PYRAMID

IIT-JEE | MEDICAL | FOUNDATION

NEET TEST PAPER

Time : 3 Hrs. **Max. Marks : 720**

Important Instructions :

1. The test is of 3 hours duration and Test Booklet contains 200 questions. Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total scores. The maximum marks are 720.
2. Use Black Ball point Pen only for writing particulars on this page/marking responses.
3. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
4. On completion of the test, the candidate must handover the Answer Sheet to the Invigilator before leaving the Room / Hall. The candidates are allowed to take away this Test Booklet with them.
5. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Roll No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
7. Each candidate must show on demand his/her Admission Card to the Invigilator.
8. No candidate, without special permission of the Superintendent or Invigilator, would leave his/her seat.
9. Use of Electronic/Manual Calculator is prohibited.
10. The candidates are governed by all Rules and Regulations of the examination with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of this examination.
11. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.

Name of Student : _____

" We are what we repeatedly do. Excellence, therefore, is not an act but a habit ."

Aristotle - Greek philosopher (384 BC - 322 BC)

PART I : PHYSICS

SECTION –A

(MAXIMUM MARKS 140)

- **This section contains THIRTYFIVE questions. (From question 1 to 35)**
- **Each question has FOUR options (a), (b),(c) and (d). ONLY ONE of these four options is correct.**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

1. A particle of mass m is bound by the linear potential energy U = $k_0 r$, where k_0 is a constant. It is moving in a circular orbit of radius about the origin :-

   (a) Its mechanical energy is $\frac{3k_0 r}{2}$

   (b) The speed is independent of value of radius

   (c) The angular speed is independent of value of radius

   (d) Its mechanical energy is $\frac{k_0 r}{2}$

2. If M_e, M_p and M_H are the rest masses of electron, proton and hydrogen atom in the ground state (with energy –13.6 eV), respectively, which of the following is exactly true ? (c is the speed of light in free space) :-

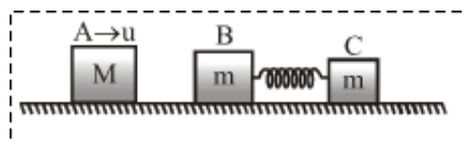
   (a) $M_H = M_P + M_e$

   (b) $M_H = M_P + M_e - \frac{13.6\ eV}{c^2}$

   (c) $M_H = M_P + M_e + \frac{13.6\ eV}{c^2}$

   (d) $M_H = M_P + M_e + K$, where $\neq \pm \frac{13.6\ eV}{c^2}$ or zero

3. A block 'A' of mass M moving with speed u collides elastically with block B of mass m which is connected to block C of mass m with a spring. When the compression in spring is maximum the velocity of block C with respect to block A is (neglect friction) :-



   (a) Zero (b) $\frac{M}{M+m}u$

   (c) $\left(\frac{m}{M+m}\right)u$ (d) $\frac{m}{M}u$

4. A narrow parallel beam of light is incident paraxially on a solid transparent sphere of radius r kept in air. What should be the refractive index if the beam is to be focused at the farther surface of the sphere.

   (a) 1.5 (b) 2

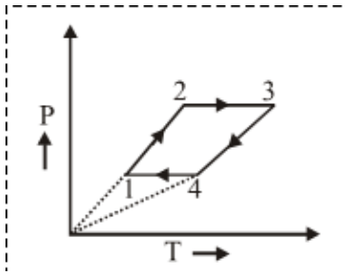
   (c) 1.3 (d) None

5. A projectile is fired at a speed of 100 m/sec at an angle of 37° above the horizontal. At the highest point, the projectile breaks into two parts of mass ratio 1:3, the smaller coming to rest. Then the distance of heavier part from the launching point is :-

   (a) 480 m (b) 960 m

   (c) 1120 m (d) 1440 m

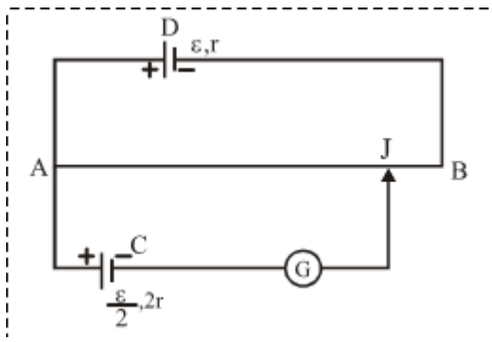
6. Three moles of an ideal monoatomic gas perform a cycle as shown in the figure. The gas temperature in different states are: T_1 = 400 K, T_2 = 800 K, T_3 = 2400 K and T_4 = 1200K. The work done by the gas during the cycle is nearly :-



(a) 10 kJ (b) 20 kJ

(c) 5 kJ (d) 8.3 kJ

7. In the figure, the potentiometer wire AB of length L and resistance 9r is joined to the cell D of emf ε and internal resistance r. The cell C's emf is $\frac{\varepsilon}{2}$ and its internal resistance is 2r. The galvanometer G will show no deflection when the length AJ is :-



(a) $\frac{4L}{9}$ (b) $\frac{5L}{9}$

(c) $\frac{7L}{18}$ (d) $\frac{11L}{18}$

8. A ray of light is incident on a parallel slab of thickness and refractive index n. If the angle of incidence θ is small, then the displacement in the incident and emergent ray will be:

(a) $\frac{t\theta(n-1)}{n}$ (b) $\frac{t\theta}{n}$

(c) $\frac{t\theta n}{n-1}$ (d) None

9. The velocity V of a moving particle varies with displacement as $x=\sqrt{V+1},$, the acceleration of the particle at x = 5 unit will be :-

(a) $\sqrt{6}$ unit (b) 24 unit

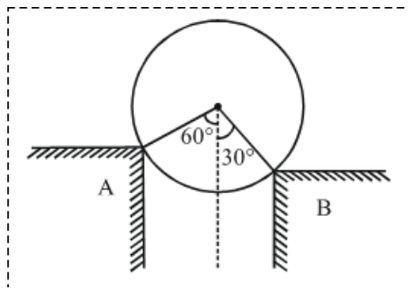
(c) 240 unit (d) 25 unit

10. Two satellites A and B, having ratio of masses 3 : 1 are in circular orbits of radius r and 4r. Calculate the ratio of total mechanical energy of A and B.

