हिन्दुस्तान मार्गदर्शन स्कॉलरशिप प्रोग्राम 2017-18

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Margdarshan

for JEE (Main & Advanced), NTSE, KVPY, Olympiad

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HINDUSTAN MARGDARSHAN SCHOLARSHIP TEST-2017-18

SAMPLE PAPER

FOR

CLASS 11th (Moving to 12th), [MEDICAL]

INSTRUCTIONS

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.
You are not allowed to leave the examination hall before the end of the test.

[A] General :

1. Attempt ALL the questions. Answer have to be marked on the **OMR** sheets
2. This question paper contains **180 questions**.
3. The question paper consists of **THREE Parts Physics, Chemistry & Mathematics**
4. Blank spaces are provided at the bottom of each page for rough work. No additional sheets will be provided for rough work.
5. Blank paper, clipboard, log tabes, silde rules, calculators, cellular phones, pagers and electronic gadgets in any form are **NOT** allowed.
6. Do not Tamper / multilate the **OMR sheet** or this booklet.
7. Do not break the seals of the question-paper booklet before instructed to do so by the invigilator.
8. SUBMIT the OMR sheet to the invigilator after completing the test & take away the test paper with you.

[B] Filling of OMR Sheet :

9. In all the parts, each question will have 4 choices out of which **only one choice is correct**
10. Use only Black/Blue ball point pen for filling the OMR sheet.
11. On the OMR sheet, darken the appropriate bubble for each character of your name, Registration No., Phone No. etc.

[C] Marking Scheme :

12. For each right answer you will be **awarded 4 marks** if you darken the bubble corresponding to the corrrect answer and **zero marks** if no bubble is darkened. In case of bubbling of incorrect answer, **minus one (-1)** mark will be awarded.

(PHYSICS)

1. The position vector of a particle is given as $\vec{r} = (t^2 - 4t + 6)\hat{i} + (t^2)\hat{j}$. The time after which the velocity vector and acceleration vector becomes perpendicular to each other is equal to :-

(A) 1 sec (B) 2 sec (C) 1.5 sec (D) Not possible

2. The acceleration of a particle moving in a straight line varies with its displacement as, a = 2s. velocity of the particle zero at zero displacement. Then velocity displacement equation :-

(A) $v = s\sqrt{2}$ (B) $v = s^2$ (C) $v^2 = s$ (D) None of these

3. A particle is projected from a point P with a velocity v at an angle θ with horizontal. At a certain point Q it moves at right angle to its initial direction. Then :-

(1) Velocity of particle at Q is v sin θ (2) Velocity of particle at Q is v cot θ

(3) Time of flight from P to Q is $\frac{v}{g}$ cosec θ (4) Time of flight from P to Q is $\frac{v}{g}$ sec θ

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

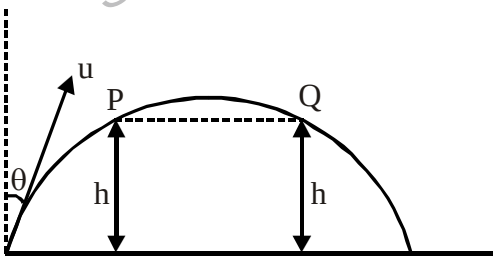
4. A ball is dropped from a bridge 122.5 metres above a river. After the ball has been falling for 2 seconds, a second ball is thrown straight down after it. What must its initial velocity be so that both hit the water at the same time ?

(A) 49 m/s (B) 55.5 m/s (C) 26.1 m/s (D) 9.8 m/s

5. A blind person after walking 10 steps in one direction each of length 80 cm, turns randomly to the left or to right by 90°. After walking a total of 40 steps, the maximum displacement of the person from its starting point can be :-

(A) Zero (B) $8\sqrt{2}$ m (C) $16\sqrt{2}$ m (D) 32 m

6. A particle is thrown with velocity u making an angle θ with the vertical. It just crosses the top of two poles each of height h after 1s and 3s respectively. The maximum height of projectile is :-



(A) 9.8 m (B) 19.6 m (C) 39.2 m (D) 4.9 m

7. If retardation produced by air resistance of projectile is one-tenth of acceleration due to gravity, the time to reach the maximum height:-

(A) Decreases by 11 percent (B) Increases by 11 percent

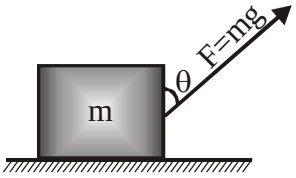
(C) Decreases by 9 percent (D) Increases by 9 percent

8. A train goes from rest to rest between two stations with uniform acceleration and retardation. The ratio of its maximum velocity to its average velocity will be :-

(A) 1 : 2 (B) 2 : 1

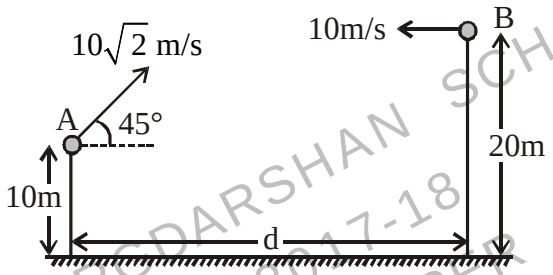
(C) 1 : 1 (D) Cannot be calculated

9. A block of mass m rests on a rough horizontal surface as shown in the figure. Coefficient of friction between the block and the surface is μ. A force F = mg acting at angle θ with the vertical side of the block pulls it. In which of the following cases can the block be pulled along the surface?



(A) $\tan\theta \geq \mu$ (B) $\cot\theta \geq \mu$ (C) $\tan\frac{\theta}{2} \geq \mu$ (D) $\cot\frac{\theta}{2} \geq \mu$

10. Two particles are projected from the two towers simultaneously as shown in the figure. What should be the value of d for then collision.

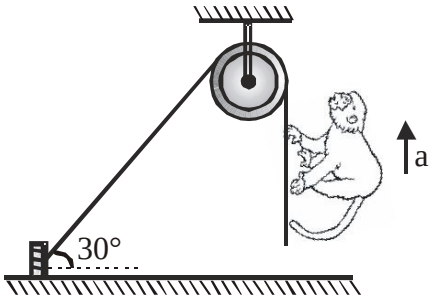


(A) 20 m (B) $20\sqrt{2}$ m (C) $30\sqrt{2}$ m (D) 40 m

11. The length of a spring is λ and its spring constant is k. It is cut into two parts of lengths λ_1 and λ_2 and $\lambda_1 = n\lambda_2$. The spring constant k_1 of the part λ_1 will be

(A) $k\left[1+\frac{1}{n}\right]$ (B) $k\left[1-\frac{1}{n}\right]$ (C) $k\left[1+\frac{1}{2n}\right]$ (D) $k\left[1-\frac{1}{2n}\right]$

12. A light string fixed at one end to a clamp on ground passes over a fixed pulley and hangs at the other side. It makes an angle of 30° with the ground. A monkey of mass 5 kg climbs up the rope. The clamp can tolerate a vertical force of 40N only. The maximum acceleration in upward direction with which the monkey can climb safely is (neglect friction and take g' = 10 m/s^2)



(A) 2 m/s^2 (B) 4 m/s^2 (C) 6 m/s^2 (D) 8 m/s^2

12. A ship is moving forward with an acceleration of 10 m/s^2. A string is tied to the top having a bob. The angle by which the thread will be deflected from the vertical is (g = 10 m/s^2):-

(A) 45° (B) 50° (C) 30° (D) 0°

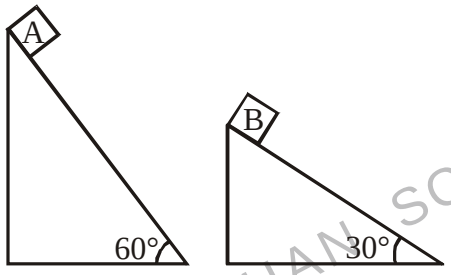
14. A man slides down a light rope whose breaking stength is η times his weight. What should be his maximum acceleration so that the rope just not breaks ?

