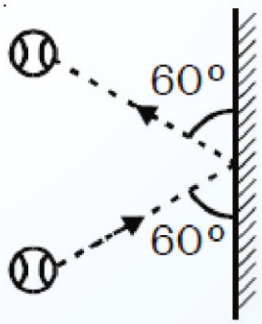
(d) —0.15 kg m sec^{-1}

14. The equation of trajectory of a projectile is $y = x - gx^2$. The horizontal range of projectile is

(a) 0.1 m (b) 0.2 m

(c) 0.01 m (d) 0.02 m

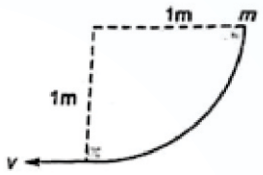
15. A 3 kg ball strikes a heavy rigid wall with a speed of 10 m/s at an angle of 60°. It gets reflected with the same speed and angle as shown in figure. If ball is in contact with the wall for 0.20 sec, what is average force exerted on ball by the wall?



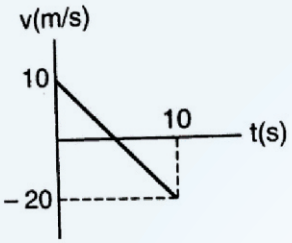
(a) 150 N (b) Zero

(c) 150 3 N (d) 300 N

16. Two point masses 1 kg & 2 kg are placed at the point (2,-1) & (1,-2) respectively. Position of Centre of mass of the system is
    (a) $(-1,1)$
    (b) $\left(-\frac{4}{3},\frac{5}{3}\right)$
    (c) $\left(\frac{5}{3},-\frac{4}{3}\right)$
    (d) $\left(\frac{4}{3},-\frac{5}{3}\right)$
17. Eight point masses A,B,C,D,E,F,G,H of masses 1 kg, 2 kg, 3 kg, 4 kg, 5 kg, 6 kg, 7 kg, 8 kg are placed at the vertices of a cube of side length 'a' so that ABCD and EFGH are two parallel faces of cube. Distance of center of mass of cube from the face ABCD is
    (a) $\frac{5}{9}a$
    (b) $\frac{7}{18}a$
    (c) $\frac{11}{18}a$
    (d) $\frac{13}{18}a$
18. N identical point masses each of mass m is arranged symmetrically about a point, at distances 'a' from the point. Distance of center of mass of the system from this point is
    (a) $\frac{1}{N}a$
    (b) $\frac{N}{N+1}a$
    (c) $\frac{1}{N+1}a$
    (d) *zero*
19. Three point masses A, B & C of masses 3 kg, 4 kg & 5 kg are arranged to form an is odes right angled triangle of side lengths 3m, 4m & 5m. In ΔABC, $\angle A$ is smallest angle and $\angle$C is largest angle. Distance of Centre of mass from point C is
    (a) 1 m
    (b) 2 m
    (c) $\frac{1}{\sqrt{2}}$ m
    (d) $\sqrt{2}$ m
20. Two point masses of 2 kg & 4 kg are placed at x-axis and y-axis respectively at distances 4m & 3m from origin. Where should a third mass of 6 kg placed so that center mass of combined system lies at origin.
    (a) $(-4,-3)$
    (b) $(-3,-4)$
    (c) $\left(-2,-\frac{4}{3}\right)$
    (d) $\left(-\frac{4}{3},-2\right)$
21. A ball loses 15.0% of its kinetic energy when it bounces back from a concrete wall. With what speed you must throw it vertically down from a height of 12.4 m to have it bounce back to the same height? (ignore air resistance)
    (a) 6.55 m/s
    (b) 12.0 m/s
    (c) 8.6 m/s
    (d) 4.55 m/s
22. A block of mass 1 kg slides down a curved track which forms one quadrant of a radius 1 m as shown in figure. The speed of block at the bottom of the track is v = 2 ms^{-1}. The work done by the force of friction is