(a) 3 : 4 (b) 12 : 1

(c) 4 : 3 (d) 1 : 12

11. A smooth cylinder of mass m and radius R is resting on two corner edges A and B as shown in fig. The relation between normal reaction at the edges A and B is :-



(a) $N_A=\sqrt{2}\,N_B$ (b) $N_B=\frac{2\sqrt{3}\,N_A}{5}$

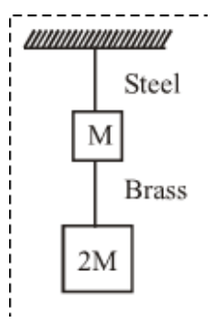
(c) $N_A=\frac{N_B}{2}$ (d) $N_B=\sqrt{3}\,N_A$

12. Two waves are given by: y = cos (4t – 2x) and $y_2=\sin\left(4t-2x+\frac{\pi}{4}\right)$. The phase difference between the two waves is :-

(a) $\frac{\pi}{8}$ (b) $\frac{\pi}{4}$

(c) $\frac{3\pi}{4}$ (d) $\frac{\pi}{2}$

13. If the ratio of lengths, radii and Young's modulus of steel and brass wires in the figure are a,b and c respectively, then the corresponding ratio of increase in their lengths would be :-



(a) $\frac{2a^2c}{b}$ (b) $\frac{3a}{2b^2c}$

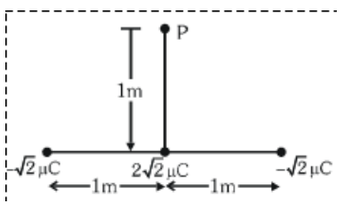
(c) $\frac{2ac}{b^2}$ (d) $\frac{3c}{2ab^2}$

14. An anisotropic material has coefficients of linear thermal expansion α_1, α_2 and α_3 along x, y and z-axis respectively. Coefficient of cubical expansion of this material will be equal to :-

(a) $\alpha_1 + 2\alpha_2 + 3\alpha_3$ (b) $\alpha_1 + \alpha_2 + \alpha_3$

(c) $3\alpha_1 + \alpha_2 + \alpha_3$ (d) $\frac{\alpha_1 + \alpha_2 + \alpha_3}{3}$

15. Three charges $-\sqrt{2}\ \mu C, 2\sqrt{2}\mu C$ and $-\sqrt{2}\ \mu C$ are arranged along a straight line as shown in the figure. Calculate the total electric field intensity due to all three charges at the point P :-



(a) Zero (b) $8.48\times10^3\ N/C$

(c) $16.43\times10^3\ N/C$ (d) $5.3\times10^3\ N/C$

16. Three identical rods A, B and C are placed end to end. A temperature difference is maintained between the free ends of A and C. The thermal conductivity of B is THRICE that of C and HALF of that of A. The effective thermal conductivity of the system will be :- (K_A is the thermal conductivity of rod A).

(a) 1/3 K_A (b) 3 K_A

(c) 2 K_A (d) 2/3 K_A

17. Eight equal drops of water are falling through air with a steady velocity of 10cms^{-1} . If the drops combine to form a single drop big in size, then the terminal velocity of this big drop is :-

(a) 40 cms^{-1} (b) 10 cms^{-1}

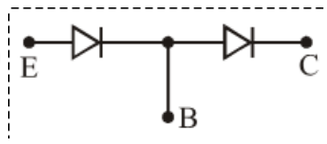
(c) 30 cms^{-1} (d) 80 cms^{-1}

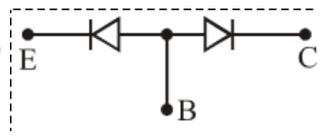
18. Two tuning forks, A and B, produce notes of frequencies 258 Hz and 262 Hz. An unknown note sounded with A produces certain beats. When the same note is sounded with B, the beat frequency gets doubled. The unknown frequency is :-

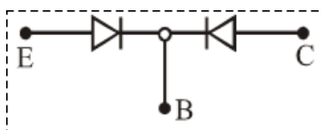
(a) 250 Hz (b) 252 Hz

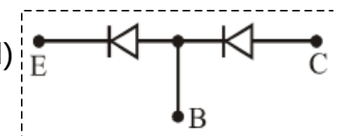
(c) 254 Hz (d) 256 Hz

19. If n-p-n transistor is to be considered to be equivalent to two diodes connected (according to biasing only). Which of the following figures is the correct one:-

(a)


(b)


(c)


(d)


20. The viscosity of a fluid μ, can be determined by measuring the terminal velocity V_T of a sphere when it descends in the fluid. The fluid has a density ρ_f while the sphere has a density ρ_s and a diameter of d. The viscosity can then be calculated by the formula $\mu = \frac{5(\rho_s - \rho_f)}{9V_T}d^2$

The values measured are

$V_T = (1.60 \pm 0.04)\ ms^{-1}$

$\rho_s = (2700 \pm 20)\ kg\ m^{-3}$

$\rho_f = (900 \pm 10)\ kg\ m^{-3}$

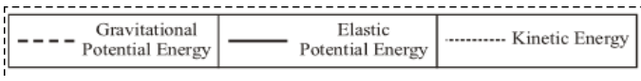
$d = (20.0 \pm 0.4)\ mm$

What is the percentage uncertainty in the value of μ ?

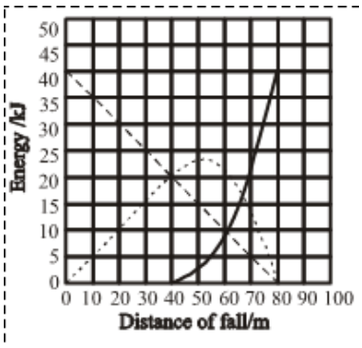
(a) 6.2 % (b) 7.1 %

(c) 8.2 % (d) 8.4 %

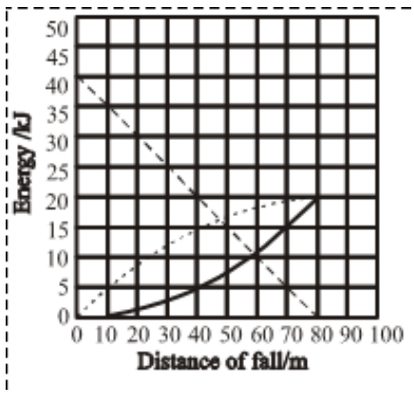
21. A person of weight 500 N does a bungee jump using an elastic rope of unstretched length 40 m and having a spring constant k equal to 50 N/m. During the initial fall there is a transfer of energy from gravitational potential energy to kinetic energy and elastic potential energy. The person falls through a distance of 80 m before beginning to move upwards. Which set of graphs correctly represent the variation of the three energies?