(A) $g(1-\eta)$ (B) ηg (C) $\frac{g}{1+\eta}$ (D) $\frac{g}{1-\eta}$

15. 80 railway wagons all of same mass 5×10^3 kg are pulled by an engine with a force of 4×10^5 N. The tension in the coupling between 30th and 31st wagon from the engine is :-

(A) 25 × 104 N (B) 40 × 104 N (C) 20 × 104 N (D) 32 × 104 N

16. Two fixed frictionless inclined planes making an angle 30° and 60° with the vertical are shown in the figure. Two blocks A and B are placed on the two planes. What is the relative vertical acceleration of A with respect to B ?



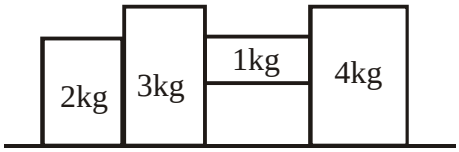
(A) 4.9 ms^{-2} in vertical direction. (B) 4.9 ms^{-2} in horizontal direction

(C) 9.8 ms^{-2} in vertical direction (D) Zero

17. An object kept on a smooth inclined plane of 1 in ℓ can be kept stationary relative to the incline by giving a horizontal acceleration of ..... to the inclined plane-

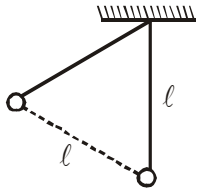
(A) $\frac{g}{\sqrt{\ell^2-1}}$ (B) $\frac{g}{\sqrt{1-\ell^2}}$ (C) $g\sqrt{\ell^2-1}$ (D) $\frac{1}{g\sqrt{\ell^2-1}}$

18. What should be the value of F so that block of mass 1 kg remains in equilibrium. The co-efficient of friction between 1kg and 4kg block is 0.5 and except it all surfaces are smooth :-



(A) 220 N (B) 170 N (C) 135 N (D) 150 N

19. A bob hangs from a rigid support by an inextensible string of length ℓ. If it is displaced through a distance ℓ (from the lowest position) keeping the string straight & released, the speed of the bob at the lowest position is:



(A) g**l** (B) 3g**l** (C) 2g**l** (D) 5g**l**

20. A car moving with a velocity of 50 m/s. Can be stopped by the application of a constant force F in a distance 50 m. If the velocity of car is 200 m/s. It can be stopped by this force is :-

(A) 400 m (B) 800 m (C) 50 m (D) None of these

21. A body is displaced from (0, 0) to (1m, 1m) along the path x = y a force $\vec{F} = (x^2\hat{j} + y\hat{i})$ N .The work done by this force will be :-

(A) $\frac{4}{3}$J (B) $\frac{5}{6}$J (C) $\frac{3}{2}$J (D) $\frac{7}{5}$J

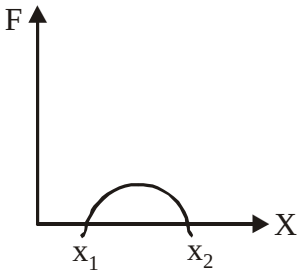
22. A force F acting on a body depends on its displacement s as $F \propto s^{-1/3}$. The power delivered by F will depend on displacement as-

(A) $s^{2/3}$ (B) $s^{-5/3}$ (C) $s^{1/2}$ (D) s^0

23. A constant power P is applied to a particle of mass m. The distance travelled by the particle when its velocity increases from v_1 to v_2 is (neglect friction) :-

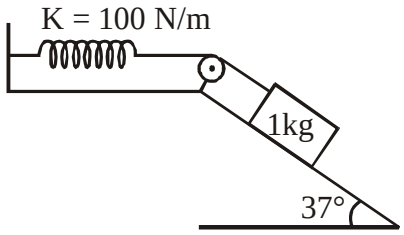
(A) $\frac{3P}{m}\left(v_2^2 - v_1^2\right)$ (B) $\frac{m}{3P}\left(v_2 - v_2\right)$ (C) $\frac{m}{3P}\left(v_2^3 - v_1^3\right)$ (D) $\frac{m}{3P}\left(v_2^2 - v_1^2\right)$

24. The force acting on a body moving along x-axis varies with the position of the particle as shown in the figure. The body is in stable equilibrium at



(A) $x = x_1$ (B) $x = x_2$ (C) both x_1 and x_2 (D) neither x_1 nor x_2

25. In the given diagram the block is released from rest with spring in the unstretched position. The block moves 10 cm down the incline before coming to rest. The co-efficient of friction between the block and incline is :-



(A) 0.0625 (B) 0.625 (C) 0.125 1kg (D) 0.75

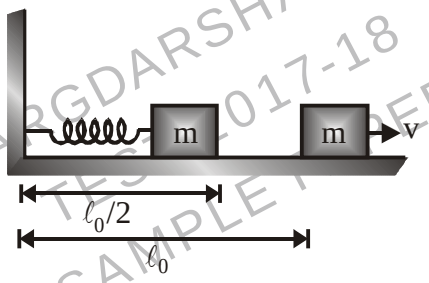
26. The bob of a pendulum is released from a horizontal position. The length of the pendulum is 1.5 m. What is the speed with which the bob arrives at the lowermost point. Given that 5% of its initial energy is dissipated against air resistance ($g = 10\ m/s^2$)

(A) 5.47 m/s (B) 5.89 m/s (C) 6.25 m/s (D) 5.34 m/s

27. A drop of mass 1g is falling from a height of 1 km. It hits the ground with a speed of 50 ms^{-1}. The work done by unknown resistive force is :-

(A) –4.25 J (B) –1.25 J (C) –8.75 J (D) 4.25 J

28. A block of mass m is pushed against a spring of spring constant k fixed at one end to a wall. The block can slide on a frictionless table as shown in fig. The natural length of the spring is ℓ_0 and it is compressed to half of its natural length when the block is released. Then final velocity of the block will be-



(A) $\frac{\ell_0}{2}\sqrt{\frac{k}{m}}$ (B) $\frac{\ell_0}{4}\sqrt{\frac{k}{m}}$ (C) $\frac{1}{2}\sqrt{\frac{k\ell_0}{m}}$ (D) $\sqrt{\frac{k\ell_0}{2m}}$

29. A projectile of mass 3m explodes at highest point of its path. It breaks into three equal parts. One part retraces its path, the second one comes to rest. The distance of the third part from the point of projection when it finally lands on the ground is - (The range of the projectile was 100 m if no explosion would have taken place)

(A) 100 m (B) 150 m (C) 250 m (D) 300 m

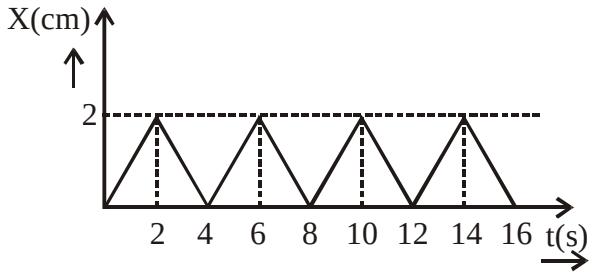
30. Two spherical bodies of mass M and 5M and radii R and 2R respectively are released in free space with initial separation between their centres equal to 12 R. It they attract each other due to gravitational force only, then the distance covered by the smaller body just before collision is-

(A) 2.5 R (B) 4.5 R (C) 7.5 R (D) 1.5 R

31. Two billiard balls each of mass 0.05 kg moving in opposite directions with speed of 6 ms^{-1} collide and rebound with the same speed. What is the impulse imparted to each ball by the other?

(A) 0.6 kg m/sec (B) 6 kg m/sec (C) 60 kg m/sec (D) 3 kg m/sec

32. The position-time graph of a body of mass 0.04 kg is shown the magnitude of each impulse will be (in m/s)



(A) 8×10^{-2} (B) 8×10^{-4} (C) 4×10^{-2} (D) 4×10^{-4}

33. A trolley of mass 300 kg carrying a sandbag of 25 kg is moving uniformly with a speed of 27 km/h on a frictionless track. After a while, sand starts leaking out of a hole on the floor of the trolley at the rate of 0.05 kg s^{-1}. What is the speed of the trolley after the entire sand bag is empty ?