    (a) + 4 J
    (b) – 4 J
    (c) – 8 J
    (d) + 8 J
23. Equal net force act on two different blocks A and B of masses m and 4m respectively. For same displacement, identify the correct statement,
    (a) Their kinetic energies are in the ratio $\frac{K_A}{K_B}=\frac{1}{2}$
    (b) Their speeds are in the ratio $\frac{v_A}{v_B}=\frac{1}{2}$
    (c) Work done on the blocks are in the ratio $\frac{W_A}{W_B}=\frac{1}{2}$
    (d) All the above
24. A particle move along x-axis from x = 0 to x = 5 m under the influence of a force given by F = 7 – 2x + $3x^2$. The work done in the process is :
    (a) 100 J
    (b) 125 J
    (c) 135 J
    (d) 145 J
25. Velocity – time graph of a particle moving in a straight line is as shown in figure. Mass of the particle is 2 kg. Work done by all the forces acting on the particle in time interval between t = 0 to t = 10 s is:

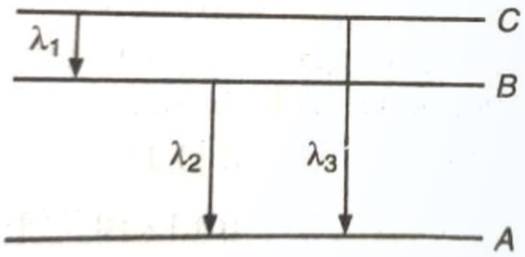


(a) 300 J
(b) – 300 J
(c) 400 J
(d) – 400 J

Section – B
Chemistry

This section contains **25 Multiple Choice Questions**. Each question has four options out of which **ONLY ONE** is correct.

26. If the law of conservation of mass was to hold true, then 20.8 gm of $BaCl_2$ on reaction with 9.8 gm of H_2SO_4 will produce 7.3 gm of HCl and $BaSO_4$ equal to – (in gm)
    (a) 23.3
    (b) 30.6
    (c) 37.9
    (d) None of these
27. The percentage of nitrogen in urea (NH_2CONH_2) is about –
    (a) 49.9
    (b) 46.6
    (c) 56.8
    (d) 23.3
28. Insulin contains 3.4 % sulphur by mass. What will be the minimum molecular weight of insulin
    (a) 941.17
    (b) 823.27
    (c) 623.17
    (d) 523.27
29. Law of constant composition was given by
    (a) Dalton
    (b) Lavoisier
    (c) Proust
    (d) Johnson
30. Law of conservation of mass is not applicable for
    (a) Acid –base reactions
    (b) Catalystic oxidations
    (c) Reduction reactions
    (d) Nuclear reactions
31. The electronic velocity in the fourth Bohr's orbit of hydrogen is v. the velocity of the electron in the first orbit would be:
    (a) 4v
    (b) 16v
    (c) v/4
    (d) v/16
32. The first emission line of Balmer series for H – spectrum has the wave no. equal to:
    (a) $\frac{9R_H}{400} cm^{-1}$
    (b) $\frac{7R_H}{144} cm^{-1}$
    (c) $\frac{3R_H}{4} cm^{-1}$
    (d) $\frac{5R_H}{36} cm^{-1}$
33. If the ionization potential for hydrogen atom is 13.6eV, then the wavelength of light required for the ionization of hydrogen atom would be:
    (a) 1911 nm
    (b) 912 nm
    (c) 68 nm
    (d) 91.2 nm
34. In an atom two electrons move around the nucleus in circular orbits of radii R and 4R. The ratio of the time taken by them to complete one revolution is:
    (a) 1:4
    (b) 4:1
    (c) 1:8
    (d) 8:7
35. Energy levels A,B,C of a certain atom corresponds to increasing values of energy, i.e., $E_A < E_B < E_C$. If λ_1, λ_2, and λ_3 are the wavelength of radiations corresponding to the transitions C to B, B to A and C to A respectively, which of the following statements is correct?



