MENTORS EDUSERV TALENT REWARD EXAM (METRE)

SAMPLE TEST PAPER

[For Students presently in Class 11 going to Class 12 in 2021]

[STREAM: MEDICAL]

Time : 2 hours **Maximum Marks: 480**

DO NOT BREAK THE SEALS ON THIS BOOKLET, AWAIT INSTRUCTIONS FROM THE INVIGILATOR.

SEAL

INSTRUCTIONS

[A] General :

1. This Question paper contains **THREE** Parts, **A to C** (Physics, Chemistry and Biology).
2. This Question Paper contains **16 pages** including cover page**.**
3. This question paper contains total **120 questions** (**30** questions each in Physics & Chemistry and **60** questions in Biology).
4. The Question Paper has blank spaces at the bottom of each page for rough work.No additional sheets will be provided for rough work.
5. Blank papers, clip boards, log tables, slide rule, calculators, cellular phones, pagers and electronic gadgets, in any form, are **NOT** allowed.
6. The **OMR** (Optical Mark Recognition) sheet shall be provided separately.

[B] Answering on the OMR:

7. Each question will have **4 choices** in both the Sections, out of which **only one choice is correct**.
8. Darken the bubble with **Ball Pen (Blue or Black) ONLY.**

[C] Filling – in Name and Registration No.

9. On the **OMR sheet**, write your Name and Registration No. in ink. Also, put your signature in the appropriate box in ink.

[D] Marking Scheme:

10. For each question in you will be awarded **4 marks** if you darken the bubble corresponding to the correct answer **ONLY** and **zero (0) marks** if no bubble is darkened. In all other cases, **minus one (–1) mark** will be awarded.

Name :.....

Registration No.: | | | | | | | | | | | | | | |

PART-A : PHYSICS

1. From the top of a tower, a particle is thrown vertically downwards with a velocity of 10 m/s. The ratio of the distances, covered by it in the 3rd and 2nd seconds of the motion is (Take $g = 10 m/s^2$)

(A) 5 : 7 (B) 7 : 5 (C) 3 : 6 (D) 6 : 3

2. If a ball is thrown vertically upwards with speed u, the distance covered during the last seconds of its ascent is

(A) $\frac{1}{2}gt^2$ (B) $ut - \frac{1}{2}gt^2$ (C) $(u - gt)t$ (D) ut

3. The displacement time graph for the two particles A and B are straight lines inclined at angle of 30° and 60° with the time-axis. The ratio of the velocities will be

(A) 1 : 2 (B) $1:\sqrt{3}$ (C) $\sqrt{3}:1$ (D) 1 : 3

4. Which of the following changes when a particle is moving with uniform velocity

(A) Speed (B) Velocity (C) Acceleration (D) Position vector

5. A man measures time period of a pendulum (T) in stationary lift. If the lift moves upward with acceleration $\frac{g}{4}$, then new time period will be

(A) $\frac{2T}{\sqrt{5}}$ (B) $\frac{\sqrt{5}T}{2}$ (C) $\frac{\sqrt{5}}{2T}$ (D) $\frac{2}{\sqrt{5}T}$

6. n small balls each of mass 'm' impinge elastically each second on a surface with velocity u. The force experienced by the surface will be

(A) mnu (B) 2 mnu (C) 4 mnu (D) $\frac{1}{2}$mnu

7. A smooth inclined plane, of length L having inclination θ with the horizontal is inside a lift which is moving down with retardation 'a'. The time taken by a body to slide down the inclined plane, from rest will be

(A) $\sqrt{2L/a\sin\theta}$ (B) $\sqrt{2L/g\sin\theta}$

(C) $\sqrt{2L/(g-a)\sin\theta}$ (D) $\sqrt{2L/(g+a)\sin\theta}$

8. An empty plastic box of mass *m* is found to accelerate up at the rate of $g/6$ when placed deep inside water. How much sand should be put inside the box so that it may accelerate down at the rate of $g/6$?

(A) $\frac{m}{5}$ (B) $\frac{2m}{5}$ (C) $\frac{3m}{5}$ (D) $\frac{4m}{5}$

9. At the top of the trajectory of a projectile, the directions of its velocity and acceleration are

(A) Perpendicular to each other (B) Parallel to each other

(C) Inclined to each other at an angle of (D) Antiparallel to each other

10. A cricketer hits a ball with a velocity 25 m/s at 60° above the horizontal. How far above the ground it passes over a fielder 50 m from the bat (assume the ball is struck very close to the ground)

(A) 8.2 m (B) 9.0 m (C) 11.6 m (D) none of these

11. A body of mass m is projected at an angle of 45° with the horizontal. If air resistance is negligible, then total change in momentum when it strikes the ground is

(A) 2 mv (B) $\sqrt{2}$ mv (C) mv (D) $mv/\sqrt{2}$

12. If a body A of mass M is thrown with velocity V at an angle of 30° to the horizontal and another body B of the same mass is thrown with the same speed at an angle of 60° to the horizontal. The ratio of horizontal range of A to B will be