(A) more than 27 km/hr (B) less than 27 km/hr

(C) zero (D) 27 km/hr (No change)

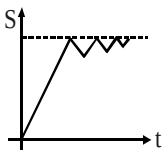
34. A body of mass m falls from a height h on ground. If it collides inelastically so that coefficient of restitution is e, then the loss of energy in collision will be :-

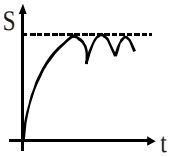
(A) mgh(e – 1) (B) mgh(1 – e) (C) mgh($1 - e^2$) (D) mgh($e^2 - 1$)

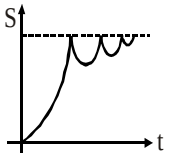
35. A bullet of mass 0.01 kg and travelling at a speed of 500 m/sec strikes a block of 2 kg which is suspended by a string of length 5 m. The centre of gravity of the block is found to rise a vertical distance of 0.1 m. What is the speed of the bullet after it emerges from the block ?

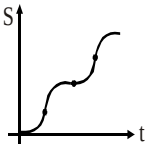
(A) 200 m/s (B) 220 m/s (C) 204 m/s (D) 284 m/s

36. A ball is dropped from a certain height on a horizontal floor. The coefficient of restitution between the ball and the floor is 1/2. The displacement-time graph of the ball will be :-

(A) 

(B) 

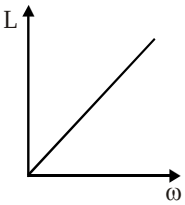
(C) 

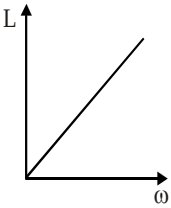
(D) 

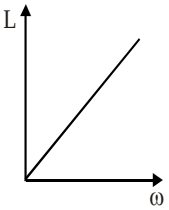
37. A batsman deflects a ball by an angle of 45° without changing its initial speed which is equal to 54 km/h. What is the impulse imparted to the ball ? (mass of the ball is 0.15 kg)

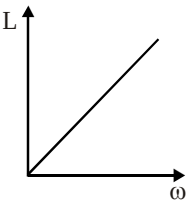
(A) 2.7 m/s (B) 3.6 m/s (C) 4.2 m/s (D) 6.4 m/s

38. The graph between the angular momentum (L) and angular velocity (ω) will be :-

(A) 

(B) 

(C) 

(D) 

39. Let $\vec{F}$ be the force acting on a particle having position vector $\vec{r}$ and $\vec{T}$ be the torque of this force about the origin then :-

(A) $\vec{r} \cdot \vec{T} = 0$ and $\vec{F} \cdot \vec{T} = 0$ (B) $\vec{r} \cdot \vec{T} = 0$ and $\vec{F} \cdot \vec{T} \neq 0$

(C) $\vec{r} \cdot \vec{T} \neq 0$ and $\vec{F} \cdot \vec{T} = 0$ (D) $\vec{r} \cdot \vec{T} \neq 0$ and $\vec{F} \cdot \vec{T} \neq 0$

40. A mass m is moving with a constant velocity along a line parallel to x-axis. Its angular momentum with respect to origin is :-

(A) Zero (B) Remains constant

(C) Goes on increasing (D) Goes on decreasing

41. A body is rolling down on an inclined plane. If K.E. of rotation is 40% of K.E. in translatory state, then the body is a :-

(A) Ring (B) Cylinder (C) Hollow ball (D) Solid ball

42. A thin hollow cylinder open at both ends :-

(i) Slides without rotating (ii) Rolls without slipping, with the same speed

The ratio of kinetic energy in the two cases

(A) 1 : 1 (B) 4 : 1 (C) 1 : 2 (D) 2 : 1

43. In rotational motion of a rigid body, all particles may move with :-

(A) Same linear and angular velocity

(B) Same linear and different angular velocity

(C) With different linear velocities and same angular velocity

(D) With different linear velocities and different angular velocities

44. A flywheel rotating about a fixed axis has a kinetic energy of 360 joule when its angular speed is $30 \frac{\text{rad}}{\text{s}}$. The moment of inertia of the wheel about the axis of rotation is :-

(A) 0.6 kg × m^2 (B) 0.15 kg × m^2 (C) 0.8 kg × m^2 (D) 0.75 kg × m^2

45. Find the torque of a force $\vec{F} = -3\hat{i} + \hat{j} + 5\hat{k}$. acting at a point $\vec{r} = 7\hat{i} + 3\hat{j} + \hat{k}$:-

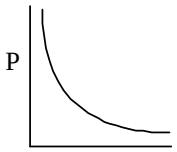
(A) $14\hat{i} - 38\hat{j} + 16\hat{k}$ (B) $4\hat{i} + 4\hat{j} + 6\hat{k}$ (C) $-14\hat{i} + 38\hat{j} - 16\hat{k}$ (D) $-21\hat{i} + 3\hat{j} + 5\hat{k}$

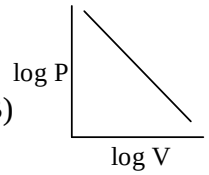
46. Since the atomic weights of C, N and O are 12, 14 and 16 respectively, among the following pair, the pair that will diffuse at the same rate is

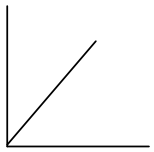
(A) carbon dioxide and nitrous oxide (B) carbon dioxide and nitrogen peroxide

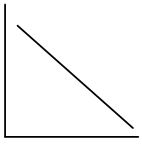
(C) carbon dioxide and carbon monoxide (D) nitrous oxide and nitrogen peroxide

47. Which of the following curves does not represent Boyle's law -

(A) 

(B) 

(C) 

(D) 

48. If the pressure of a given mass of gas is reduced to half and temperature is doubled simultaneously, the volume will be -

(A) Same as before (B) twice as before (C) Four time as before (D) One fourth as before

49. 32 gm of oxygen and 3 gm of hydrogen are mixed and kept in a vessel of 760 mm pressure and 0° C. The total volume occupied by the mixture will be nearly -

(A) 22.4 lit (B) 33.6 lit (C) 56 lit (D) 44.8 lit

50. A closed vessel contains equal number of nitrogen and oxygen molecules at pressure of P mm. If nitrogen is removed from the system, then the pressure will be -

(A) P (B) 2P (C) P/2 (D) P^2

51. A helium atom is two times heavier than a hydrogen molecule at 298 K, the average kinetic energy of helium is -

(A) Two times that of hydrogen molecules (B) Same as that of hydrogen molecules

(C) Four time that of hydrogen molecules (D) Half that of hydrogen molecules

52. A system is said to be _____ if it can neither exchange matter nor energy with the surroundings.

(A) Adiabatic (B) Isobar (C) Isolated (D) Isotherm

53. Enthalpy is an ---------- property.

(A) Extensive (B) Exclusive (C) Intensive (D) Inclusive

54. One mole of a gas occupying 3 dm^3 expands against constant external pressure of 1 atm to a volume of 13 dm^3. The work done is -

(A) – 10 atm dm^3 (B) – 20 atm dm^3 (C) – 39 atm dm^3 (D) – 48 atm dm^3

55. The enthalpies of combustion of C (graphite) and C (diamond) are – 393.5 and – 395.4 kJ mol^{-1} respectively. The enthalpy of conversion of C (graphite) to C (diamond) in kJ mol^{-1} is -

(A) – 1.9 (B) – 788.9 (C) 1.9 (D) 788.9

56. $\Delta H_f°$ for the chloride ion from the following data will be

$\frac{1}{2}H_2(g) + \frac{1}{2}Cl_2(g) \longrightarrow HCl(g)$; $\Delta H_f° = -92.4$ kJ

$HCl(g) + nH_2O \longrightarrow H^+(aq) + Cl^-(aq.)$; $\Delta H° = -74.8$ kJ

$\Delta H_f°\ H^+(aq.) = 0.0$ kJ

(A) 167.2 kJ (B) – 167.2 kJ (C) 334.4 kJ (D) – 334.4 kJ

57. How many grams of phosphoric acid would be needed to neutralise 100 g of magnesium hydroxide? (The molecular weights are H_3PO_4 = 98 and $Mg(OH)_2$ = 58.3).