    (a) $\lambda_3 = \lambda_1 + \lambda_2$
    (b) $\lambda_3 = \frac{\lambda_1 \lambda_2}{= \lambda_1 + \lambda_2}$
    (c) $\lambda_1 + \lambda_2 + \lambda_3 = 0$
    (d) $\lambda_3^2 = \lambda_1^2 + \lambda_2^2$
36. The family of elements with the highest ionization enthalpy:
    (a) Alkaline earth metals
    (b) Halogens
    (c) Noble gases
    (d) Alkali metals
37. The penetration of the electrons in any principal shell varies as:
    (a) s > p > d > f
    (b) s < p < d < f
    (c) s > p < d > f

(d) $s < p > d > f$

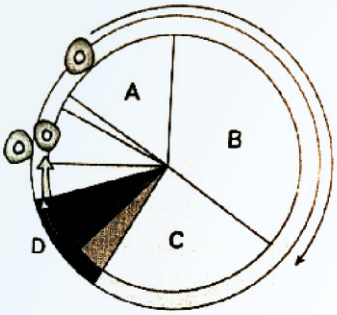
38. Identify the wrong statement in the following:
    (a) Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius.
    (b) Amongst isoelectronic species, greater the negative charge on the anion, larger is the ionic radius.
    (c) Atomic radius of the elements increases as one move down the first group of the periodic table.
    (d) Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table.
39. Among Mg, Mg^{2+}, AI and AI^{3+} which will have the largest and the smallest size respectively?
    (a) Mg, AI^{3+}
    (b) AI^{3+}, Mg
    (c) Mg^{2+}, AI
    (d) AI, Mg^{2+}
40. The group of elements in which the differentiating electron enters the antepenultimate shell of atoms are called
    (a) f –block elements
    (b) p-block elements
    (c) s-block elements
    (d) d-block elements
41. The bond angles in molecules H_2O, NH_3, CH_4 and CO_2 are in the order:
    (a) $H_2O > NH_3 > CH_4 > CO_2$
    (b) $H_2O < NH_3 < CO_2 < CH_4$
    (c) $H_2O < NH_3 < CH_4 < CO_2$
    (d) $H_2O > NH_3 < CH_4 > CO_2$
42. Which of the following molecuels is not an exception to octet rule?
    (a) BF_3
    (b) PF_5
    (c) CO_2
    (d) IF_7
43. Ratio of π to σ bonds in benzene is
    (a) 1 : 2
    (b) 1 : 6
    (c) 1 : 4
    (d) 1 : 1
44. In an octahedral structre, the pair of d –orbitals involved in d^2sp^3 hybridisation is?
    (a) $d_{x^2-y^2}, d_{xz}$
    (b) d_{x^2}, d_{zx}
    (c) d_{xy}, d_{yz}
    (d) $d_{x^2-y^2}, d_{z^2}$
45. Formal charge on two O atoms in

    (a) – 1, + 1
    (b) – 1, 0
    (c) 0, + 1
    (d) – 1, – 1.
46. At lower temperatures, all gases except H_2 and He show:
    (a) Negative deviation
    (b) Positive deviation
    (c) Positive and negative deviation
    (d) None of these
47. The condition of SATP refers for:
    (a) 25^0C and 2 atm
    (b) 25^0C and 1 atm
    (c) 0^0C and 2 atm
    (d) 25^0C and 1 bar
48. In the gas equation PV = nRT the value of universal gas constant depends upon:
    (a) The nature of the gas
    (b) The pressure of the gas
    (c) The temperature of the gas
    (d) The units of measurement
49. When gases are heated from 20^0C to 40^0C at constant pressure, then the volume:
    (a) Increase by the same magnitude
    (b) Become double
    (c) Increase in the ratio of their molecular masses
    (d) Increase but to different extent
50. Oxygen gas is collected by downward displacement of water in a jar. The level of water inside the jar is adjusted to the height of water outside the jar. When the adjustment is made, the pressure exerted by the oxygen is:
    (a) Equal to the atmospheric pressure
    (b) Equal to the vapour pressure of oxygen at that temperature
    (c) Equal to atmospheric pressure plus aqueous tension at that temperature
    (d) Equal to atmospheric pressure minus aqueous tension at that temperature

Section – C
Biology

This section contains **50 Multiple Choice Questions**. Each question has four options out of which **ONLY ONE** is correct.