(A) 1 : 3 (B) 1 : 1 (C) $1:\sqrt{3}$ (D) $\sqrt{3}:1$

13. Dimensional formula for torque is

(A) L^2MT^{-2} (B) $L^{-1}MT^{-2}$ (C) L^2MT^{-3} (D) LMT^{-2}

14. The potential energy of a particle varies with distance x from a fixed origin as $U=\frac{A\sqrt{x}}{x^2+B}$, where A & B are dimensional constants then dimensional formula for AB is

(A) $ML^{7/2}T^{-2}$ (B) $ML^{11/2}T^{-2}$ (C) $M^2L^{9/2}T^{-2}$ (D) $ML^{13/2}T^{-3}$

15. The least count of a stop watch is 1/5 second. The time of 20 oscillations of a pendulum is measured to be 25 seconds. The minimum percentage error in the measurement of time will be

(A) 0.1% (B) 0.8% (C) 1.8% (D) 8%

16. A stone is thrown with an initial speed of 4.9 m/s from a bridge in vertically upward direction. It falls down in water after 2 sec. The height of the bridge is

(A) 4.9 m (B) 9.8 m (C) 19.8 m (D) 24.7 m

17. An object at rest in space suddenly explodes into three parts of same mass. The momentum of the two parts are $2P\hat{i}$ and $P\hat{j}$. The momentum of the third part.

(A) Will have a magnitude $P\sqrt{3}$ (B) Will have a magnitude $P\sqrt{5}$

(C) Will have a magnitude P (D) Will have a magnitude 2P

18. A ball of mass 0.5 kg moving a velocity of $2ms^{-1}$ strikes a wall normally and bounces back with the same speed. If the time of contact between the ball and wall is 10^{-2} s, the average force exerted by the wall on the ball is

(A) 1123 N (B) 1000 N (C) 500 N (D) 200 N

19. The angle of projection at which the horizontal and maximum height of projectile are equal is

(A) 45° (B) $\theta = \tan^{-1}(0.25)$ (C) $\theta = \tan^{-1} 4$ (D) 60°

20. The frequency of vibration f of a mass m suspended from a spring of spring constant K is given by a relation of this type $f = cm^xK^y$, where C is a dimensionaless quantity. The value of x and y are

(A) $x = \frac{1}{2}, y = \frac{1}{2}$ (B) $x = -\frac{1}{2}, y = -\frac{1}{2}$ (C) $x = \frac{1}{2}, y = -\frac{1}{2}$ (D) $x = -\frac{1}{2}, y = \frac{1}{2}$

21. A ball is dropped from top of a tower of 100 m height. Simultaneously another ball was thrown upwards from bottom of the tower with a speed of 50m/s($g = 10\ m/s^2$). they will cross each other after

(A) 1 s (B) 2 s (C) 3 s (D) 4 s

22. A car covers 1/3 distance with speed 20 km/hr and 2/3 with 60 km/hr. Average speed is

(A) 40 km/hr (B) $50\sqrt{2}$ km / hr (C) 36 km/hr (D) 80 km/hr

23. A body of mass 2 kg moving on a horizontal surface with an initial velocity of 4 m/sec comes to rest after 2 sec. If one wants to keep this body moving on the same surface with a velocity of 4 m/sec. the force required is

(A) 8 N (B) 4 N (C) Zero (D) 2 N

24. In a gravity free space, a man of mass M standing at a height h above the floor throws a stone of mass m downwards with a speed u. When the stone reaches the floor, distance of the man above the floor will be

(A) h (B) $h + \frac{mh}{M}$ (C) 2 h (D) $h - \frac{2Mh}{m}$

25. The physical quantity that has no dimensions

(A) Angular velocity (B) Linear momentum

(C) Angular momentum (D) Strain

26. The average velocity of a body moving with uniform acceleration travelling a distance of 3.06 m is 0.34 ms^{-1}. If the change in velocity of the body is 0.18 ms^{-1} during this time, its uniform acceleration is

(A) 0.01 ms^{-2} (B) 0.04 ms^{-2} (C) 0.03 ms^{-2} (D) None of these

27. A body of 5 kg is moving with a velocity of 20 m/s. If a force of 100 N is applied on it for 10 s in the same direction as its velocity, what will now be the velocity of the body.

(A) 200 m/s (B) 220 m/s (C) 240 m/s (D) 260 m/s

28. A person standing on the floor of an elevator drops a coins. The coin reaches the floor of the elevator in a time t_1 if the elevator is stationary and in time t_2 if it is moving uniformly, then

(A) $t_1 = t_2$ (B) $t_1 > t_2$ (C) $t_1 < t_2$

(D) $t_1 < t_2$ or $t_1 > t_2$ depending on whether the lift is going up or down

29. A monkey of mass 20 kg is holding a vertical rope. The rope will not break when a mass of 25 kg is suspended from it but will break if the mass exceeds 25 kg. What is the maximum acceleration with which the monkey can climb up along the rope ?