(A) 66.7 g (B) 252 g (C) 112 g (D) 168 g

58. A mole of potassium chlorate is thermally decomposed and excess of aluminium is burnt in the gaseous product. How many moles of aluminium oxide are formed?

(A) 1 (B) 1.5 (C) 2 (D) 3

59. 1 mole of N_2H_4 loses ten moles of electrons to form a new compound Y. Assuming that all the nitrogen appears in the new compound, what is the oxidation state of nitrogen in Y? (There is no change in the oxidation state of hydrogen).

(A) – 1 (B) – 3 (C) + 3 (D) + 5

60. Which of the following reaction is neither oxidation nor reduction?

(A) $CrO_4^{2-} \rightarrow Cr_2O_7^{2-}$ (B) $Cr \rightarrow CrCl_3$

(C) $2S_2O_3^{2-} \rightarrow S_4O_6^{2-}$ (D) $VO_4^{2-} \rightarrow V_2O_3$

61. The law of multiple proportions is illustrated by -

(A) Carbon monoxide and carbon dioxide (B) Potassium bromide and potassium chloride

(C) Water and heavy water (D) Calcium hydroxide and barium hydroxide

62. One mole of nitrogen gas is the volume of -

(A) 1 litre of nitrogen at S.T.P.

(B) 32 litres of nitrogen at S.T.P

(C) 22.4 litres of nitrogen atom S.T.P.

(D) 6.02×10^{23} molecules of oxygen at any temperature and pressure

63. Which of the following pairs contains equal number of atoms -

(A) 11.2 cc of nitrogen and 0.015 g of nitric oxide

(B) 22.4 litres of nitrous oxide and 22.4 litres of nitric oxide

(C) 1 millimole of HCl and 0.5 millimole of H_2S

(D) 1 mole of H_2O_2 and 1 mole of N_2O_4

64. Which of the following has maximum mass ?

(A) 0.1 g atom of nitrogen (B) 0.1 mol of ammonia

(C) 6.02×10^{23} molecules of helium gas (D) 1120 cc of carbon dioxide

65. The mass of one amu is approximately -

(A) 1 g (B) 0.5 g (C) 1.66×10^{-24} g (D) 3.2×10^{-24} g

66. Which of the following sets of quantum numbers represents the highest energy of an atom ?

(A) $n = 3, l = 0, m = 0, s = +\frac{1}{2}$ (B) $n = 3, l = 1, m = 1, s = +\frac{1}{2}$

(C) $n = 3, l = 2, m = 1, s = +\frac{1}{2}$ (D) $n = 4, l = 0, m = 0, s = +\frac{1}{2}$

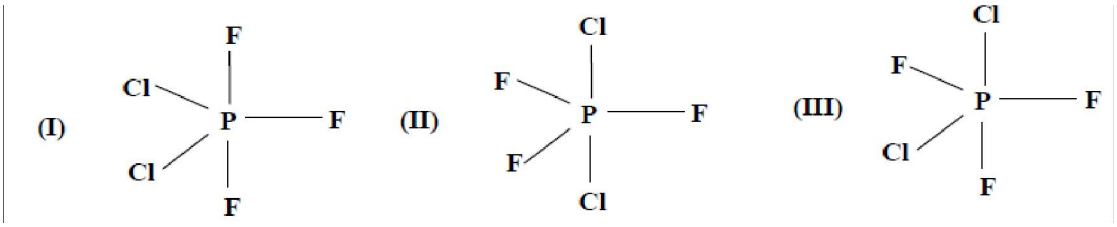
67. The number of radial nodes of 4p and 4d–orbitals are respectively :

(A) 2, 0 (B) 0, 2 (C) 1, 2 (D) 2, 1

68. The Period number and Group number of an element having outer electronic configuration $(n-2)f^{7}(n-1)d^{1}ns^{2}$ for n = 6 is respectively

(A) 6, 3 (B) 6, 10 (C) 6, 9 (D) 6, 8

69. From the given structures, the correct structure(s) of PF_3Cl_2 is/are



(A) only I (B) only II (C) only III (D) I, II and III

70. $CH_3 - CH_2 - NH - CHO$; $CH_3-\underset{\displaystyle NH_2}{\underset{|}{CH}}-CHO$

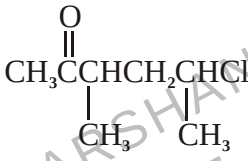
I II

Which type of isomerism is observed between I and II.

(A) Chain isomers (B) Position isomers

(C) Functional isomers (D) Metamers

71. What is the IUPAC name for the following compound ?



(A) 1-chloro –1,3-dimethyl-4-pentanone

(B) 5-chloro-3,5-dimethyl-2-pentanone

(C) 5-chloro-3-methyl-2-hexanone

(D) 2-chloro-4-methyl-5-hexanone

72. Molecular shapes of SF_4, CF_4 and XeF_4 are respectively :

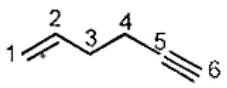
(A) the same with 2, 0 and 1 lone pair of electrons respectively.

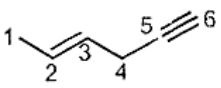
(B) the same with 1, 1 and 1 lone pair of electrons respectively.

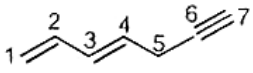
(C) different with 0, 1 and 2 lone pair of electrons respectively.

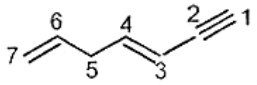
(D) different with 1, 0 and 2 lone pair of electrons respectively.

73. In which of the following compound IUPAC numbering is incorrect ?

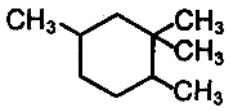
(A) 

(B) 

(C) 

(D) 

74. How many geometrical isomers are possible for the given compound ?



(A) 0 (B) 4 (C) 2 (D) 3

75. The number of ether isomers represented by formula $C_4H_{10}O$ is (only structural)

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

76. Isobutyl chloride is not correctly written in

(A) $CH_3CH(Cl)-CH_2CH_3$ (B) $CH_3CH(CH_3)CH_2Cl$

(C) $CH_3-CH(CH_2Cl)-CH_3$ (D) $CH_2(Cl)-CH(CH_3)-CH_3$

77. PCl_5 undergoes

(A) $sp^3d_{z^2}$ – hybridization (B) $sp^3.d_{x^2-y^2}$ – hybridization

(C) sp^3d_{xy} – hybridization (D) sp^3d_{yz} – hybridization

78. The value of the magnetic moment of a particular ion is 2.83 . Bohr magneton. The ion is

(A) Fe^{2+} (B) Ni^{2+} (C) Mn^{2+} (D) Co^{3+}

79. Which of the following does not contain a coordinate bond?

(A) H_3O^+ (B) BF_4^- (C) HF_2^- (D) NH_4^+

80. The correct order of stability for the following species is

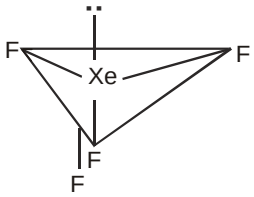
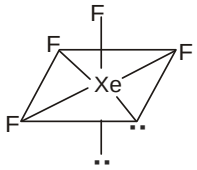
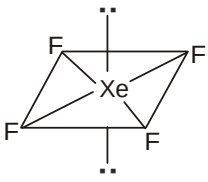
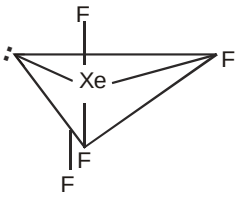
(A) $Li_2 < He_2^+ < O_2^+ < C_2$ (B) $C_2 < O_2^+ < Li_2 < He_2^+$