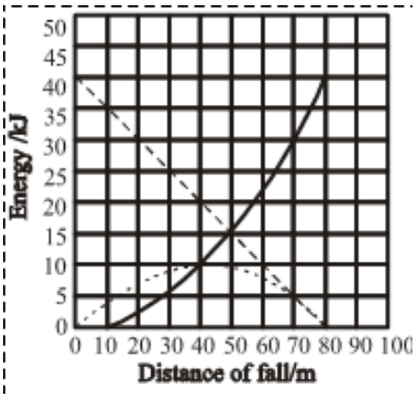
(a)



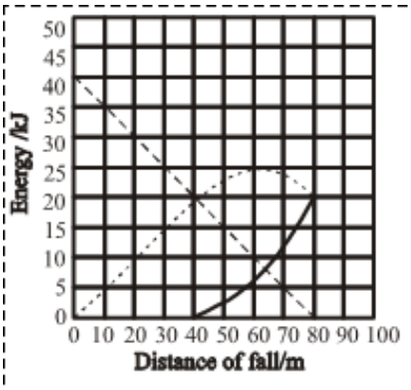
(b)



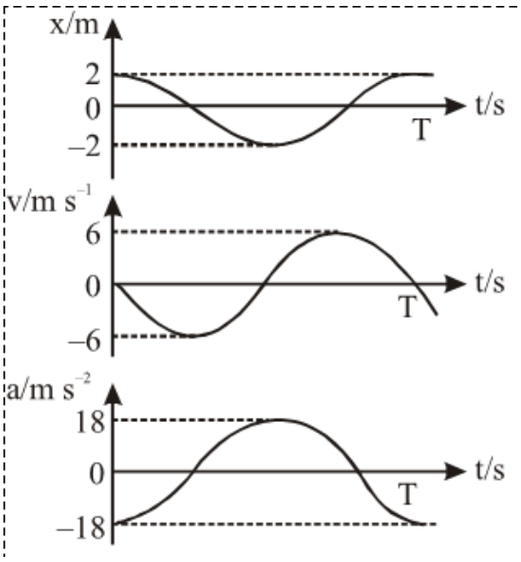
(c)



(d)



22. The graphs in figure show how the displacement x, velocity v and the acceleration a of a body vary with time t when it is oscillating with simple harmonic motion. What is the value of T ?



(a) $\frac{\pi}{9}$s (b) $\frac{2\pi}{9}$s

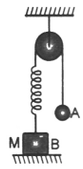
(c) $\frac{\pi}{3}$s (d) $\frac{2\pi}{3}$s

23. The power of water pump is 4 kW. If g = 10 ms^{-2}, the amount of water it can raise in 1 minute to a height of 20 m is

(a) 100 litre (b) 1000 litre

(c) 1200 litre (d) 2000 litre

24. In the Figure, the ball A is released from rest when the spring is at its natural length. For the block B, of mass M to leave contact with the ground at some stage, the minimum mass of A must be:



(a)2M

(b)M

(c) M/2

(D) A function of M and the force constant of the spring.

25. 200 g of a solid ball at 20°C is dropped in an equal amount of water at 80°C. The resulting temperature is 60°C. This means that specific heat of solid is :

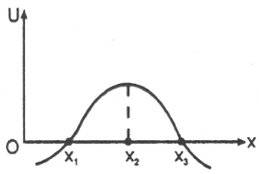
(a) One fourth of water

(b) One half of water

(c) Twice of water

(d) Four times of water

26. In the figure shown the potential energy U of a particle is plotted against its position 'x' from origin. Then which of the following statement is correct. A particle at:



(a) x_1 is in stable equilibrium

(b) x_2 is in stable equilibrium

(c) x_3 is in stable equilibrium

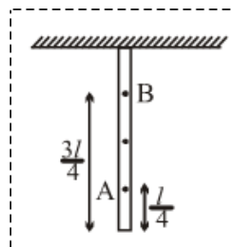
(d) none of these

27. The work function of caesium is 2.14 eV. Find the wavelength of the incident light if the photo current is brought to zero by a stopping potential of 0.60 volt :-

(a) 454 nm (b) 640 nm

(c) 540 nm (d) None of these

28. A string of mass m and length l from ceiling as shown in the fig. Wave in string move upward v_A and v_B are the speed of wave at A and B respectively. Then v_B is :



(a) $\sqrt{3}\, v_A$ (b) v_A

(c) $< v_A$ (d) $\sqrt{2}\, v_A$

29. In the case of an inductor :

(a) voltage lags the current by $\frac{\pi}{2}$

(b) voltage leads the current by $\frac{\pi}{2}$

(c) voltage leads the current by $\frac{\pi}{3}$

(d) voltage leads the current by $\frac{\pi}{4}$

30. An electric dipole with dipole moment $\vec{p} = (3\hat{i} + 4\hat{j}) \times 10^{-30} C - m$ is placed in an electric field $\vec{E} = 4000\hat{i}(N/C)$. An external agent turns the dipole slowly until its electric dipole moment becomes $(-4\hat{i} + 3\hat{j}) \times 10^{-30}\ C - m.$. The work done by the external agent is equal to :–

(a) 4×10^{-28} J (b) -4×10^{-28} J

(c) 2.8×10^{-26} J (d) -2.8×10^{-26} J

31. A block of mass 4 kg is kept on ground. The co – efficient of friction between the block and the ground is 0.80. An external force of magnitude 30 N is applied parallel to the ground. The resultant force exerted by the ground on the block is.

(a)40 N (b)30N

(c)0N (d)50 N

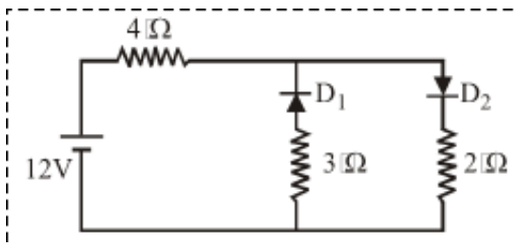
32. One mole of ideal mono atomic gas (γ = 5/3) is mixed with one mole of diatomic gas (γ = 7/5). What is γ for the mixture γ denotes the ratio of specific

heat at constant pressure, to that at constant volume :-

(a) 3/2 (b) 23/15

(c) 35/23 (d) 4/3

33. The circuit has two oppositely connected ideal diodes in parallel. What is the current flowing in the circuit



(a) 1.71 A (b) 2.00 A

(c) 2.31 A (d) 1.33 A

34. A horizontal overhead power line is at a height of 4m from the ground and carries a current of 100 A from east to west. The magnetic field directly below it on the ground is :- $(\mu_0 = 4\pi \times 10^{-7}\ \text{TmA}^{-1})$

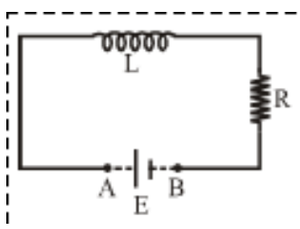
(a) 2.5×10^{-7} T southward

(b) 5×10^{-7} T northward

(c) 5×10^{-6} T southward

(d) 2.5×10^{-7} T northward

35. An inductor (L = 100 mH), a resistor (R = 100 Ω) and a battery (E = 100 V) are initially connected in series as shown in the figure. After a long time the battery is disconnected after short circuiting the points A and B. The current in the circuit 1 ms after the short circuit is-



