



**P-STAR 2024**

**Pinnacle** Talent Quest Exam

For 6<sup>th</sup> to 11<sup>th</sup> Class Students

**STAGE - 1 & STAGE - 2**

**Pinnacle Talent Quest Exam**

**SAMPLE TEST  
PAPER**

**Class 11<sup>th</sup> M**

**Pinnacle Techno School**



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**Gurunanak Colony, Sangrur, Punjab.**



# 6<sup>th</sup> to 11<sup>th</sup> Class Students GET READY FOR

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TALENT QUEST EXAM  
OF THE YEAR BY **PINNACLE** IS HERE!



## P-STAR 2024

**Pinnacle** Talent Quest Exam

STAGE - 1 & STAGE - 2



### Test Date

**Stage-1** 5<sup>th</sup> Nov & 3<sup>rd</sup> Dec, 2023

**Stage-2** 10<sup>th</sup> December, 2023

### Registration Details

Register Online  
at our Website

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Free Registration

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# WE ARE THE CHAMPIONS OF JEE MAIN 2023

13

Students Scored More than 99 Percentile



## EXTRAORDINARY RESULTS IN NEET



## TOP PERFORMANCES IN JEE MAINS & ADVANCE



### KVPY RESULT

### ADVANCE OLYMPIADS RESULT

### NTSE RESULT

### NMTC-2022

### IOQM-2023



### IMO-2022 RESULT



### IOS - 2022 RESULT

### NSO RESULT





# What Makes **Pinnacle** Unique?

- 1 Best Faculty Team
- 2 Hi-Tech Classrooms
- 3 Customized Study material
- 4 Personal Attention
- 5 Unlimited Doubt Sessions
- 6 Best Testing Methodology



## 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.



### Doubt Clearance 2

"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 practise 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.



### Addressing the Board Exam 4

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 regular JEE/NEET tests and the copies are graded at a 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)  $\frac{ds}{dt} = 15t^2 - 15t^4$

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

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

3.  $Y = 5 \sin 5x$

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

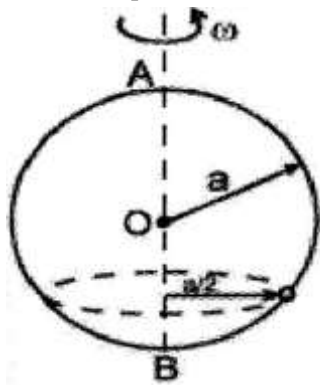
(c)  $1 D$

(d)  $2 D$

8. A smooth wire 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 as shown in figure. The bead  $P$  is at

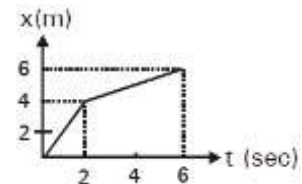
rest w.r.t. the circular ring in the position shown.

Then  $\omega^2$  is equal to:

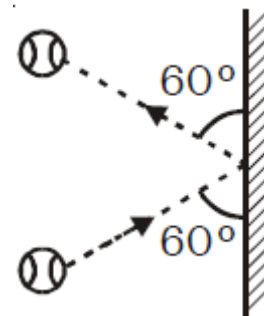


- (a)  $\frac{2g}{a}$
- (b)  $\frac{2g}{a\sqrt{3}}$
- (c)  $\frac{g\sqrt{3}}{a}$
- (d)  $\frac{2a}{g\sqrt{3}}$
9. A particle is rotated in a vertical circle by connecting it to a light rod of length  $l$  and keeping the other end of the rod fixed. The minimum speed of particle when the light rod is 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 equal
- (a)  $30^\circ$
- (b)  $135^\circ$
- (c)  $120^\circ$
- (d)  $150^\circ$
11. A block of weight  $9.8\text{ N}$  is placed on a table. The table surface exerts an upward force of  $10\text{ N}$  on the block. Assume  $g = 9.8\text{ m/s}^2$
- (a) The block exerts a force of  $10\text{ N}$  on the table

- (b) The block exerts a force of  $19.8\text{ N}$  on the table
- (c) The block exerts a force of  $9.8\text{ N}$  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  $g = 10\text{ m/s}^2$ )
- (a)  $1\text{ m/s}^2$
- (b)  $3\text{ m/s}^2$
- (c)  $4\text{ m/s}^2$
- (d)  $7\text{ m/s}^2$
13. In the figure given below, the position-time graph of a particle of mass  $0.1\text{ kg}$  is shown. The impulse at  $t = 2\text{ sec}$  is