(C) $He_2^+ < Li_2 < C_2 < O_2^+$ (D) $O_2^+ < C_2 < Li_2 < He_2^+$

81. The shape of SCl_4 is best described as a

(A) square (B) tetrahedron (C) square pyramid (D) see -saw

82. Which is the right structure of XeF_4 ?

(A)  (B)  (C)  (D) 

83. The number and type of bonds between two carbon atoms in calcium carbide are :

(A) one sigma, one pi (B) one sigma, two pi

(C) two sigma, one pi (D) two sigma, two pi

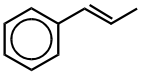
84. The number of lone pairs on Xe in XeF_2, XeF_4 and XeF_6 respectively are :

(A) 3, 2, 1 (B) 2, 4, 6 (C) 1, 2, 3 (D) 6, 4, 2

85. Bond angle of 109º 28' is found in :

(A) NH_3 (B) H_2O (C) CH_3^+ (D) NH_4^+

86. The maximum number of 90º angles between bond pair–bond pair of electrons is observed in :
(A) dsp^3 (B) sp^3d (C) dsp^2 (D) sp^3d^2

87. How many bonds are there in  ?

(A) 13 (B) 23 (C) 20 (D) 26

88. Which one of the following decides the shapes of orbitals in an energy shell?
(A) Magnetic quantum number (B) Principal quantum number
(C) Azimuthal quantum number (D) Spin quantum number

89. Among the following series of transition metal ions, the one where all metal ion have $3d^2$ electronic configuration is :
(A) $Ti^{3+}, V^{2+}, Cr^{3+}, Mn^{4+}$ (B) $Ti^{+}, V^{4+}, Cr^{6+}, Mn^{7+}$
(C) $Ti^{4+}, V^{3+}, Cr^{2+}, Mn^{3+}$ (D) $Ti^{2+}, V^{3+}, Cr^{4+}, Mn^{5+}$

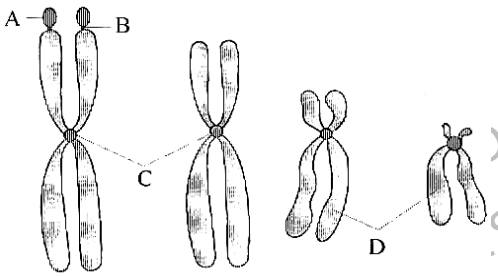
90. In the fourth period of the periodic table, how many elements have one or more 4d electrons?
(A) 2 (B) 18 (C) 0 (D) 6

BIOLOGY

91. Which one at the following stage is correctly described with its event .

(A)	Anaphase I	The bivalent chromosomes align on the equatorial plate
(B)	Diakinesis	Beginning of dissolution of synaptonemal complex
(C)	Metaphase	Spindle fibres attach to kinetochore of chromosomes
(D)	Zygotene	Apperance of recombination nodule

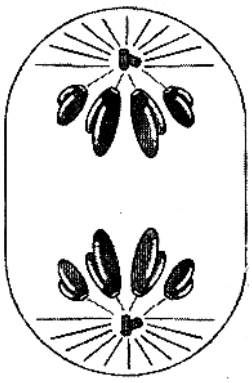
92. Identify A, B, C and D given in the figure .



(A) A - Setellite, B - Secondary constriction, C – Centromere, D – Long arm
(B) A - Secondary constriction, B – Satellite, C – Centromere, D – Short arm
(C) A – Satellite, B – Centromere, C – Secondary constriction, D – Long arm
(D) A – short arm, B – Secondary constriction, C – Centromere, D – Long arm

93. Which one of the following is incorrect
(A) In meiosis only single cycle of DNA replication occur
(B) Four haploid cell are formed at the end of meiosis II
(C) Prophase I is a longest phase of meiosis
(D) Chiasmata appear in diakinesis phase

94. The figure given below represent the stage of cell division. Read the following statement.



(i) Nucleolus, Golgo complex and ER reform
(ii) Chromosomes moves to opposite pole
(iii) Activity of recombinase enzyme
(iv) Homologous chromosomes separate while sister chromatids associated at their centromere
(v) Initiation of the assembly of mitotic spindle. How many of the above statement are **not** true with respect to given figure.
(A) Four (B) Three
(C) Five (D) Two

95. Match the following columns.

Column-I	Column-II
A. Separation of daughter chromosomes	1 Interphase
B. Division of cytoplasm	2 Karyokinesis
C. Phase between two successive M-phases	3 S-phase
D. Synthesis phase	4 Cytokinesis

Codes :

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

96. Select the correct option.

Column-I	Column-II
A. Synapsis aligns homologous	1 Pachytene
B. Synthesis of RNA and protein	2 Zygotene
C. Action of enzyme recombinase	3 G_2-phase
D. Centromeres do not separate, but chromatids move towards opposite poles	4 Anaphase-I

Codes :

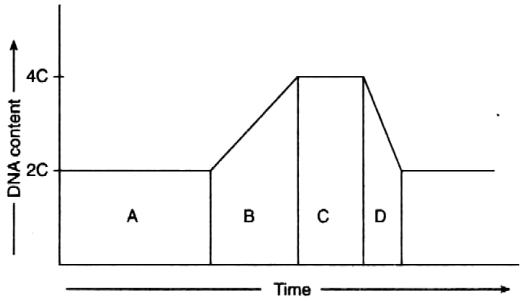
	A	B	C	D
(A)	2	3	1	4
(B)	1	2	3	4
(C)	2	3	4	1
(D)	2	1	3	4

97. The formation of recombination nodules and terminalisation occur respectively during :
(A) Pachytene and diakinesis
(B) Leptotene and zygotene
(C) Zygotene and diakinesis
(D) Diplotene and diakinesis

98. Which of the following is correct for anapahse ?
(A) It is the shortest phase of mitosis
(B) Centromeres split and chromatids separate
(C) Chromatids move towards the opposite poles
(D) All of the above

99. The bivalents get arranged on the equatorial plate during :
(A) Metaphase-I
(B) Metaphase-I and metaphase-II
(C) Mitotic metaphase
(D) Anaphase-I

100. Identify the different phases (A, B, C, D) of cell cycle :



	A	B	C	D
(A)	G_1	G_2	S	M
(B)	G_2	G_1	S	M
(C)	M	G_1	G_2	S
(D)	G_1	S	G_2	M

101. Choose the correct one for the chromosome given below:

(A) It is with one chromatid and one molecule of dsDNA
(B) It is with two chromatids and two molecules of dsDNA
(C) It is with two chromatids and two arms
(D) It is one arm and two chromatids

102. Read the following statements :
(i) Prophase is marked by the initiation of condensation of chromatin material
(ii) The chromosomal material becomes untangled during the process of chromatin condensation
(iii) In the S and G_2 phases the new DNA molecules formed are not distinct but interwound
(iv) Nuclear envelope remains intact throughout the prophase
(v) At the end of prophase, when viewed under microscope, a cell shows distinct Golgi, ER and nucleolus
How many of the above statements are correct ?
(A) Three (B) Four
(C) Two (D) One

103. Which stage is best to count the number and study chromosome morphology ?
(A) Metaphase (B) Prophase
(C) Anaphase (D) Telophase

104. Which one is wrong about colchicine treatment to a cell?
(A) It causes metaphasic arrest
(B) It is obtained from a plant of the family Liliaceae
(C) It prevents assembly of microtubules
(D) It usually inhibits DNA replication

105. Telomeres :
(A) Initiate RNA synthesis
(B) Help chromatids to move towards poles
(C) Seal ends of chromosomes
(D) Identify correct members of homologous pairs of chromosomes

106. Cell wall shows :
(A) Complete permeability
(B) Semipermeability
(C) Differential permeability
(D) Impermeability

107. Lysosomes function in :
(A) Extracellular digestion
(B) Intracellular digestion
(C) Both (A) and (B)
(D) Fat breakdown