($g = 10\ ms^2$)

(A) 10 m/s^2 (B) 25 m/s^2 (C) 2.5 m/s^2 (D) 5 m/s^2

30. A cannon on a level plane is aimed at an angle above the horizontal and a shell is fired with a muzzle velocity v_0 towards a vertical cliff a distance D away. Then the height from the bottom at which the shell strikes the side walls of the cliff is

(A) $D\sin\theta - \frac{gD^2}{2v_0^2\sin^2\theta}$ (B) $D\cos\theta - \frac{gD^2}{2v_0^2\cos^2\theta}$

(C) $D\tan\theta - \frac{gD^2}{2v_0^2\cos^2\theta}$ (D) $D\tan\theta - \frac{gD^2}{2v_0^2\sin^2\theta}$

PART-B : CHEMISTRY

31. Kinetic energy of molecules is highest in -

(A) Gases (B) Solids (C) Liquids (D) Soutions

32. The temperature at which Celsius and Fahrenheit scales give the same reading is

(A) 0ºC (B) 32ºF (C) – 40ºC (D) 40ºC

33. A gas at 298 K is shifted from a vessel of 250 cm^3 capacity to that of 1L capacity. The pressure of the gas will -

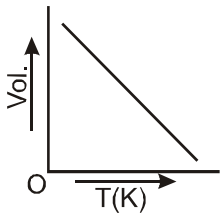
(A) become double

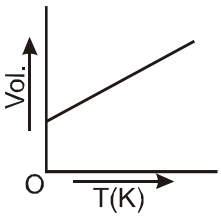
(B) becomes four times

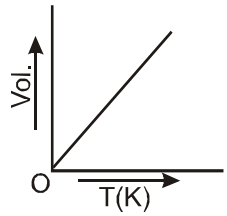
(C) decrease to half of the original value

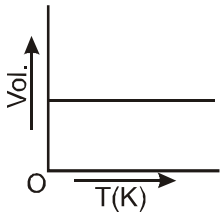
(D) decrease to one-fourth of the original value

34. The correct representation of Charles' law is given by -

(A) 

(B) 

(C) 

(D) 

35. Which of the following shows explicity the relationship between Boyle's law and Charles' law -

(A) $\frac{P_1}{P_2} = \frac{T_1}{T_2}$ (B) PV = K (C) $\frac{P_2}{P_1} = \frac{V_1}{V_2}$ (D) $\frac{V_2}{V_1} = \frac{P_1}{P_2} \times \frac{T_2}{T_1}$

36. A cylinder is filled with a gaseous mixture containing equal masses of CO and N_2. The partial pressure ratio is -

(A) $P_{N_2} = P_{CO}$ (B) $P_{CO} = 0.875\ P_{N_2}$ (C) $P_{CO = 2}\ P_{N_2}$ (D) $P_{CO} = 1/2\ P_{N_2}$

37. Which of the following gases would have the highest R.M.S. velocity at 25ºC -

(A) Oxygen (B) Carbon dioxide

(C) Sulphur dioxide (D) Carbon mono oxide

38. The value of vander Waal's constant 'a' is minimum for -

(A) helium (B) hydrogen (C) nitrogen (D) chlorine

39. Which of the following is correct decreasing order of r.m.s. velocity at same temperature for H_2, N_2, CO and O_2 -

(A) $O_2 > CO > N_2 > H_2$ (B) $H_2 > N_2 > O_2 > CO$

(C) $H_2 > N_2 > CO > O_2$ (D) $N_2 > CO > H_2 > O_2$

40. If the energy of first orbit of hydrogen atom is –1312 kJ/mole then the value of IP in KJ/mol is-

(A) + 1312 (B) –1312 (C) – 675.5 (D) + 675.5

41. How many electron filled in the orbital which have n = 3, ℓ = 2, m = 2 :–

(A) 2 (B) 10 (C) 14 (D) 6

42. Electronic configuration of Cr is $3d^5\ 4s^1$ not $3d^4\ 4s^2$, it is explain by the following :-

(A) Hund's Rule of maximum multiplicity (B) Pauli's exclusion principle

(C) Aufbau principle (D) Uncertainty principle

43. Difference of radius of third and second orbit of hydrogen atom –

(A) $5r_1$ (B) $\frac{3}{2}r_1$ (C) $\frac{2}{3}r_1$ (D) r_1

44. For $2p_x$, $2p_y$ and $2p_z$ which quantum number same are –

(A) n (B) n, ℓ (C) n, ℓ, m (D) n, ℓ, s

45. According to Neils Bohr order of energy of 3s, 3p and 3d orbital is –

(A) 3s > 3p > 3d (B) 3s < 3p < 3d (C) 3s < 3p > 3d (D) 3s = 3p = 3d

46. In which the following pairs, the two species are iso-structural -

(A) SO_3^{2-} and NO_3^- (B) BF_3 and NF_3 (C) BrO_3^- and XeO_3 (D) SF_4 and XeF_4