51. From the given diagram of cell cycle select the incorrect option



(a) 'D' represents M phase which starts with karyokinesis and ends with cytokinesis
(b) 'A' corresponds to interval between mitosis and initiation of DNA replication
(c) 'B' is the synthesis phase during which amount of DNA and chromosome number doubles
(d) 'C' is Gap 2 phase during which cell growth continues and proteins are synthesized in preparation for mitosis

52. From the given events which will be third to occur in sequence
Event A → Chromosomes reach opposite poles
Event B → Chromosomes are highly condensed
Event C → Movement of centrioles towards poles
Event D → Reappearance of nucleolus
(a) A
(b) B
(c) C
(d) D

53. How many generations are required to form 64 cells by mitosis?
(a) 4
(b) 6
(c) 16
(d) 64

54. Fertilization is depicted by one of the following conditions
(a) n → 2n
(b) 2n → n
(c) 2n → 4n
(d) 4n → 2n

55. During _____ of meiosis, centromere of each chromosome splits and sister chromatids separated
(a) Anaphase – I
(b) Metaphase – II
(c) Anaphase – II
(d) Telophase – I

56. If the following events are arranged in correct sequence of their occurrence during meiosis then 1st and 3rd respectively, would be
Synapsis, appearance of chromomeres, appearance of chiasmata, terminalization, crossing over
(a) Synapsis and appearance of chiasmata
(b) Crossing over and terminalization
(c) Appearance of chromomeres and crossing over
(d) Synapsis and terminalisation

57. Match the following and select the correction

Column – I	Column – II
a. Zygotene	i. Chiasmata
b. Pachytene	ii. Synapsis
c. Diakinesis	iii. Terminalization of chiasmata
	iv. Crossing over

(a) a – i, b – ii, c – iii
(b) a – ii, b – iv, c – iii
(c) a – iv, b – i, c – iii
(d) a – ii, b – i, c – iii

58. Taxol is a drug that stabilizes microtubules and prevents them from depolymersing. Consequently, treated cells fail to complete mitosis. At which phase of mitosis are cells treated with taxol likely to arrest?
(a) Telophase
(b) Prophase
(c) Metaphase
(d) Anaphase

59. A bivalent in metaphase – I consists of
(a) Two chromatids and one centromere
(b) Two chromatids and two centromeres
(c) Four chromatids and two centromeres
(d) Four chromatids and one centromere