108. Kinetochore is :
(A) Granule within centromere
(B) Surface of centromere
(C) Constriction near chromosome end
(D) End of chromosome

109. Select the correct statement for nucleolus :
(A) It is a site for mRNA synthesis
(B) Large and more numerous nucleoli are present in cells actively carrying out protein synthesis
(C) Nucleolus contain nucleoplasm
(D) Nucleolus is a single membrane bound structure

110. Continuity of cytoplasm from cell to cell is maintained through :
(A) Gap junction
(B) Plasmodesmata
(C) Lysosomes and sphaerosomes
(D) More than one options is correct

111. Study the names of different cell organelles / structure given below :
Lysosome, Mitochondria, Golgi, ER, Ribosome, Chromosome, Thylakoid, Flagella, Peroxisomes
How many of the above are bound by single membrane ?
(A) Six (B) Two
(C) Four (D) Three

112. Which of the following is common to facilitated diffusion and active transport ?
(A) Energy requirement exists
(B) Occurs along the concentration gradient
(C) Occurs against the concentration gradient
(D) Requirement of carrier protein

113. The quasifluid nature enables movement of proteins within the overall bilayer of a plasma membrane :
(A) Protein, lateral (B) Lipid, lateral
(C) Lipid, flip-flop (D) Protein, flip-flop

114. When biologists wish to study the internal ultrastructure of cells, they most likely would use
(A) a light microscope.
(B) a scanning electron microscope.
(C) a transmission electronic microscope.
(D) A and B

115. A primary objective of cell fractionation is to
(A) crack the cell wall so the cytoplasmic contents can be released.
(B) identify the enzymes outside the organelles.
(C) determine the size of various organelles.
(D) separate the major organelles so that their particular functions can be determined.

116. A mycoplasma is an organism with a diameter between 0.1 and 1.0 μm . What does its size tell you about how it might be classified?
(A) It could be a very small bacterium.
(B) It must be a single celled fungus.
(C) It could be almost any typical bacterium.
(D) It could be a typical virus.

117. Which of the following is a major cause of the size limits for certain types of cells?
(A) the evolution of larger cells after the evolution of smaller cells
(B) the difference in plasma membranes between prokaryotes and eukaryotes
(C) the evolution of eukaryotes after the evolution of prokaryotes
(D) the need for a surface area of sufficient area to allow the cell¹s function

118. The nuclear lamina is an array of filaments on the inner side of the nuclear membrane. If a method were found that could cause the lamina to fall into disarray, what would you expect to be the most likely consequence?
(A) the loss of all nuclear function
(B) the inability of the cell to withstand enzymatic digestion
(C) a change in the shape of the nucleus
(D) inability of the nucleus to keep out destructive chemicals

119. In animal cells, hydrolytic enzymes are packaged to prevent general destruction of cellular components. Which of the following organelles functions in this compartmentalization?
(A) chloroplast (B) lysosome
(C) glyoxysome (D) peroxisome

120. How many statements are **incorrects** in following:-
(1) Peroxisomes, glyoxisomes and sphaerosomes are microbodies of Eukaryotic cells.
(2) Centrioles are essential to division of all eukaryotic organisms.
(3) Cell theory was propossed by Singer and Nicolson.
(4) Cell-membrane is common structure to be found in all living cells.
(A) Two (B) Four
(C) One (D) Three

121. Nucleosome core is made of
(A) H_1, H_2A, H_2B, H_3
(B) H_1, H_2A, H_2B, H_4
(C) $H_1, H_2A, H_2B, H_3 \& H_4$
(D) H_2A, H_2B, H_3, H_4

122. Which one is not a feature of animal cell :-
(A) Ribosomes presence
(B) RER
(C) Tonoplast
(D) Mitochondria

123. Which biomolecule involved in cell to cell recognition ?
(A) Phospholipid (B) G-Protein
(C) Cellulose (D) Oligosaccharide

124. Which of the following is correct regarding the structure of a section of cillia / flagella ?

	Peripheral microtubutles	**Central microtubules**	**Radial spokes**	**Central sheath**
(A)	9 + 0	2	8	1
(B)	9 + 2	9 + 0	9	1
(C)	9	2	9	2
(D)	3	6	9	1

125. Cell membrance is selective permeable. This means that it
(A) allows all materials to pass through
(B) allows only water to pass through
(C) allows only certain materials to pass through
(D) allows only ions to pass through

126. Match Column - I with Column - II and select the correct option from the codes given below .

Column - I	**Column - II**
A. Nucleolus	(i) Lipid storage
B. Sphaerosomes	(ii) Glycolate metabolism
C. Peroxisomes	(iii) Transport of macromolecules
D. Plasmodesmata	(iv) RNA sysnthesis

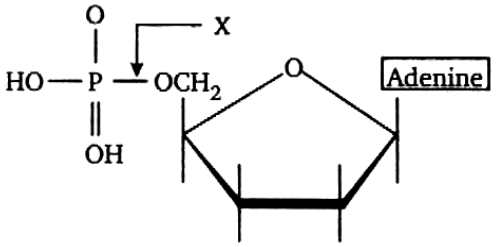
	A	**B**	**C**	**D**
(A)	(iv)	(i)	(iii)	(ii)
(B)	(i)	(ii)	(iv)	(iii)
(C)	(iv)	(i)	(ii)	(iii)
(D)	(i)	(ii)	(iii)	(iv)

127. Which one is incorrect about osmosis ?
(A) It is a specific form of diffusion
(B) It referes to the movement of water along its concentration gradient
(C) It is a passive movement of water
(D) It occurs through a carrier protein and needs ATP.

128. Refer the given reactions.
(i) Adenine + X $\rightarrow$ Adenosine
(ii) Adenosine + Y $\rightarrow$ Adenylic acid
What does X and Y respesent here ?

	X	Y
(A)	Phosphate group	Sugar molecule
(B)	Sugar molecule	Phosphate group
(C)	Sugar molecule	Nitrogenous base
(D)	Nitrogenous base	Sugar molecule

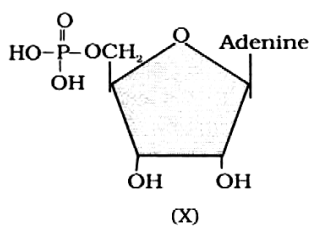
129. Which type of bond is indicated by X in the diagram given below ?

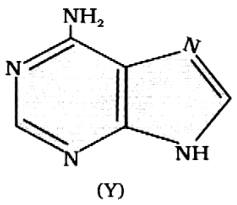


(A) Phosphodiester bond
(B) Ionic bond
(C) Glycosidic bond
(D) Ester bond

130. The protein structure that gives a 3-D view is :
(A) α – helix
(B) Primary structure
(C) Tertiary structure
(D) β – pleated sheath

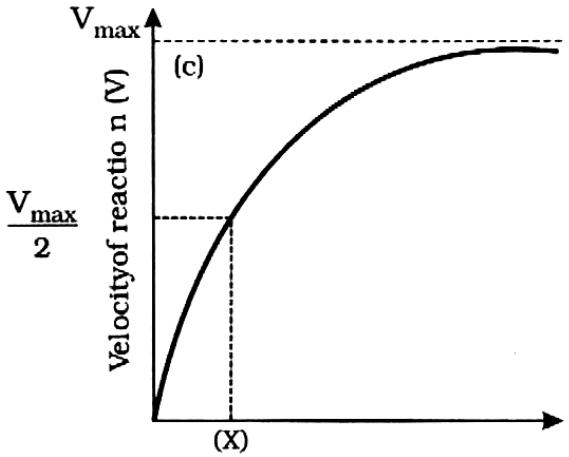
131. What does X and Y represents the structures provided ?