47. The formula of a metal oxide is Z_2O_3. IF 6 mg. of hydrogen is required for complete reduction of 0.1596 gm metal oxide, then the atomic wight of metal is -

(A) 227.9 (B) 159.6 (C) 79.8 (D) 55.8

48. The number of moles of OH^- in 0.3 litre of 0.005 M $Ba(OH)_2$ is :

(A) 0.075 (B) 0.005 (C) 0.045 (D) 0.003

49. The valume of CO_2 at STP obtained by heating 1 gm of $CaCO_3$ will be :

(A) 1 litre (B) 22.4 litres (C) 0.224 litre (D) 11.2 litre

50. The vapour density of a gas is 11.2 the volume occupied by 11.2 gm of this gas at NTP is :

(A) 1 litre (B) 11.2 litre (C) 22.4 litre (D) 20 litre

51. The significant figures in 5.23×10^5 are :

(A) 8 (B) 3 (C) 4 (D) Infinite

52. From the following the number of atoms is greater in :

(A) 4 g hydrogen (B) 71 g chlorine (C) 48 g magnisum (D) 127 g iodine

53. One mole of CO_2 contains :

(A) 6.02×10^{23} atoms of C (B) 6.02×10^{23} atoms of O

(C) 18.1×10^{23} molecules of CO_2 (D) 3 gram molecules of CO_2

54. In the periodic table, in the same group, the elements has :

(A) Same ionization potential (B) Same electronegativity

(C) Same electron affinity (D) Same no. of valence electrons

55. Which of the following statement is incorrect for an atom having electronic configuration 2, 8, 7 :

(A) It forms diatomic molecules (B) It is a non metal element

(C) Its valency is 1 (D) It forms basic oxide

56. Electronegativity is the measurement of capacity of an atom by which :

(A) Electrons get replled

(B) Electrons get attracted

(C) Point with proton

(D) Co-exist electronegativity with another atom

57. Paulling's electronegativity values of elements are useful in predicting :

(A) Polarity of the bond (B) Position in the E.M.F. series

(C) Coordination numbers (D) Dipole moments

58. The electronic configuration of four elements are given below. Which elements does not belong to the same block as others ?

(A) $[Xe]\ 4f^{14}5d^{10}6s^2$ (B) $[Kr]4d^{10}\ 5s^2$ (C) $[Ne]\ 3s^2\ 3p^5$ (D) $[Ar]3d^{10}4s^2$

59. Elements X, Y, and Z have atomic numbers 19, 37 and 55 respectively. Which of the following statements is true about them ?

(A) Their ionization potential would increase with increasing atomic number

(B) 'Y' would have an ionization potential between those of 'X' and 'Z'

(C) 'Z' would have the highest ionization potential

(D) 'Y' would have the highest ioniztion potential

60. Which one of the following ions has the smallest radius ?

(A) Cl^- (B) S^{2-} (C) K^+ (D) Ca^{2+}

PART-C : BIOLOGY

61. Growth cannot be taken as a defining property of living organisms as :

(A) It is found in all living organisms

(B) It is found in non-living things also

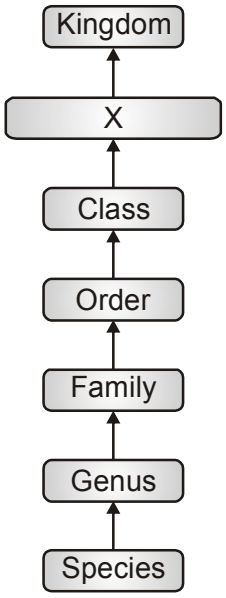
(C) All non-living things grow

(D) It is discontinuous

62. The number of species that are known and described range between :

(A) 1.7-1.8 million (B) 2.7-3 million (C) 17-18 million (D) 27-30 million

63. Observe the flow chart given below and identify X for plants :



(A) Phylum (B) Division (C) Kingdom (D) Class

64. Cats belong to _____ family whereas dogs belong to _____ family :

(A) Felidae, Canidae (B) Canidae, Felidae

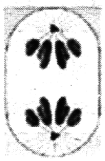
(C) Muscidae, Felidae (D) Muscidae, Canidae

65. What is axoneme in cilia/flagella ?

(A) The core of cilia (B) Peripheral tubules

(C) Radial spoke (D) Outer membrane

66. Identify the correct match from the column-I, II and III

	Column-I		Column-II		Column-III
1.	Late prophase	(A)		(i)	ER, Golgi complex disappear
2.	Anaphase	(B)		(ii)	Chromosome decondense and loose their individuality
3.	Telophase	(C)		(iii)	Longest phase of meiosis-I
4.	Prophase-I	(D)		(iv)	Splitting of centromere occur