60. A somatic cell that has just completed the S – phase of its cell cycle as compared to gamete of the same species has
    (a) Twice the number of chromosomes and four times the amount of DNA
    (b) Four times the number of chromosomes and twice the amount of DNA
    (c) Twice the number of chromosomes and twice the amount of DNA
    (d) Same number of chromosomes and twice the amount of DNA
61. Bacterial blight of rice is caused due to
    (a) Xanthomonas oryzae
    (b) Pseudomonas falcatum
    (c) Helminthosporium oryzae
    (d) Xanthomonas falcatum
62. Which of the following is osmotically inactive?
    (a) Mycoplasma
    (b) Nostoc
    (c) Bacteria
    (d) All of these
63. Smallest bacteria is
    (a) Bacillus
    (b) Spirillum
    (c) Dialister
    (d) None of these
64. Which of the following is *Xanthomonas* related?
    (a) A kind of Virus
    (b) Causing disease in Xanthium
    (c) Xanthophyceae
    (d) Causing Citrus canker disease
65. Pili in bacteria represent
    (a) Small flagella
    (b) Protoplasmic outgrowths of donor cells
    (c) Extra – chromosomal genetic element
    (d) Special bacteria cilia
66. In bacteria, sexual conjugation is promoted by
    (a) Both b & c
    (b) R – factor
    (c) Col – factor
    (d) None of these
67. Which of the following are intermediate between viruses and bacteria?
    (a) Spirilla
    (b) Variola
    (c) Mycoplasma
    (d) Virons
68. Mycoplasma is
    (a) Gram negative
    (b) Some species are gram positive
    (c) Gram positive
    (d) None of these
69. Organisms which have cells but no distinct nucleus
    (a) Bacteria
    (b) Cyanobacteria
    (c) Both of these
    (d) None of these
70. What are episomes?
    (a) Hereditary DNA of bacterial cell
    (b) Modification of the cell membrane performing respiration
    (c) Extrachromosomal hereditary material of bacteria associated with nucleoid
    (d) None of these
71. All living organisms share the following features except that they
    (a) are formed of protoplasm
    (b) can prepare food
    (c) respire
    (d) can do metabolism
72. Term Systematics was coined by Linnaeus for his book *Systema Naturae*. It now includes
    (a) Identification,Nomenclature, Classification
    (b) Relationships among organisms
    (c) Diversity of organisms
    (d) All of these
73. Identify correct sequence of taxa in Linnaean hierarchy
    (a) Class, family, species, genus, order
    (b) Species, genus, family, order, class
    (c) Phylum, class, family, species, order
    (d) Species, genus phylum, family, class
74. Which chemical is used in herbarium for poisoning?
    (a) FAA
    (b) DDT
    (c) 0.1% H_8CI_2
    (d) EDTA
75. "Carolus Linnaeus system" is an artificial system because
    (a) It is based on evolutionary trends
    (b) It is based on number sexual of characters only
    (c) It is based on a few characters of superficial similarities and dissimilarities on morphology
    (d) It is phylogenetic
76. Autotrophs belongs to kingdoms
    (a) Monera, Protista and Metaphyta
    (b) Monera, Protista and Fungi

(c) Monera and Fungi
(d) Plantae

77. Taxonomy based on study of organelles and other cytological characters is
(a) Chemotaxonomy
(b) Numerical taxonomy
(c) Biochemical taxonomy
(d) Cytotaxonomy

78. Match the kingdoms listed under column-I with the characteristics given under column-II choose the answer which gives the correct combination of the alphabets of the two columns

Column –I (Kingdom)	**Column –II** (Characteristics)
1) Animalia	**P.** Unicellular prokaryotes
2) Plantae	**Q.** multicellular heterotrophs
3) Protista	**R.** Multicelluar & Photosynthetic
4) Monera	**S.** unicellular eukaryotes

(a) 1=s,2=q, 3=r,4=p
(b) 1=q,2=r, 3=s,4=p
(c) 1=s,2=r, 3=q,4=p
(d) 1=r,2=q, 3=s,4=p

79. Which of the following statement is correct?
(a) Viruses carry with them their own ribosome for protein formation
(b) New viral ribosome are formed after viral DNA enters inside the cell
(c) Viruses use the host ribosome for their own proteins
(d) Viruses do not need ribosome for protein formation

80. Most of the antibiotics have no effect on the virus because?
(a) Viruses have no metabolism of their own
(b) They kill all bacteria which from host of viruses
(c) Viruses are too small in size for antibiotic to act on them
(d) Viruses produce a thick covering and encyst themselves as end spores

81. Match column – I with column – II and find the correct option

Column – I Column – II

1. Cellular level p. Coelenterates
2. Tissue level q. Annelida
3. Organ system level r. Sponges

(a) 1 – r, 2 – q, 3 – p
(b) 1 – q, 2 – p, 3 – r
(c) 1 – r, 2 – p, 3 – q
(d) 1 – p, 2 – q, 3 – r

82. Radial symmetry is exhibited by
(a) Sponges, annelids, ctenophores
(b) Annelids, ctenophores, coelenterates
(c) Coelenterates, ctenophores, echinoderms
(d) Echinoderms, molluscs, platyhelminthes