(A) A = Adenylic acid, Y = Guanine
(B) X = uridine, Y = Uridylic acid
(C) X = Thymidylic acid, Y = Adenine
(D) X = Adenylic acid, Y = Adenine

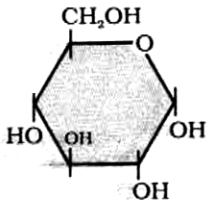
132. In the graphical representation of Michaelis - Menten kinetics X represents :

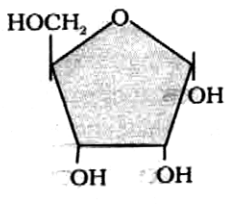


(A) Concentration of active mass of the substrate at which the rate of reaction is $\frac{1}{2}V_{max}$
(B) Concentration of enzyme - substrate complex at which the rate of reaction is $\frac{1}{2}V_{max}$
(C) Concentration of product at which the rate of reaction is V_{max}
(D) Concentration of enzyme at which the rate of reaction is $\frac{1}{2}V_{max}$

133. The inorganic compounds like phsophate, sulphate, etc. Which becomes available in the filtrate after grinding the living tissue in trichloroacetic acid represents :
(A) Acid - insoluble pool
(B) Acid - soluble pool
(C) Water pool
(D) Gaseous pool

134. Identify the sugars A and B :



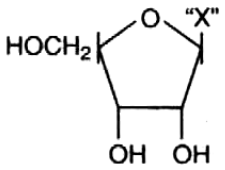


(A) A = Glucose, B = Deoxyribose
(B) A = Glucose, B = Ribose
(C) A = Pentose, B = Hexose
(D) A = Non - reducing sugar, B - Ribose

135. Which of the following is a protein ?
(A) Antibody
(B) GLUT - 4
(C) Sensory receptors and collagen
(D) All of the above

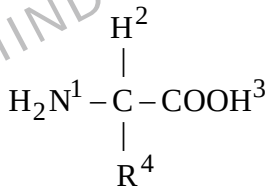
136. Reducing sugars are sugars which can reduce Cu^{+2} ions into Cu^{+}. Which of the following represents a non - reducing sugar ?
(A) Maltose (B) Sucrose
(C) Glucose (D) Fructose

137. The given diagrammatic representation shows one of the categories of small molecular weight organic compounds in the living tissues. Identify the category shown and the one blank component "X" in it.



Category	Component
(A) Cholesterol	Guanine
(B) Amino acid	NH_2
(C) Nucleotide	Adenine
(D) Nucleoside	Uracil

138. Which two groups of the following formula are involved in peptide linkage between different amino acids ?



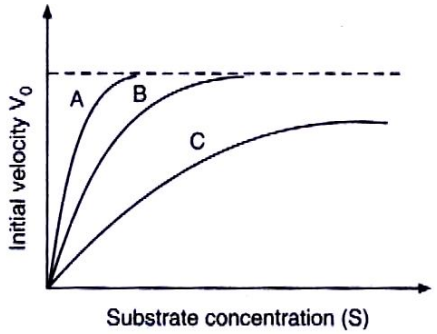
(A) 2 and 3 (B) 1 and 4
(C) 1 and 3 (D) 2 and 4

139. The catalytic efficiency of two different enzymes can be compared by the :
(A) Formation of the product
(B) pH of optimum value
(C) Km value
(D) Molecular size of the enzyme

140. Which factor is responsible for inhibition of enzymatic process during feed back ?
(A) Substrate (B) Enzymes
(C) End product (D) Temperature

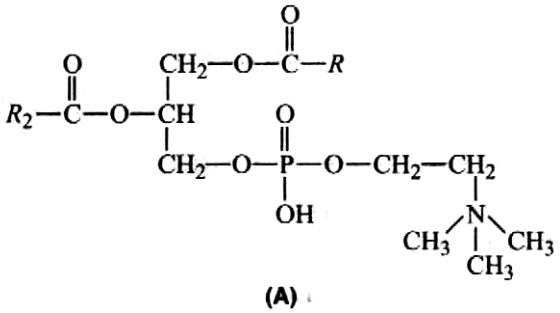
141. Macromolecule chitin is :
(A) Sulphur containing polysaccharide
(B) Simple polysaccharide
(C) Nitrogen containing polysaccharide
(D) Phosphorous containing polysaccharide

142. Figure given below shows three velocity—substrate concentration curves for an enzyme reaction. What do the curves depict ?

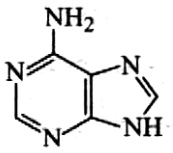


(A) A=Normal enzyme action, B=Competitive inhibition, C=Non-competitive inhibition
(B) A=Enzyme with an allosteric modulator added B=Normal enzyme activity, C=Competitive inhibition
(C) A=Enzyme with an allosteric stimulator, B=Competitive inhibitor added, C=Normal enzyme reaction
(D) A= Normal enzyme reaction, B = Non-competitive inhibitor added, C=Allosteric inhibitor added

143. Which one of the following structural formulae of two organic compounds is correctly identified along with its related function ?



(A)



(B)

(A) B : Adenine – A nucleotide that make up nucleic acids

(B) A : Triglyceride – Major source of energy

(C) B : Uracil – A component of DNA

(D) A : Lecithin – A component of cell membrane

144. Which one of the following statements regarding enzyme inhibition is correct ?

(A) Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibitor protein

(B) Competitive inhibition is seen when the substrate and the inhibitor compete for the active site on the enzyme

(C) Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate

(D) Non-competitive inhibitors often bind to the enzyme irreversibly.

145. Which element is constituent of biotin?

(A) Calcium (B) Phosphorus

(C) Sulphur (D) Magnesium

146. Function of leghaemoglobin during biological nitrogen fixation in root nodules of legumes is to :

(A) Convert atmospheric nitrogen to ammonia

(B) Convert ammonia to nitrate

(C) Transport oxygen for activity of nitrogenase

(D) Protect nitrogenase from oxygen

147. The first stable product of fixation of atmospheric nitrogen in leguminous plants is :

(A) Glutamate (B) NO_2

(C) Ammonia (D) NO_3

148. Read the following statements:

1. Chlorosis is the loss of chlorophyll leading toyellowing in leaves.

2. Low level of N, K, S, Mo causes inhibition of cell division.

3. Low level of Ca, Mg, Cu, K causes delay in flowering.

4. Sulphur and calcium are relatively mobile and are transported out from older plant leaves.

5. Boron is not required forpollen germination.

How many of the above statements are **not** correct.

(A) One (B) Two

(C) Three (D) All

149. The type of diffusion in which substances move across the membrance along their concentraiton gradient in the presence of certain carriers of transport proteins is called as

(A) simple diffusion

(B) facilated diffusion

(C) transpiration

(D) all of these.

150. The process of diffusion is involved in

(A) respiration (B) photosynthesis

(C) transpiration (D) all of these

151. Refer the given table and select the option that correctly fills the blanks in it.

Property	Simple diffusion	Facilitated transport	Active transport
Highly selective	**A**	Yes	**B**
Uphill transport	No	**C**	Yes
Requires ATP	No	**D**	Yes

	A	B	C	D
(A)	No	Yes	No	No
(B)	Yes	Yes	Yes	No
(C)	No	No	No	Yes
(D)	No	Yes	Yes	Yes

152. Water potential of pure water at standard temperature is equal to

(A) 10 (B) 20

(C) zero (D) 1

153. Which of the following is correct regarding photorespiration process

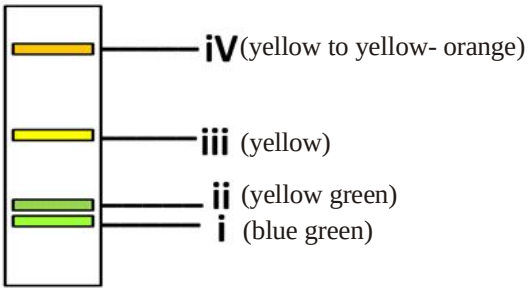
(A) Photorespiration process occurs in mitochondria and chloroplast only

(B) In rice plant photorespiration does not occur

(C) Phosphoglycolate is 2 C compounds formed in photorespiration

(D) Photorespiration results in the release of CO_2 and ATP

154. Following is the paper chromatogram of green pigment of Spinach leaves identified the labellings



(A) i- Carotenoids, ii- xanthophyll, iii- chlorophyll "a" , iv- chlorophyll "b"

(B) i- Carotenoids, ii- xanthophyll, iii- chlorophyll "b" , iv- chlorophyll "a"

(C) i- chlorophyll "b", ii- chlorophyll "a", iii- Xanthophyll , iv- carotenoids

(D) i- Xanthophyll, ii-carotenoids, iii- chlorophyll "a" , iv- chlorophyll "b"

155. Which of the following is true for accessory pigments:

(A) enable a wider range of wavelength of incoming light to be utilised for photosynthesis

(B) protect chlorophyll a from photo-bleaching.