- (a) zero
- (b)  $-0.1\text{ kg m sec}^{-1}$
- (c)  $0.15\text{ kg m sec}^{-1}$
- (d)  $-0.15\text{ kg m sec}^{-1}$
14. The equation of trajectory of a projectile is  $y = x - gx^2$ . The horizontal range of projectile is
- (a)  $0.1\text{ m}$
- (b)  $0.2\text{ m}$
- (c)  $0.01\text{ m}$
- (d)  $0.02\text{ m}$
15. A  $3\text{ kg}$  ball strikes a heavy rigid wall with a speed of  $10\text{ m/s}$  at an angle of  $60^\circ$ . It gets reflected with the same speed and angle as shown in figure. If ball is in contact with the wall for  $0.20\text{ sec}$ , what is average force exerted on ball by the wall?



- (a)  $150\text{ N}$
- (b) Zero
- (c)  $150\sqrt{3}\text{ N}$
- (d)  $300\text{ N}$

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)  $(-\frac{4}{3}, \frac{5}{3})$   
 (c)  $(\frac{5}{3}, -\frac{4}{3})$   
 (d)  $(\frac{4}{3}, -\frac{5}{3})$

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)  $\frac{5}{9}$   
 (b)  $\frac{7}{18}$   
 (c)  $\frac{11}{18}$   
 (d)  $\frac{13}{18}$

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)  $\frac{1}{+1}$   
 (b)  $\frac{+1}{+1}$   
 (c)  $\frac{1}{+1}$   
 (d)

19. Three point masses A, B & C of masses 3 kg, 4 kg & 5 kg are arranged to form an isosceles right angled triangle of side lengths 3m, 4m & 5m. In  $\Delta$ ,  $\angle$  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.

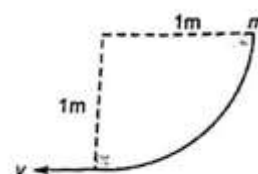
(a) (-4, -3)  
 (b) (-3, -4)  
 (c)  $(-2, -\frac{4}{3})$   
 (d)  $(-\frac{4}{3}, -2)$

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  $v = 2 \text{ ms}^{-1}$ . 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

$\frac{W_A}{W_B} = \frac{1}{2}$

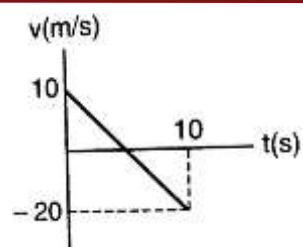
(d) All the above

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:





(d)  $-400 \text{ J}$

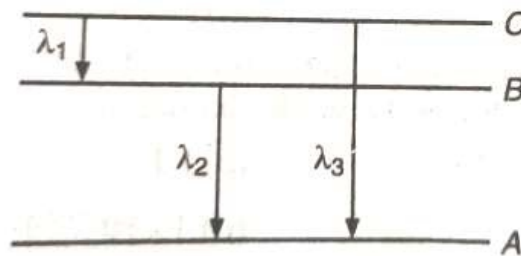
- (a)  $300 \text{ J}$
- (b)  $-300 \text{ J}$
- (c)  $400 \text{ J}$



## 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  $\text{BaCl}_2$  on reaction with 9.8 gm of  $\text{H}_2\text{SO}_4$  will produce 7.3 gm of HCl and  $\text{BaSO}_4$  equal to – (in gm)
- 23.3
  - 30.6
  - 37.9
  - None of these
27. The percentage of nitrogen in urea ( $\text{NH}_2\text{CONH}_2$ ) is about –
- 49.9
  - 46.6
  - 56.8
  - 23.3
28. Insulin contains 3.4 % sulphur by mass. What will be the minimum molecular weight of insulin
- 941.17
  - 823.27
  - 623.17
  - 523.27
29. Law of constant composition was given by
- Dalton
  - Lavoisier
  - Proust
  - Johnson
30. Law of conservation of mass is not applicable for
- Acid –base reactions
  - Catalytic oxidations
  - Reduction reactions
  - 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:
- $4v$
  - $16v$
  - $v/4$
  - $v/16$
32. The first emission line of Balmer series for H – spectrum has the wave no. equal to:
- $\frac{9}{400} - 1$
  - $\frac{7}{144} - 1$
  - $\frac{3}{4} - 1$
  - $\frac{5}{36} - 1$
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:
- 1911 nm
  - 912 nm
  - 68 nm
  - 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:
- 1:4
  - 4:1
  - 1:8
  - 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  $\lambda_1$ ,  $\lambda_2$ , and  $\lambda_3$  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?