(A) 1 – C – iv, 2 – A – iii, 3 – B – i, 4 – D – ii

(B) 1 – B – i, 2 – A – iv, 3 – D – ii, 4 – C – iii

(C) 1 – A – iii, 2 – B – iv, 3 – C – i, 4 – D – ii

(D) 1 – C – iv, 2 – A – iii, 3 – B – ii, 4 – D – i

67. The most dramatic period of the cell cycle :

(A) M-phase (B) S-phase (C) Interphase (D) Cytokinesis

68. Soyabean belong to the family …… .

(A) Lilaceae (B) Fabaceae (C) Solanaceae (D) None

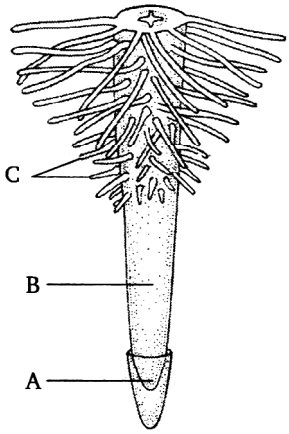
69. Crossing over occurs in which phase of meiosis ?

(A) Leptotene (B) Pachytene (C) Diplotene (D) Diakinesis

70. Which stage of cell cycle is marked by initiation of condensation of chromosomal material ?

(A) Prophase (B) Metaphase (C) G_2-phase (D) S-phase

71. Find the correct statements w.r.t. zones root marked A, B and C :

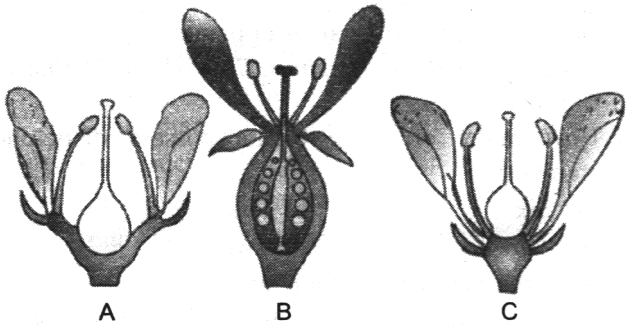


(A) Zone- A is the zone of maturation
(B) Zone-C is the zone of elongation
(C) Zone-B helps in abundant water absorption
(D) Zone-A have cells with high surface area : volume ratio relative to cells of other zones

72. In some plants like grass, Monstera and banyan tree, roots arise from parts other than the radical and are called :
(A) Tertiary root (B) Secondary roots (C) Tap roots (D) Adventitious roots

73. A well developed tap root system is seen in :
(A) *Zea mays* (B) *Musa* (C) *Brassica* (D) *Avena sativa*

74. Identify the correct option :



(A) A = This type of flower is hypogynous
B = This type of flower is seen in mustard
C = This type of flower is with inferior ovary
(B) A = This type of flower is seen in plum, rose and peach
B = This is epigynous flower with inferior ovary
C = In this type of flower gynoecium occupies the highest position
(C) A = This type of flower is seen in plum, rose and peach
B = This is epigynous flower with superior ovary
C = In this type of flower gynoecium occupies the highest position
(D) A = This type of flower is perigynous
B = This type of flower is epigynous
C = This type of flower possess inferior ovary

75. In which of the following types of phyllotaxy a pair of leave arise at each node :

(A) Opposite (B) Alternate

(C) Whorled (D) More than one option is correct

76. Which of the following is correct for the floral diagram given below :

(A) It is found in lady's finger and cotton plant

(B) It is found in Cassia and gulmohar which also posses asymmetric flowers

(C) It is found china rose

(D) None of these

77. Endospermic seeds are found in :

(A) Castor (B) Maize

(C) Beans (D) More than one options is correct

78. Observe the floral formula given below :

$\%\,\male\,K_{(5)}C_{1+2+(2)}A_{(9)+1}\underline{G_1}$

Identify the plants which possess the above floral formula :

(A) *Lupinus, Pisum* (B) *Solanum, Tabacum*

(C) *Lilium, Aloe* (D) *Brassica, Solanum*

79. $\oplus\,\male\,K_{(5)}\overset{\frown}{C_{(5)}A_5}\underline{G_{(2)}}$ is floral formula of

(A) Petunia (B) Brassica (C) Allium (D) Sesbania

80. Keel is the characteristic feature of flower of

(A) Aloe (B) Tomato (C) Tulip (D) Indigofera

81. Match column-I with column-II and choose the correct combination from the options given below.

Column-I (Position of floral parts on thalamus)	**Column-II (Represented in)**
A. Hypogynous	I. Ray florets of sunflower
B. Perigynous	II. Brinjal
C. Epigynous	III. Peach

(A) A – II, B-I, C-III (B) A-I, B-II, C-III

(C) A-III, B-II, C-I (D) A-II, B-III, C-I

82. Match the column-I containing types of *aestivation* with their examples given in column-II and choose the correct option.