(a) 1/e A (b) e A

(c) 0.1 A (d) 1 A

SECTION –B

(MAXIMUM MARKS 40)

- **This section contains FIFTEEN questions. (From question 36 to 50)**
- **Attempt any 10 questions out of 15 question .**
- **Answer to each question will be evaluated according to the following marking scheme:**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**

36. Wavelength of light used in a optical instrument are $\lambda_1 = 4000\ \text{Å}$ and $\lambda_2 = 5000\ \text{Å}$, then ratio of their respective resolving powers (corresponding to λ_1 and λ_2 is :-

(a) 16 : 25 (b) 9 : 1

(c) 4 : 5 (d) 5 : 4

37. An object 2.4 m in front of a lens forms a sharp image on a film 12 cm behind the lens. A glass plate 1 cm thick, of refractive index 1.50 is interposed between lens and film with its plane faces parallel to film. At what distance (from lens) should object be shifted to be in sharp focus on film ?

(a) 5.6 m (b) 7.2 m

(c) 2.4 m (d) 3.2 m

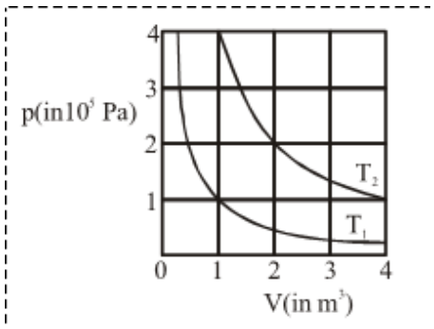
38. If the first overtone of a closed pipe of length 50 cm has the same frequency as the first overtone of an open pipe, then the length of the open pipe is

(a) 100 cm (b) 200 cm

(c) 66.6 cm (d) 33.3 cm

39. The given diagram shows two isothermal processes for a fixed mass of an ideal gas

at two constant temperatures T_1 and T_2. Then what is the value of the ratio $\frac{\text{r.m.s. speed of the molecules at temperature } T_2}{\text{r.m.s. speed of the molecules at temperature } T_1}$?



(a) $\sqrt{2}$ (b) 2

(c) $2\sqrt{2}$ (d) 4

40. Two waves of frequencies 50 Hz and 45 Hz are produced simultaneously, then the time interval between successive maxima of the resulting wave is [Maxima refers to the maximum intensity]

(a) 0.2 s (b) 0.02 s

(b) 0.04 s (d) 0.4 s

41. Which of the following statements are incorrect about photoelectric effect?

(a) Photoelectric effect supports quantum nature of radiation

(b) Maximum kinetic energy of photoelectric effect is proportional to frequency of incident radiation

(c) The phenomena of photoelectric effect is almost instantaneous

(d)Saturation photocurrent is proportional to intensity of radiation

42. In case of an adiabatic process the correct relation in terms of pressure p and density of ρ a gas is :-

(a) p ρ^{γ} = constant

(b) $p^{\gamma}\ \rho^{\gamma-1}$ constant

(c) $p\,\rho^{\gamma-1}$ = constant

(d) $p\,\rho^{-\gamma}$ = constant

43. A particle of mass 4 kg moves along x axis with potential energy (U) varies with respect to x as U = 20 +(x – 4)², maximum speed of particle is at

(a) x = 4 (b) x = 2

(c) x = 0 (d) x = 2.5

44. A wave moves with a certain speed in a stretched string. The percentage change in tension required to increase the velocity by 1%, is approximately

(a) 1% increase (b) 1% decrease

(c) 2% increase (d) 2% decrease

45. The weight of an object on the surface of the Earth is 40 N. Its weight at a height equal to the radius of the Earth is

(a) 40 N (b) 20 N

(c) 10 N (d) 30 N

46. The light ray is incidence at angle of 60^{o} on a prism of angle 45^{o}. If the light ray falls on the other surface normally then the refractive index of the material of prism μ and the angle of deviation δ are given by :-

(a) $\mu=\sqrt{2},\delta=30^{0}$ (b) $\mu=1.5,\delta=15^{0}$

(c) $\mu=\sqrt{\frac{3}{2}},\delta=30^{0}$ (d) $\mu=\sqrt{\frac{3}{2}},\delta=15^{0}$

47. Two bodies of masses 10 kg and 2 kg are moving with velocities $2\hat{i}-7\hat{j}+3\hat{k}$ and $-10\hat{i}+35\hat{j}-3\hat{k}$ m/s respectively. Find velocity of centre of mass of the system :-

(a) $24\hat{k}$ m/ s

(b) $2\hat{k}$ m/ s

(c) $40\hat{i}-140\hat{j}-36\hat{k}$ m/s

(d) None of these

48. A body is rolling without slipping on a horizontal surface and its rotational kinetic energy is equal to the its translational kinetic energy. The body is-

(a) Disc (b) Ring

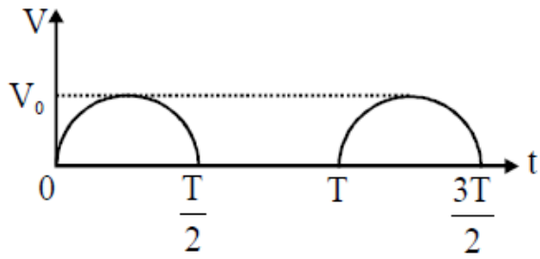
(c) Solid sphere (d) Cube

49. 100g of ice at $0^{\circ}C$ is mixed with 100g of water at $100^{\circ}C$. What will be the final temperature of the mixture :

(a) $10^{\circ}C$ (b) $20^{\circ}C$

(c) $30^{\circ}C$ (d) $40^{\circ}C$

50. What will be r. m. s. value of given wave form over one cycle



(a) V_0 (b) $\frac{V_0}{\sqrt{2}}$

(c) $\frac{V_0}{2}$ (d) $\frac{V_0}{4}$

PART II : CHEMISTRY

SECTION –A

(MAXIMUM MARKS 140)

- **This section contains THIRTY-FIVE questions. (From question 51 to 85)**
- **Each question has FOUR options (a), (b),(c) and (d). ONLY ONE of these four options is correct.**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

51. If 0.15 g of solute, dissolved in 15 g of solvent, is boiled at a temperature higher by 0.216^0C, than that of the pure solvent, the molecular weight of the substance is (molal elevation constant for the solvent is 2.16^0C) (solute is non electrolyte)

(a) 1.01 (b) 10

(c) 10.1 (d) 100

52. When 1 mole gas is heated at constant volume, temperature is raised from 298 to 308 K. Heat supplied to the gas is 500 J. Then, which statement is correct?