(C) Are the major component of LHC

(D) All of the above

156. One among the following elements is very important for photolysis of water

(A) Cu (B) Mn

(C) Fe (D) Zn

157. Select the pair that consists of plant growth promoters only.

(A) Auxins and cytokinins

(B) Gibberellins and ABA

(C) Ethylene and ABA

(D) All of these

158. Hormone involved in phototropism is

(A) IAA (B) gibberellin

(C) kinetin (D) 2, 4-D

159. A plant hormone used for inducing morphogenesis in plant tissue culture is

(A) abscisic acid (B) gibberellin

(C) cytokinin (D) ethylene

160. Which of the following physiological effects is caused in plants by gibberellic acid ?

(A) Shortening of genetically tall plants

(B) Elongation of grenetically dwarf plats

(C) Rooting in stem cuttings

(D) Yellowing of young leaves

161. Select the correct statement.

(A) Pyruvate is formed in the mitochondrial matrix.

(B) During the conversion of succinyl CoA to succinic acid a molecule of ADP is produced.

(C) Oxygen is vital in respiration for removal of hydrogen.

(D) There is complete breakdown of glucose in fermentation.

162. A connecting link between TCA cycle and nitrogen metabolism is :

(A) Pyruvate (B) α-ketoglutarate

(C) Citrate (D) OAA

163. The number of ATP molecules formed per molecule of oxygen used in aerobic respiration is :

(A) 6 (B) 8

(C) 16 (D) 4

164. What is the purpose of beta - oxidation in respiration ?

(A) Breakdown of fatty acids

(B) Oxidation of pyruvate

(C) Control of ATP formation

(D) Oxidation of glucose

165. Liver is the largest gland and is associated with various functions, choose one which is not correct.

(A) Metabolism of carbohydrate.

(B) Digestion of fat

(C) Formation of bile

(D) Secretion of hormone called gastrin.

166. Which category of compound is most concentrated energy source ?

(A) Lipids (B) Carbohydrates

(C) Proteins (D) Vitamins

167. Read the following statements

(i) Erythrocytes, leucocytes and platelets are collectively called formed elements.

(ii) Plasma without the clotting factors is called serum.

(iii) Neutrophils are the least abundant cells of the total WBCs

(iv) Calcium ions play a very important role in clotting.

(v) Fats are absorbed through blood in the intestinal villi

(vi) The atrium and the ventricle of the same side are also separated by inter-atrialseptum.

How many of them are incorrect?

(A) One (B) Two

(C) Three (D) Four

168. Which organ receives only oxygenated blood?

(A) Lung (B) Liver

(C) Thymus (D) Placenta

169. The volume of air breathed in and out during effortless respiration is referred to as

(A) Vital volume (B) Tidal volume

(C) Vital capacity (D) Ideal volume

170. A 40 years old female was feeling difficulties in breathing, doctors suggested her for X-Ray of lungs, reports showed inflammation of bronchi and bronchioles, which of the following disease detected -

(A) Emphysema (B) Asthma

(C) Both A and B (D) Lungs TB

171. Following is the figure of actin (thin) filaments. Identify A, B and C

(A) A-Tropomyosin, B-Troponin, C-F actin

(B) A-Tropomyosin, B-Myosin, C-F Tropomyosin

(C) A-Troponin, B-Tropomyosin, C-Myosin

(D) A-Troponin, B-Tropomyosin, C-F actin

172. Smooth muscles help in

(A) transportation of food through the digestive tract

(B) transfer of gametes through genital tract

(C) micturition by urinary bladder

(D) All

173. Cardiac muscle is characterized by

(A) striated appearance

(B) involuntary control

(C) branching pattern

(D) all

174. Neurotransmitter receptor is located on

(A) Post synaptic membrane

(B) Presynaptic membrane

(C) Both A and B

(D) None of the above

175. The hypothalamus functions

(A) Body temperature regulation,

(B) Urge for eating and drinking.

(C) Release of hormones

(D) All of the above

176. Brain Stem is formed by

(A) Fore brain and mid brain

(B) Mid brain and hind Brain

(C) Fore brain, mid brain and hind brain

(D) No stem is formed

177. Which of the option shows hormones involve in carbohydrate metabolism?

(A) Insulin, gulcagon, Progestrone, estrogen

(B) Progesterone, estrogen

(C) Glucocorticoids, Oxytocin, epinephrine

(D) Insulin, gulcagon, Glucocorticoids, epinephrine

178. Which hormone regulate 24-hr rhythm of our body?

(A) Somatotropic (B) LTH

(C) Melatonin (D) T_4 and T_3

179. Retina of human eye is

(A) Four layered cells (B) Three layered cells

(C) Two layered cells (D) One layered cells

180. Longest loop of Henle is found in

(A) Kangaroo rat (B) Rhesus monkey

(C) Dog (D) Frog

ANSWER KEY

PHYSICS

1.	A	**2.**	A	**3.**	C	**4.**	C	**5.**	C	**6.**	B	**7.**	C
8.	B	**9.**	D	**10.**	D	**11.**	A	**12.**	C	**12.**	A	**14.**	A
15.	A	**16.**	A	**17.**	A	**18.**	D	**19.**	A	**20.**	B	**21.**	B
22.	D	**23.**	C	**24.**	B	**25.**	C	**26.**	D	**27.**	C	**28.**	A
29.	C	**30.**	C	**31.**	A	**32.**	B	**33.**	D	**34.**	C	**35.**	B
36.	C	**37.**	C	**38.**	A	**39.**	A	**40.**	B	**41.**	D	**42.**	C
43.	C	**44.**	C	**45.**	A								

CHEMISTRY

46.	A	**47.**	D	**48.**	C	**49.**	C	**50.**	C	**51.**	B	**52.**	C
53.	A	**54.**	A	**55.**	C	**56.**	B	57.	C	58.	A	59.	C
60.	C	**61.**	C	**62.**	C	**63.**	A	**64.**	D	**65.**	C	66.	C
67.	D	68.	A	69.	A	**70.**	C	71.	C	**72.**	D	**73.**	B
74.	C	**75.**	B	76.	A	**77.**	A	**78.**	B	79.	C	80.	C
81.	D	**82.**	C	**83.**	B	**84.**	A	**85.**	D	**86.**	D	**87.**	B
88.	C	89.	D	90.	C								

BIOLOGY

91.	C	92.	A	93.	D	94.	A	95.	C	96.	A	97.	A
98.	D	99.	A	100.	D	101.	A	102.	A	103.	A	104.	D
105.	C	106.	A	107.	C	108.	B	109.	B	110.	D	111.	A
112.	D	113.	B	114.	C	115.	D	116.	A	117.	D	118.	C
119.	B	120.	A	121.	C	122.	C	123.	D	124.	C	125.	C
126.	C	127.	D	128.	B	129.	D	130.	C	131.	D	132.	A
133.	B	134.	B	135.	D	136.	B	137.	D	138.	C	139.	C
140.	C	141.	C	142.	A	143.	D	144.	B	145.	C	146.	D
147.	C	148.	C	149.	B	150.	D	151.	A	152.	C	153.	C
154.	C	155.	D	156.	B	157.	A	158.	A	159.	C	160.	B
161.	C	162.	B	163.	A	164.	A	165.	D	166.	A	167.	C
168.	C	169.	B	170.	B	171.	D	172.	D	173.	D	174.	A
175.	D	176.	B	177.	D	178.	C	179.	B	180.	A		