Column-I (Types of aestivation)	**Column-II (Examples)**
A. Valvate	I. Cotton
B. Twisted	II. *Calotropis*
C. Imbricate	III. Bean
D. Vexillary	IV. Gulmohar

(A) A-I; B-II; C-IV; D-III (B) A-II; B-I; C-IV; D-III
(C) A-II; B-IV; C-I; D-III (D) A-II; B-I; C-III; D-IV

83. Which one of the following have vessels as their characteristic feature ?
(A) Angiosperms (B) Gymnosperms (C) Pteridophytes (D) Bryophytes

84. In stems, the protoxylem lies towards the _____ and the metaxylem lies towards the _____ of the organ.
(A) Centre; periphery (B) Periphery; centre
(C) Periphery; periphery (D) Centre; centre

85. Match column-I with column-II and chose the correct option.

Column-I	**Column-II**
A. Bulliform cells	I. Initiation of lateral roots
B. Pericycle	II. Root
C. Endarch xylem	III. Grasses
D. Exarch xylem	IV. Dicot leaf
E. Bundle sheath cells	V. Stem

(A) A – III, B – V, C – IV, D – I, E – II (B) A – II, B – V, C – I, D – III, E – IV
(C) A – II, B – IV, C – I, D – III, E – V (D) A – III, B – I, C – V, D – II, E – IV

86. Match the terms given in column I with their function given in column II and choose the correct option.

Column-I (Term)	**Column-II (Fucntions)**
A. Meristem	I. Photosynthesis, storage
B. Parenchyma	II. Mechanical support
C. Collenchyma	III. Actively dividing cells
D. Sclerenchyma	IV. Stomata
E. Epidermal tissue	V. Sclereids

(A) A – I, B – III, C – V, D – II, E - IV (B) A – III, B – I, C – II, D – V, E – IV
(C) A – II, B – IV, C – V, D – I, E – III (D) A – V, B – IV, C – III, D – II, E – I

87. Which anatomy of plants is being described by the statements given below

(i) The cortex consists of several layers of thin-walled parenchyma cells with intercellular spaces.

(ii) The tangential as well as radial walls of the endodermal cells have a deposition of water-impermeable, waxy material-suberin-in form of casparian strips.

(iii) Secondary growth takes place.

(iv) Pith is small or inconspicuous.

(A) Dicotyledonous root (B) Monocotyledonous root

(C) Dicotyledonous stem (D) Monocotyledonous stem

88. Cork is formed from

(A) Phellogen (B) Vascular cambium

(C) Phloem (D) Xylem

89. The _____ occurs in layers below the epidermis in dicotyledonous plants.

(A) Parenchyma (B) Sclerenchyma (C) Collenchyma (D) Aerenchyma

90. During the formation of leaves and elongation of stem, some cells 'left behind' from the shoot apical meristem, constitute the

(A) Lateral meristem (B) Axillary bud

(C) Cork cambium (D) Fascicular cambium

91. When the circulatory system lacks arteries, veins and capillaries, it is called as

(A) closed type (B) mixed type

(C) in appropriate information (D) open type

92. Epithelial tissue origined from :-

(A) Ectoderm (B) Endoderm (C) Mesoderm (D) All of above

93. Which of the following is a saturated fatty acid ?

(A) Oleic acid (B) Linoleic acid (C) Arachidonic acid (D) Palmitic acid

94. The type of symmetry belongs to animals is

(A) transverse symmetry (B) lateral symmetry

(C) bilateral symmetry (D) oblique symmetry

95. Study the given statements and select the correct option

(i) Carbohydrates, proteins, nucleic acids and lipids are primary metabolites

(ii) Alkloids, flavonoids, rubber, etc are secondary metabolites

(iii) Linoleic, linolenic and plmitic acids are the three essential fatty acids

(A) Statemetns (i) and (ii) are correct (B) Statemetns (i) and (iii) are incorrect

(C) Statemetns (i) and (iii) are correct (D) Only statement (ii) is incorrect

96. Consider the following statements concerning epithelial tissues

a. These tissues have a free surface, which face either a body fluid or the outside environment

b. It provides a covering or a lining for some part of the body

c. They have least regenerating power

d. Without exception all epithelial tissue rest on basement membrane

Which of the above two statements are correct?