- $\lambda_3 = \lambda_1 + \lambda_2$
  - $\lambda_3 = \frac{\lambda_1 \lambda_2}{\lambda_1 + \lambda_2}$
  - $\frac{1}{\lambda_1} + \frac{1}{\lambda_2} + \frac{1}{\lambda_3} = 0$
  - $\frac{2}{\lambda_3} = \frac{2}{\lambda_1} + \frac{2}{\lambda_2}$
36. The family of elements with the highest ionization enthalpy:
- Alkaline earth metals
  - Halogens
  - Noble gases
  - Alkali metals
37. The penetration of the electrons in any principal shell varies as:
- $s > p > d > f$
  - $s < p < d < f$
  - $s > p < d > f$



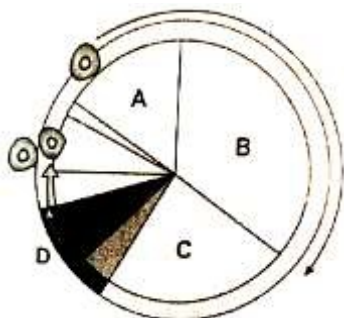
- (d)  $s < p > d > f$
38. Identify the wrong statement in the following:
- Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius.
  - Amongst isoelectronic species, greater the negative charge on the anion, larger is the ionic radius.
  - Atomic radius of the elements increases as one move down the first group of the periodic table.
  - Atomic radius of the elements decreases as one moves across from left to right in the 2<sup>nd</sup> period of the periodic table.
39. Among Mg,  $Mg^{2+}$ , Al and  $Al^{3+}$  which will have the largest and the smallest size respectively?
- Mg,  $Al^{3+}$
  - $Al^{3+}$ , Mg
  - $Mg^{2+}$ , Al
  - Al,  $Mg^{2+}$
40. The group of elements in which the differentiating electron enters the antepenultimate shell of atoms are called
- f-block elements
  - p-block elements
  - s-block elements
  - d-block elements
41. The bond angles in molecules  $H_2O$ ,  $NH_3$ ,  $CH_4$  and  $CO_2$  are in the order:
- $H_2O > NH_3 > CH_4 > CO_2$
  - $H_2O < NH_3 < CO_2 < CH_4$
  - $H_2O < NH_3 < CH_4 < CO_2$
  - $H_2O > NH_3 < CH_4 > CO_2$
42. Which of the following molecules is not an exception to octet rule?
- $BF_3$
  - $PF_5$
  - $CO_2$
  - $IF_7$
43. Ratio of  $\pi$  to  $\sigma$  bonds in benzene is
- 1 : 2
  - 1 : 6
  - 1 : 4
  - 1 : 1
44. In an octahedral structure, the pair of d-orbitals involved in  $d^2sp^3$  hybridisation is?
- $d_{xy}, d_{yz}$
  - $d_{xz}, d_{yz}$
  - $d_{xy}, d_{yz}$
  - $d_{xy}, d_{yz}$
45. Formal charge on two O atoms in
- 1, +1
  - 1, 0
  - 0, +1
  - 1, -1
46. At lower temperatures, all gases except  $H_2$  and He show:
- Negative deviation
  - Positive deviation
  - Positive and negative deviation
  - None of these
47. The condition of SATP refers for:
- 25°C and 2 atm
  - 25°C and 1 atm
  - 0°C and 2 atm
  - 25°C and 1 bar
48. In the gas equation  $PV = nRT$  the value of universal gas constant depends upon:
- The nature of the gas
  - The pressure of the gas
  - The temperature of the gas
  - The units of measurement
49. When gases are heated from 20°C to 40°C at constant pressure, then the volume:
- Increase by the same magnitude
  - Become double
  - Increase in the ratio of their molecular masses
  - 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:
- Equal to the atmospheric pressure
  - Equal to the vapour pressure of oxygen at that temperature
  - Equal to atmospheric pressure plus aqueous tension at that temperature
  - 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)  $n \rightarrow 2n$   
 (b)  $2n \rightarrow n$   
 (c)  $2n \rightarrow 4n$   
 (d)  $4n \rightarrow 2n$