(a) $q = W = 500J,\ \Delta E = O$

(b) $q = \Delta E = 500J, W = 0$

(c) $q = -W = 500\ J,\ \Delta E = 0$

(d) $\Delta E = 0,\ q = W = -500\ J$

53. The entropy change in the fusion of one mole of a solid melting at 27^0C (latent heat of fusion is 2930 J mol^{-1}) is

(a)9.77 $JK^{-1}\ mol^{-1}$ (b) 10.73 $JK^{-1}\ mol^{-1}$

(c) 2930 $JK^{-1}\ mol^{-1}$ (d) 108.5 $JK^{-1}\ mol^{-1}$

54. An increase in equivalent conductance of a strong electrolyte with dilution is mainly due to

(a) increase in ionic mobility of ions

(b) 100% ionization of electrolyte at normal dilution

(c) increase in both, i.e. number of ions and ionic mobility of ions

(d) increase in number of ions

55. A hypothetical electrochemical cell is shown below

A |I A^+ (xM) |I B^+ (yM) | B

The EMF measured is + 0.20V. The cell reaction is

(a) $A + B^+ \rightarrow A^+ + B$

(b) $A^+ + B \rightarrow A + B^+$

(c) $A + e^- \rightarrow A,\ B^+ + e^- \rightarrow B$

(d) the cell reaction cannot be predicted

56. For a first order reaction, A $\rightarrow$ B, the reaction rate at reactant concentration of 0.01 M is found to be 2.0×10^{-5} mol $L^{-1}s^{-1}$. The half-life period of the reaction is

(a) 220 s (b) 30 s

(c) 300 s (d) 347 s

57. Which one of the following statements is incorrect about enzyme catalysis?

(a)Enzymes are mostly proteinous in nature

(b) Enzymes action is specific

(c) Enzymes are denaturated by UV-rays and at high temperature

(d) Enzymes are least reactive at optimum temperature

58. How many moles of lead (II) chloride will be formed from a reaction between 6.5 g of PbO and 3.2 g of HCl?

(a) 0.044 (b) 0.333

(c) 0.011 (d) 0.029

59. 600 cc of a gas at a pressure of 750 mm is compressed to 500 cc. Taking the temperature to remain constant, the increase in pressure is

(a) 150 mm (b) 250 mm

(c) 350 mm (d) 450 mm

60. What is the correct relationship between the pH of isomolar solutions of sodium oxide (pH_1), sodium sulphide (pH_2), sodium selenide (pH_3) and sodium telluride (pH_4)?

(a) $pH_1 > pH_2 \approx pH_3 > pH_4$

(b) $pH_1 < pH_2 < pH_3 < pH_4$

(c) $pH_1 < pH_2 < pH_3 \approx pH_4$

(d) $pH_1 > pH_2 > pH_3 > pH_4$

61. Solubility of MX_2 type electrolytes is 0.5×10^{-4} mol/L, then find out K_{sp} of electrolytes.

(a) 5×10^{-12} (b) 25×10^{-10}

(c) 1×10^{-13} (d) 5×10^{-13}

62. XeF_2 is isostructural with

(a) TeF_2 (b) ICl_2^-

(c) $SbCl_3$ (d) $BaCl_2$

63. Which of the following statements is not valid for oxoacids of phosphorus

(a) Orthophosphoric acid is used in the manufacture of triple superphosphate

(b) Hypophosphorous acid is a diprotic acid

(c) All oxoacids contain tetrahedral four coordinated phosphorus

(d) All oxoacids contain at least one P = O unit and one P – OH group

64. Which of the following is paramagnetic?

(a) CO (b) O_2^-

(c) CN^- (d) NO^+

65. Which of the following is least likely to behave Lewis base?

(a) NH_3 (b) BF_3

(c) OH^- (d) H_2O

66. Na^+, Mg^{2+}, Al^{3+} and Si^{4+} are isoelectronic. The order of their ionic size is

(a) $Na^+ > Mg^{2+} < Al^{3+} < Si^{4+}$

(b) $Na^+ < Mg^{2+} > Al^{3+} > Si^{4+}$

(c) $Na^+ > Mg^{2+} > Al^{3+} > Si^{4+}$

(d) $Na^+ < Mg^{2+} > Al^{3+} < Si^{4+}$

67. The de-Broglie wavelength of a particle with mass 1 g and velocity 100 m/s is

(a) 6.63×10^{-33} m (b) 6.63×10^{-34} m

(c) 6.63×10^{-35} m (b) 6.65×10^{-36} m

68. If r is the radius of the first orbit, the radius of nth orbit of H-atom is given by

(a) r, n^2 (b) r, n

(c) $\frac{r}{n}$ (d) r^2n^2

69. The pH of 10^{-9} M HCl solution is ....

(a) 6.97 (b) 9

(c) 8 (d) 5

70. In the extraction of copper from its sulphide ore, the metal is finally obtained by the reduction of cuprous oxide with

(a) copper (I) sulphide (Cu_2S)

(b) sulphur dioxide (SO_2)

(c) iron sulphide (FeS)

(d) carbon monoxide (CO)

71. Which of the following complex ions absorb to violet colour ?

(a) $[Ni(CN)_4]^{2-}$ (b) $[Cr(NH_3)_6]^{3+}$

(c) $[Fe(H_2O)_6]^{2+}$ (d) $[Ni(H_2O)_6]^{2+}$

72. Among $[Ni(CO)_4]$, $[Ni(CN)_4]^{2-}$, $[NiCl_4]^{2-}$ species, the hybridization states of the Ni atom are, respectively (At. No. of Ni=28)

(a) sp^3, dsp^2, dsp^2 (b) sp^3, dsp^2, sp^3

(c) sp^3, sp^3, dsp^2 (d) dsp^2, sp^3, sp^3

73. The d-electron configurations of Cr^{2+}, Mn^{2+}, Fe^{2+} and CO^{2+} are d^4, d^5, d^6 and d^7 respectively. Which one of the following will exhibit minimum paramagnetic behavior?