(A) a & b (B) b & c (C) c & d (D) a & d

97. Higher phylum like echinoderms are

(A) triploblastic animals (B) quadroblastic animals

(C) diploblastic animals (D) uniblastic animals

98. Phospholipids are :

(A) amphipathic (B) amphibolic (C) hydrophobic (D) none of these

99. Which of the following function is not performed by simple epithelial tissues?

(A) They protect the underlying tissues from mechanical injuries mainly

(B) Germinal layer of gonads produce gametes

(C) They help in gaseous exchange

(D) Some epithelial cells get specialised for secretion

100. The notochord is derived from which of the following layers ?

(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Placoderm

101. Lysine is an essential amino acid as it is :

(A) not formed in the body and has to be provided in diet

(B) important constituent of all proteins

(C) with high nutritive value

(D) very rare

102. Find out the correct match

Column-I	**Column-II**
a. Sweat gland	(i) Compound saccular gland
b. Submandibular gland	(ii) Simple branched saccular gland
c. Parotid gland	(iii) Simple coiled tubular gland
d. Sebaceous gland	(iv) Compound tubular alveolar gland

(A) a $\rightarrow$ (iii), b $\rightarrow$ (i), c $\rightarrow$ (iv), d $\rightarrow$ (ii) (B) a $\rightarrow$ (i), b $\rightarrow$ (iii), c $\rightarrow$ (ii), d $\rightarrow$ (iv)

(C) a $\rightarrow$ (iv), b $\rightarrow$ (ii), c $\rightarrow$ (iii), d $\rightarrow$ (i) (D) a $\rightarrow$ (ii), b $\rightarrow$ (iv), c $\rightarrow$ (i), d $\rightarrow$ (iii)

103. Some of the statements are given below.

I. Porifera to Echinodermata lack a notochord.

II. Platyhelminthes display tissue level organisation.

III. Mesoglea is present in coelenterates during development.

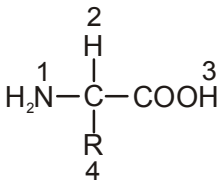
IV. Aschelminthes are coelomates.

Choose the correct options.

(A) I, II, and IV are true (B) I and II are true

(C) I and III are true (D) II and III are true

104. An amino acid has the following structure :



Which two group combine to form the peptide linkeage ?

(A) 1-3 (B) 2-3 (C) 1-4 (D) 1-2

105. Which of the following is correct about myoepithelium?

a. Cells contain actin and myosin filaments

b. It serves to expel secretion

c. Arises from the mesoderm

d. Helps in secretion of gastric glands

(A) a & b (B) b & c (C) c & d (D) a & d

106. Triploblastic, unsegmented, acoelomate exhibiting bilateral symmetry and reproducing both asexually and sexually, with some parasitic forms. The above description is the characteristic of phylum

(A) Platyhelminthes (B) Ctenophora

(C) Cnidaria (D) Porifera

107. Study the given statements and select the correct option

(i) Carbohydrates, proteins, nucleic acids and lipids are primary metabolites

(ii) Alkloids, flavonoids, rubber, etc are secondary metabolites

(iii) Linoleic, linolenic and palmitic acids are the three essential fatty acids

(A) Statemetns (i) and (ii) are correct (B) Statemetns (i) and (iii) are incorrect

(C) Statemetns (i) and (iii) are correct (D) Only statement (ii) is incorrect

108. Consider the following statement regarding white adipose tissue

a. It is characterised by a single large droplet of fat in the cytoplasm of its cells

b. Cells contain many mitochondria

c. It is found in new born baby and hibernating mammals

d. It cannot be a substitute of food

Which of the above statement is correct?

(A) a & b (B) b & c (C) b, c & d (D) Only a

109. Fill in the blanks with the correct options.

I. .....A.....have cellular level of organisation.

II. Coelom is not seen in .....B.....

III. Radial symmetry is seen in phylum–Coelenterata, Ctenophora and .....C.....

IV. Notochord is lacking in .....D.....

V. .....E.....are bilaterally symmetrical.

Here A to E refers to

(A) A–Platyhelminthes, B–Echinodermata, C–Arthropoda, D–Mollusca, E–Porifera

(B) A–Porifera, B–Platyhelminthes, C–Echinodermata, D–Mollusca, E–Arthropoda

(C) A–Porifera, B–Echinodermata, C–Mollusca, D–Arthropoda, E–Platyhelminthes

(D) A–Echinodermata, B–Arthropoda, C–Platyhelminthes, D–Mollusca, E–Porifera

110. The component present in both nucleotides and nucleosides is

(A) Sugar (B) Phosphate

(C) Nitrogenous base (D) Both (A) and (C)

111. Which one is correct ?

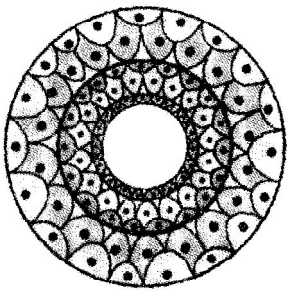
(A) Blood = plasma + RBC + WBC + blood platelets

(B) Neuron = cyton + dendrite + axon + synapse

(C) Plasma = blood – lymphocytes

(D) Lymph = plasma + RBC + WBC

112. Body cavity of which of the following phyla is represented in diagram :



(A) Coelenterata (B) Platyhelminthes (C) Annelida (D) Aschelminthes

113. Saturated fatty acids possess _____ bonds between carbon atoms and are _____ at room ttemperataure

(A) Single, solids (B) Double, solids

(C) Single, liquids (D) Double, liquids

114. Match the types of WBC listed in Column I with shape of nucleus given under Column II. Choose the answer which gives the correct combination of alphabets of the two columns :