83. Match column – I with column – II
1. *Euplectella* p. bath sponge
2. *Spongilla* q. fresh water sponge
3. *Cliona* r.Venus flower basket
4. *Euspongia* s. boring sponge
(a) 1 – r, 2 – q, 3 – s, 4 – p
(b) 1 – q, 2 – p, 3 – r, 4 – s
(c) 1 – p, 2 – r, 3 – s, 4 – q
(d) 1 – r, 2 – s, 3 – q, 4 - p

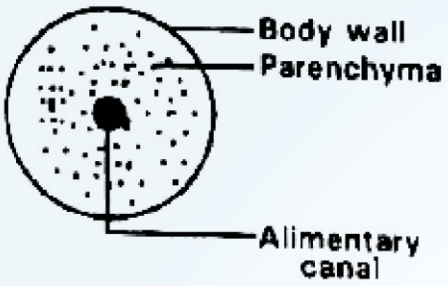
84. Notochord is _____ derived rod like structure formed on the _____ side during embryonic development is some animals
(a) Ectodermally, dorsal
(b) Endodermally, ventral
(c) Mesodermally, dorsal
(d) Endodermally, dorsal

85. Match column – I with column – II
1. Physalia p. Sea anemone
2. Adamsia q. Brain coral
3. Pennatula r. Sea fan
4. Gorgonia s. Sea pen
5. Meandrina t. Portuguese man of war
(a) 1 – t, 2 – p, 3 – s, 4 – r, 5 – q
(b) 1 – p, 2 – t, 3 – s, 4 – q, 5 – r
(c) 1 – s, 2 – p, 3 – q, 4 – r, 5 – s
(d) 1 – q, 2 – r, 3 – s, 4 – p, 5 – t

86. Polyp, medusa, mesoglea, planula are the features of which of the following phylums
(a) Porifera
(b) Echinodermata
(c) Ctenophora
(d) Coelenterata

87. Fertilization and development in ctenophores
(a) External with indirect development
(b) External with direct development
(c) Internal with direct development
(d) Internal with indirect development

88. The cross – section of the body of an invertebrate is given below
Identify the animal which has this body plan.



(a) *Planaria*
(b) Cockroach
(c) Earthworm
(d) Round worm

89. The Platyhelminthes which include flukes and tapeworms are
(a) Triploblastic, acoelomates with bilateral symmetry
(b) Triploblastic, coelomates with bilateral symmetry
(c) Mostly free living animals
(d) Pseudocoelom with complete digestive system

90. Which of the following features are incorrect in relation to *Aschelminthes*?
(a) Fertilization internal
(b) Development may be direct or indirect
(c) Alimentary canal complete with well – developed non – muscular pharynx
(d) Pseudocoelomate

91. Match column – I with column – II and find the correct option

Column – I	Column II
1. Cellular level	p. Coelenterates
2. Tissue level	q. Annelida
3. Organ system level	r. Sponges

(a) 1 – r, 2 – q, 3 – p
(b) 1 – q, 2 – p, 3 – r
(c) 1 – r, 2 – p, 3 – q
(d) 1 – p, 2 – q, 3 – r

92. Radial symmetry is exhibited by
(a) Sponges, annelids, ctenophores
(b) Annelids, ctenophores, coelenterates
(c) Coelenterates, ctenophores, echinoderms
(d) Echinoderms, molluscs, Platyhelminthes

93. The osmotic expansion of a cell kept in water is chiefly regulated by :
(a) Mitochondria
(b) Vacuoles
(c) Plastids
(d) Ribosomes

94. Notochord is _____ derived rod like structure formed on the ___ side during embryonic development is some animals
(a) Ectodermally, dorsal
(b) Endodermally, ventral
(c) Mesodermally, dorsal
(d) Endodermally, dorsal