(a) $[Fe(H_2O)_6]^{2+}$ (b) $[Co(H_2O)_6]^{2+}$

(c) $[Cr(H_2O)_6]^{2+}$ (d) $[Mn(H_2O)_6]^{2+}$

74. Which of the following pairs has the same size?

(a) Fe^{2+}, Zn^{2+} (b) Zr^{4+}, Ti^{4+}

(c) Zr^{4+}, Hf^{4+} (d) Zn^{2+}, Hf^{4+}

75. Increasing order of acidic strength among p-methoxy phenol (I), p-methyl phenol (II) and p-nitrophenol (III is

(a) III, I, II, (b) II, I, III

(c) III, II, I (d) I, II, III

76. Methanol is industrially prepared by

(a) oxidation of CH_4 by steam at 900^0C

(b) reduction of HCHO using $LiAlH_4$

(c) reaction of HCHO with a solution of NaOH

(d) reduction of CO using H_2 and $ZnO\text{-}Cr_2O_3$

77. How many isomers of $C_5H_{11}OH$ will be primary alcohols?

(a) 5 (b)4

(c) 2 (d)3

78. Propene, $CH_3\text{-}CH=CH_2$ can be converted into 1-propanal by oxidation. Indicate which set of reagents amongst the following is ideal to affect the above conversion?

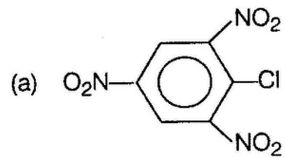
(a) $KMnO_4$ (alkaline)

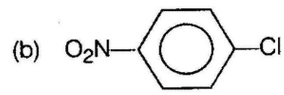
(b) Osmium tetroxide (OsO_4/Ch_2Cl_2)

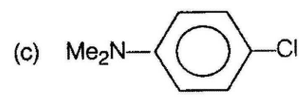
(c) B_2H_6 and alk H_2O_2

(d) O_3/Zn

79. Which chloro derivative of benzene among the following would undergo hydrolysis most readily with aq. NaOH to furnish the corresponding hydroxyl derivative?

(a) 

(b) 

(c) 

(d) C_6H_5—Cl

80. Clemmensen reduction of a ketone is carried out in the presence of which of the following ?

(a) Zn-Hg with HCl (b) $LIAlH_4$

(c) H_2 and Pt as catalyst (d) Glycol with KOH

81. A strong base can abstract an α-hydrogen from

(a) alkene (b)amine

(c) ketone (d) alkane

82. Which one of the following on treatment with 50% aqueous sodium hydroxide yields the corresponding alcohol and acid?

(a) $C_6H_5CH_2CHO$ (b) C_6H_5CHO

(c) $CH_3CH_2CH_2CHO$ (d) $CH_3-\overset{\overset{O}{\|}}{C}-CH_3$

83. Which one of the following orders of acidic strength is correct?

(a) $RCOOH > HOH > HC \equiv CH > ROH$

(b) $RCOOH > HC \equiv CH > HOH > ROH$

(c) $RCOOH > ROH > HOH > HC \equiv CH$

(d) $RCOOH > HOH > ROH > HC \equiv CH$

84. Nylon is an example of

(a) polyester (b) polysaccharide
(c) polyamide (d) polythene

85. Which one of the following is not a condensation polymer?
(a) Melamine (b) Glyptal
(c) Dacron (d) Neoprene

SECTION –B

(MAXIMUM MARKS 40)

- **This section contains FIFTEEN questions. (From question 86 to 100)**
- **Attempt any 10 questions out of 15 question .**
- **Answer to each question will be evaluated according to the following marking scheme:**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

86. Artificial sweetener which is stable under cold conditions only
(a) saccharine (b) sucralose
(c) aspartame (d) alitame

87. Which of the following hormones is produced under the condition of stress which stimulates glycogenolysis in the liver of human beings?
(a) Thyroxin (b) Insulin
(c) Adrenaline (d) Estradiol

88. Antiseptics and disinfectants either kill or prevent growth of microorganisms. Identify which of the following is not true.
(a)0.2% solution of phenol is an antiseptic while 1% solution acts as a disinfectant
(b)Chlorine and iodine are used as strong disinfectants
(c)Dilute solutions of boric acid and hydrogen, peroxide are strong antiseptics
(d) Disinfectants harm the living tissues

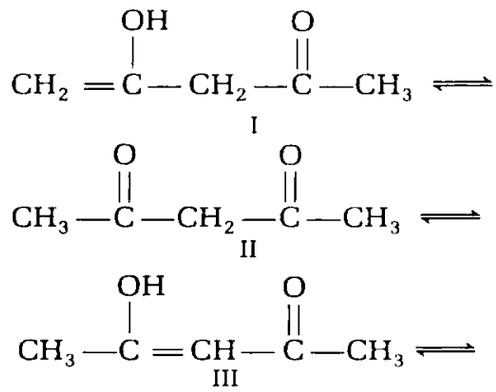
89. The segment of DNA which acts as the instrumental manual for the synthesis of the protein is
(a) Nucleotide (b) Ribose
(c) Gene (d) nucleoside

90. The correct order of first ionisation energy is C, N, O, F .....
(a) F > N > O > C (b) F > O > N > C
(c) C > N > O > F (d) F > C > N > O

91. Coordination number of $[Fe(gly)(dmg)(CN)_2]^-$ is
(a) 6 (b) 4
(c) 8 (d) 3

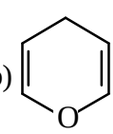
92. Which of the following organic compounds has same hybridization as its combustion (CO_2) product?
(a) Ethane (b) Ethyne
(c) Ethene (d) Ethanol

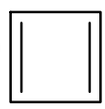
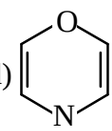
93. The order of stability of the following tautomeric compound is



(a) I > II > III (b) III > II > I
(c) II > I > III (d) II > III > I

94. In the following which compound is aromatic ?

(a)  (b) 

(c)  (d) 

95. Which of the following acid does not exhibit optical isomerism?

(a) Maleic acid (b) $\propto$-amino acid

(c) Lactic acid (d) Tartaric acid

96. The reason for double helical structure of DNA is operation of

(a) van der Waals forces

(b) dipole-dipole interaction

(c) hydrogen bonding

(d) electrostatic attractions

97. Which one of the following reactions is an example of calcinations process ?

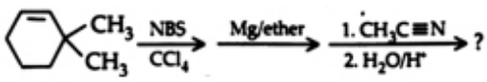
(a) $2Zn + O_2 \rightarrow 2ZnO$

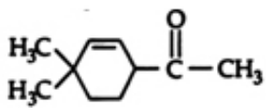
(b) $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$

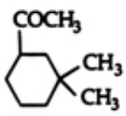
(c) $MgCO_3 \rightarrow MgO + CO_2$

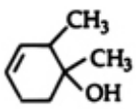
(d) $2HgS + 3O_2 \rightarrow 2HgO + 2SO_2$

98. The final product in the following reaction sequence is



(a) 

(b) 

(c) 

(d) No reaction

99. In a face-centred cubic arrangement of metallic atoms, what is the relative ratio of the sizes of tetrahedral and octahedral voids?