Column I (Types of WBC)	**Column II (Shape of nucleus)**
A. Neutrophils	p. Kidney–shaped
B. Eosinophils	q. S–shaped
C. Basophils	r. 3 to 5 lobes
D. Monocytes	s. 2 lobes
	t. Disc–shaped

(A) A $\rightarrow$ r, B $\rightarrow$ s, C $\rightarrow$ q, D $\rightarrow$ p

(B) A $\rightarrow$ r, B $\rightarrow$ t, C $\rightarrow$ p, D $\rightarrow$ q

(C) A $\rightarrow$ t, B $\rightarrow$ r, C $\rightarrow$ q, D $\rightarrow$ s

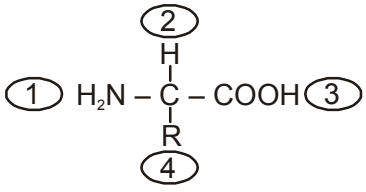
(D) A $\rightarrow$ q, B $\rightarrow$ p, C $\rightarrow$ t, D $\rightarrow$ r

115. Ctenophora taxonomically more or less resemble the

(A) Porifera (B) Coelenterata

(C) Platyhelminthes (D) Nematoda

116. Which of the two groups of the given formula is involved in peptide bond formation between different amino acids ?



(A) 2 and 3 (B) 1 and 3 (C) 1 and 4 (D) 2 and 4

117. Myelin sheath is derived from :

(A) Neuroglial cells (B) Schwann cells

(C) Nerve cells (D) Both (A) & (B)

118. Choose the correct one for sponges ?

(A) Are highly regenerative

(B) Are universally radially symmetrical

(C) Contain calcareous spicules but lack the siliceous ones

(D) They are found only in freshwater

119. Areolar connective tissue joins

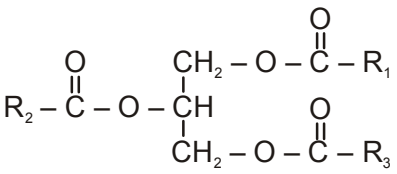
(A) Bones with bones

(B) Fat body with muscles

(C) Integument with muscles

(D) Bones with muscles

120. Given molecular formula belongs to which of the following groups of biomolecules ?



(A) Carbohydrates

(B) Proteins

(C) Nucleic acid

(D) Triglycerides

MENTORS EDUSERV TALENT REWARD EXAM (METRE)

SAMPLE TEST PAPER

[For Students presently in Class 11 going to Class 12 in 2021]

[STREAM: MEDICAL]

PHYSICS

1.	(B)	2.	(A)	3.	(D)	4.	(D)	5.	(A)
6.	(B)	7.	(D)	8.	(B)	9.	(A)	10.	(D)
11.	(B)	12.	(B)	13.	(A)	14.	(B)	15.	(B)
16.	(B)	17.	(B)	18.	(D)	19.	(C)	20.	(D)
21.	(B)	22.	(C)	23.	(B)	24.	(B)	25.	(D)
26.	(D)	27.	(B)	28.	(A)	29.	(C)	30.	(C)

CHEMISTRY

31.	(A)	32.	(C)	33.	(D)	34.	(C)	35.	(D)
36.	(A)	37.	(D)	38.	(A)	39.	(C)	40.	(A)
41.	(A)	42.	(C)	43.	(A)	44.	(B)	45.	(D)
46.	(C)	47.	(D)	48.	(D)	49.	(C)	50.	(B)
51.	(B)	52.	(A)	53.	(A)	54.	(D)	55.	(D)
56.	(B)	57.	(A)	58.	(C)	59.	(B)	60.	(D)

BIOLOGY

61.	(B)	62.	(A)	63.	(B)	64.	(A)	65.	(A)
66.	(B)	67.	(A)	68.	(B)	69.	(B)	70.	(A)
71.	(D)	72.	(D)	73.	(C)	74.	(B)	75.	(A)
76.	(D)	77.	(D)	78.	(A)	79.	(A)	80.	(D)
81.	(D)	82.	(B)	83.	(A)	84.	(A)	85.	(D)
86.	(B)	87.	(A)	88.	(A)	89.	(C)	90.	(B)
91.	(D)	92.	(D)	93.	(D)	94.	(C)	95.	(A)
96.	(A)	97.	(A)	98.	(A)	99.	(A)	100.	(B)
101.	(A)	102.	(A)	103.	(C)	104.	(A)	105.	(A)
106.	(A)	107.	(A)	108.	(D)	109.	(B)	110.	(D)
111.	(A)	112.	(B)	113.	(A)	114.	(A)	115.	(B)
116.	(B)	117.	(D)	118.	(A)	119.	(C)	120.	(D)