95. Match column I with column II

1. Physalia	p. Sea anemove
2. Adamsia	q. Brain coral
3.Penntula	r. Sea fan
4. Gorgonia	s. Sea pen
5. Meandrina	s. Portuguese man of war

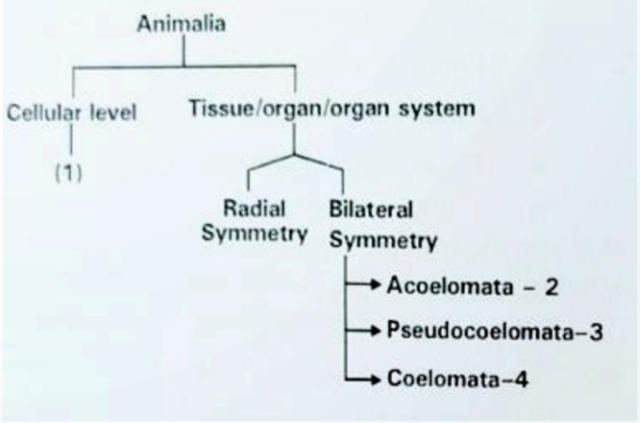
(a) 1 – t, 2 – p, 3 – s, 4 – r, 5 – q
(b) 1 – p, 2 – t, 3 – s, 4 – q, 5 – r
(c) 1 – s, 2 – p, 3 – q, 4 – r, 5 – s
(d) 1 – q, 2 – r, 3 – s, 4 – p, 5 – t

96. Polyp, medusa, mesoglea, are the features of which of the following phylums
(a) Porifera
(b) Echinodermata
(c) Ctenophora
(d) Coelenterata

97. Fertilization and development in ctenophores
(a) External with indirect development
(b) External with direct development
(c) Internal with direct development
(d) Internal with indirect development

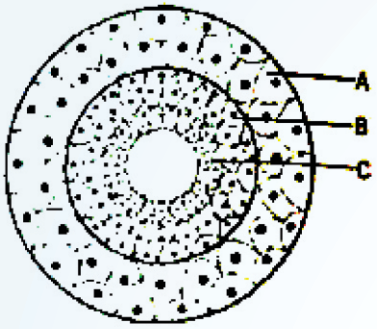
98. Exclusively marine, diploblastic animals reproducing by sexual means only are
(a) Cnidarians
(b) Coelenterates
(c) Ctenophorans
(d) Echinoderms

99. What are (1) – (4) respectively



(a) Protozoans, Flatworms, Roundworms, Annelids
(b) Porifera, Roundworms, Flatworms, Chordates
(c) Porifera, Flatworms, Roundworms, Chordates
(d) Porifera, Roundworms, Flatworms, Arthropods

100. What is true about the layer 'B'?



(a) In triploblastic animals, mesoglea takes the place of 'B'.
(b) Notochord is derived from it
(c) It surrounds the body cavity entirely aschelminthes
(d) A body cavity lined by 'B' is called pseudocoelom

Answer Key

1	d	21	a	41	c	61	a	81	c
2	c	22	c	42	c	62	a	82	c
2	c	23	b	43	c	63	c	83	a
4	c	24	c	44	d	64	d	84	c
5	b	25	a	45	b	65	b	85	a
6	c	26	a	46	c	66	a	86	d
7	b	27	b	47	d	67	c	87	a
8	b	28	a	48	d	68	a	88	a
9	b	29	c	49	d	69	c	89	a
10	c	30	d	50	d	70	c	90	c
11	a	31	a	51	c	71	b	91	c
12	c	32	d	52	a	72	d	92	c
13	d	33	d	53	b	73	b	93	b
14	a	34	c	54	a	74	c	94	c
15	c	35	b	55	c	75	c	95	a
16	d	36	c	56	c	76	a	96	d
17	d	37	a	57	b	77	d	97	a
18	d	38	a	58	c	78	b	98	c
19	d	39	a	59	c	79	c	99	b
20	d	40	a	60	a	80	a	100	b