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 1<sup>st</sup> and 3<sup>rd</sup> 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 depolymerising. 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
- Twice the number of chromosomes and four times the amount of DNA
  - Four times the number of chromosomes and twice the amount of DNA
  - Twice the number of chromosomes and twice the amount of DNA
  - Same number of chromosomes and twice the amount of DNA
61. Bacterial blight of rice is caused due to
- Xanthomonas oryzae*
  - Pseudomonas falcatum*
  - Helminthosporium oryzae*
  - Xanthomonas falcatum*
62. Which of the following is osmotically inactive?
- Mycoplasma*
  - Nostoc*
  - Bacteria*
  - All of these
63. Smallest bacteria is
- Bacillus*
  - Spirillum*
  - Dialister*
  - None of these
64. Which of the following is *Xanthomonas* related?
- A kind of Virus
  - Causing disease in *Xanthium*
  - Xanthophyceae*
  - Causing Citrus canker disease
65. Pili in bacteria represent
- Small flagella
  - Protoplasmic outgrowths of donor cells
  - Extra – chromosomal genetic element
  - Special bacteria cilia
66. In bacteria, sexual conjugation is promoted by
- Both b & c
  - R – factor
  - Col – factor
  - None of these
67. Which of the following are intermediate between viruses and bacteria?
- Spirilla*
  - Variola*
  - Mycoplasma*
  - Virons
68. *Mycoplasma* is
- Gram negative
  - Some species are gram positive
  - Gram positive
  - None of these
69. Organisms which have cells but no distinct nucleus
- Bacteria
  - Cyanobacteria
  - Both of these
  - None of these
70. What are episomes?
- Hereditary DNA of bacterial cell
  - Modification of the cell membrane performing respiration
  - Extrachromosomal hereditary material of bacteria associated with nucleoid
  - None of these
71. All living organisms share the following features except that they
- are formed of protoplasm
  - can prepare food
  - respire
  - can do metabolism
72. Term Systematics was coined by Linnaeus for his book *Systema Naturae*. It now includes
- Identification, Nomenclature, Classification
  - Relationships among organisms
  - Diversity of organisms
  - All of these
73. Identify correct sequence of taxa in Linnaean hierarchy
- Class, family, species, genus, order
  - Species, genus, family, order, class
  - Phylum, class, family, species, order
  - Species, genus phylum, family, class
74. Which chemical is used in herbarium for poisoning?
- FAA
  - DDT
  - 0.1%  $H_8Cl_2$
  - EDTA
75. “Carolus Linnaeus system” is an artificial system because
- It is based on evolutionary trends
  - It is based on number sexual of characters only
  - It is based on a few characters of superficial similarities and dissimilarities on morphology
  - It is phylogenetic
76. Autotrophs belongs to kingdoms
- Monera, Protista and Metaphyta
  - 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. Multicellular & 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 form 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. <i>Euplectella</i> | p. bath sponge         |
| 2. <i>Spongilla</i>   | q. fresh water sponge  |
| 3. <i>Cliona</i>      | r. Venus flower basket |
| 4. <i>Euspongia</i>   | 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.





- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>(a) Protozoans, Flatworms, Roundworms, Annelids</li><li>(b) Porifera, Roundworms, Flatworms, Chordates</li><li>(c) Porifera, Flatworms, Roundworms, Chordates</li><li>(d) Porifera, Roundworms, Flatworms, Arthropods</li></ul> <p>100. What is true about the layer 'B'?</p> | <ul style="list-style-type: none"><li>(a) In triploblastic animals, mesoglea takes the place of 'B'.</li><li>(b) Notochord is derived from it</li><li>(c) It surrounds the body cavity entirely aschelminthes</li><li>(d) A body cavity lined by 'B' is called pseudocoelom</li></ul> |
|---|---|

SPACE FOR ROUGH WORK

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## 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