(a) 0.543 (b) 0.732

(c) 0.414 (d) 0.639

100. Calcium salt of propionic acid is distilled in dry conditions. The product formed will show

(a) Fehling's test : positive

(b) Iodoform test : negative

(c) Victor Meyer test : positive

(d) Tollen's test : positive

PART III : BOTANY

SECTION –A

(MAXIMUM MARKS 140)

- **This section contains THIRTY-FIVE questions. (From question 101 to 135)**
- **Each question has FOUR options (a), (b),(c) and (d). ONLY ONE of these four options is correct.**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

101. Montreal protocol was signed at montreal in1987 for the effort to avoid

(a) emmsion of green house gases into the atmosphre

(b)Developing protocol and roadmap for developed and developing country for reducing emission of CFC and ozone depleting substances

(c)To asses threat to biodiversity and wild life

(d)Know the effect of agrochemical on plant and soil

102. Plant present in desert show sunken stomata the reason behind it is

(a)more gas expelled from surface

(b)less gas expelled from surface

(c)to prevent leaf fall

(d)topreventascentofsap

103. The polytene chromosome present in

salivary gland of

(a)*psittacula* (b)*Drosophila*

(c)*Pristis* (d)*Hippocampus*

104. The respiratory queotient of protein is

(a)0.7 (b)0.9

(c)0.6 (d)1.0

105. Which of the following is immuno suppressive innature

(a)cyclosporine-A (b)statin

(c)protease (d)penicillin

106. Which of the following cause for the extinction of Dodo

(a)Habitat loss and fragmentation

(b)Food scarcity and endemism

(c)Competition and exotic animal introduction

(d)Predation and adaptation

107. Which of the following metal use in catalytic converter

(a)radium -palladium and strontium–

(b)platinum- palladium and rhodium–

(c)iron- palladium and platinum

(d)rhodium-palladium and plutonium

108. Which of the following is extinct pecies

(a)Caspian tiger

(b)*Neophron*

(c)*Apendytoes*

(d)*Rana*

109. Correct phase of cell cycle

(a)pachyten-diplotene-leptotene-diakinesis -zygotene

(b)leptotene-zygotene-pachytene-diplotene-diakinesis

(c)zygotene-pachytene-leptotene-diakinesis-diplotene

(d)zygotene-diplotene-leptotene-diakinesis-pachytene

110. Which of the following sentence is not correct about golgi complex

(a)it help in protein modification

(b)material packed in the form of vesicle

(c)it is important site for the formation of glycoprote in and glycolipid

(d)protein syntheisis and

Protein modification take place in it

111. Which of the following sentence about fertilisation in angieosperm is incorrect

(a)first male game fuse with egg and second male gamte fuse with polar cell

(b)it show ferilisation with the help of pollen tube

(c)synergid help in guiding pllen tube

(d)primary endosperm nucleus is diploid

112. Which one of the following equipment is utilized for the large scale industrial production of enzyme

(a)bioreactor

(b)sludge digester

(c)industrial oven

(d)BOD incubator

113. pyrimidene found in both RNA and DNA is

(a)thymine and uracail

(b)adenine and guanine

(c)cytosine and thymine

(d)only guanine

114. Select the correct sequence of human re-production

(a)Germcell $\rightarrow$spermqatogonia $\rightarrow$ primary spermatocyte $\rightarrow$secondary spermatocyte $\rightarrow$spermatid $\rightarrow$spermatozoa

(b)spermatozoa $\rightarrow$spermqatogonia $\rightarrow$ Primary spermatocyte $\rightarrow$secondary spermatocyte $\rightarrow$spermatid $\rightarrow$ germcell

(c)spermatid $\rightarrow$spermqatogonia $\rightarrow$ primary spermatocyte $\rightarrow$secondary spermatocyte $\rightarrow$germ cell $\rightarrow$spermatozoa

(d)Germcell $\rightarrow$spermatogonia $\rightarrow$ spermatozoa $\rightarrow$secondary spermatocyte $\rightarrow$spermatid $\rightarrow$primarysper

matocyte

115. In forest if deer give a birth to young ones it start running. Which of the following law apply for this
(a)Aquired character
(b)Survival of fittest
(c)Saltation
(d)Gauseexclusion

116. Which of the following organelles contain 70s ribosome
(a)nucleus
(b)mitochondria and chloroplast
(c)golgi bodies and RER
(d)mitochondria and perioxysome

117. Which of the following best summerise the relationship between respiratory rate and body size in related animal?
(a)smaller the animal higher the respiratory rate.
(b)Smaller the animal lowest the respiratory rate
(c)Larger the animal higher the respiratory rate
(d)Size and respiratory rate are not related in any orderly fashion

118. Select the incorrect statement
(a)Drones have 16 chromosme in their body
(b)Birds male show homogametic nature
(c)Grassohopper male show XY sex chromosome
(d)Human male show one of their sex chromosome short in nature

119. Select the correct group of antibiotic producing organism
(a)*Nostoc,Ananbena,Azospirullium*
(b)*Aspergillus,Penicillium,Streptoccocus*
(c)*Penicillium,Streptoccocus,Bordetella*
(d)*Nitrobactor,Penicillium,Rhizobium*

120. Select the correct statements
A.Genetic variability is the root of any breeding programme
B.Pre-existing genetic variability is not available from wild relatives of crop
C.Pre-requisite for effective exploitation of natural genes is available by collection and preservation of different wild relatives, species
D.The entire collection having all the diverse allele for genes in a given crop is called germplasm collection
(a)A and D only (b)A,C,D only
(c)C and D only (d)all of these

121. Match the following

ColumnA	**ColumnB**
a. Lady bird	1.Methano bacterium
b. Mycorrhiza	2.Trichoderma
c.Biological control	3.Aphids
d. Biogas	4.Glomus

(a)A-3 B-4 C-2 D-1
(b)A-2 B-1C-3 D-4
(c)A-3 B-2 C-1D-4
(d)A-2 B-1 C-4 D-3

122. What is the direction of movement of mineral
(a)unidirectional
(b)bidirectional
(c)only upward
(d)only downward

123. In some plant seed develop without fertilization the phenomenon is
(a)Apomixis (b)Amphimixis
(c)Parthenocarpy (d)Geitonogamy

124. The endosperm presnt in(coconut)*cocus nucifera* is
(a)Diploid
(b)Triploid
(c)Haploid
(d)No endosperm present

125. Which of the following sentence about genetic map is true

(a)It developed by T. Hmorgan while working on Drosophila

(b)Alfred Sturtevant experiment help in development of HGP

(c)Except *Arabidiopsis* HGP developed genetic map of all organism

(d)Genetic map only show recombination frequency between genes present on chromosome

126. Exposing an organism to certain chemical can change nucleotide base in a gene causing mutation. In one such mutated organism if a protein had only 70% of the primary amino acid sequence, which of the following is likely?

(a)Mutation broke the protein

(b)Organism could not make amino acid

(c)Mutation created a termination codon

(d)The gene was not transcribed

127. *Psudomonus* bacteria carrying out

(a)oil degradation

(b)Nitrification

(c) Ammonofication

(d)Biomagnification

128. Which of the following statemnts is coreect about cholroplast

(a)outer membrane and inner membrane both are impermeable for monomer of carbohydrates, protein and fat

(b)PS-I attached to inner membrane of thylakoids

(c)PS-II attached to outer membrane of thylakoids

(d)It contain DNA which have no ends

129. Cell in anaphase show

(a)non-disjunction at high temperature

(b) disjunction at low temperature

(c)non-disjunction at low temperature

(d)both A and B

130. Which of the following senetence is incorrect

(a)In temperate region climatic condition is uniform through the year

(b)In the spring season, cambium is very active and produce large number of xylary elements having vessel with wider cavities

(c)In winter the cambium is less active and forms fewer xylary elements that have narrow vessel

(d)The spring wood is lighter in colour and has lower density whereas the autumn wood is darker and has higher density

131. Which of the following ecological pyramid is upright

(a)pyramid of number in grassaland and pond

(b)pyramid of biomass in forest and pond

(c)pyramid of number in pond and forest

(d)pyramid of biomass in grassland and pond

132. Iron play vital rolein the life of organism which of the following sentence about iron is incorrect

(a)it absorbed by plant in the form of ferritn ion

(b)it is responsible for the formation of chlorophyll

(c)it is main component of cytochrome and hameoglobin

(d)the enzyme phosphofructokinase cannot work without iron as a co-factor

133. Which of the following protocol is for the redcing green house gases

(a)kyoto protocol

(b)geneva protocol

(c)montreal protocol

(d)Gothenburg protocol

134. Which of the following contraceptive method not used the hormone
(a)Lacational ammenorrhoea, Periodic abstinence, Barrier methode
(b)Cu-T,multiload, progestart
(c)Barrier
method, pills,periodic abstinence
(d)Implant, Progestart,cu-T

135. Asseration- RBC contain a very high concentration of enzyme carbonic – anhydrase and minute quantity of the same present in the plasma too.Reason- Carbonic anhydrase catalyse the formation of carbonic from CO_2 and H_2O
(a)Asseration and reason both true and reason is correct explanation ofasseration
(b)Asseration and reason both true but reason is not correct explanation ofasseration
(c)Asseration true but reasonis false
(d)Both asseration and reason is false

SECTION –B

(MAXIMUM MARKS 40)

- **This section contains FIFTEEN questions. (From question 136 to 150)**
- **Attempt any 10 questions out of 15 question .**
- **Answer to each question will be evaluated according to the following marking scheme:**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

136. Large number of visitor in garden visit the plant and pollinating it they attracted toward the plant by fragrance and colour.if large number of flower don't have fragrance and remain unopened from long time then-
(a)plant cannot produce new seed
(b)plant is autogamous
(c)Only birds can visit flower
(d)Only geitonogamy will be occur

137. Which of the following hormone is only prepare in leaf
(a)vernalin (b)florigen
(c)ABA (d)auxin

138. Select the correct naming of turmeric according to linneus
(a)*Curcuma longea* Linn.
(b)*Curcuma longea* Car.linn
(c)*Curcuma longea*
(d)*Curcuma Longea*

139. From the evolutionary point of view the angieosperm developed from the seedfern and progymnosperm. This progymnosperm originated from which of the following plant
(a)*Psilophyton*
(b)*Zosterophyllum*
(c)Arborescent lycopods
(d)horsetail

140. In *Antirrhinum majus* the blue(B) color of flower and largest starch grain(S)is dominant character .if the blue flower with large starch grain(BBSS)cross with white flower small starch grain (bbss)then what will be the ratio of

recombinant and parental combination in F_2 generation after F_1 selfing

(a)10:6 (b)9:3:3:1

(c)9:4 (d)3:1

141. For the MN blood group system, the frequency of M and N allele are 0.7and 0.3 respectively. The expected frequency of MN blood group bearing organism is likely to be

(a)42% (b)49%

(c)9% (d)58%

142. Conversion of fructose- 6 phosphate to fructose 1-6 phosphate second reversible reaction in gycolysis take place in the presence of enzyme

(a)hexokinase

(b)phosphofructokinase

(c)enolase

(d)aldolase

143. Plant in the forest show association of mycorrhiza because

(a)Plant show less development of root hair

(b)Only Mycorrhiza survive in this soil

(c)This plant cannot show mutualism with other species

(d)Soil deficient in mineral and mycorrhiza have more nutrient

144. Which of the following statement is incorrect

(a)viroids only containRNA

(b)prion cause mad cow disease

(c)infective constituent in virus Is protein

(d)prion consist irregulary folded protein

145. Match the column

ColumnA	**ColumnB**
A.Cuscuta	1.Saprophyte
B.Eichornea	2.Pneumatophore
C. Monotropa	3.Insectivorus plant
D.Rhizophora	4.Parasite
E. Utricularia	5.Root pocket

(a)A-3B-1C-5D-4E-2

(b)A-4B-3C-1D-5E-2

(c)A-4B-5C-1D-2E-3

(d)A-2B-3 C-1D-5E-4

146. Select incorrect statement about polymorphism in gene

(a)inherited from parent to children

(b)basis in DNA fingerprinting

(c) useful in paternity testing

(d)it produced only in somatic cell by mutation

147. Which of the following sentence is incorrect

(a)*Aspergillus* show fruiting body called ascocarps

(b)The asexual spore are conidia produced exogeneously on the sepatal mycelium called conidiophores

(c)*Saccharomyces* is club fungi used inproduction of ethanol

(d)*Neurospora* is used extensively in biochemical and genetic work

148. Short tail mouse always shave short ear, white hair and red colour of eye. this is the example of

(a)pleiotropic effect

(b)incomplete dominance

(c)complete dominance

(d)polygenicin heritance

149. Sometime it take a long time seed to germinate in favorable condition which combination hormone and method is utilized to germinate seed

(a)treatment with GA and remove hardseed coat

(b)Treatment with ABA and temperature

(c)treatment with cytokinin and remove hard seed coat

(d)application of 2,4,D and light

150. Which of the following is used as bio control agent

(a)NPV (b)chlorella

(c)dinoflagellate (d)sacchromyces

PART IV : ZOOLOGY

SECTION –A

(MAXIMUM MARKS 140)

- **This section contains THIRTY-FIVE questions. (From question 151 to 185)**
- **Each question has FOUR options (a), (b),(c) and (d). ONLY ONE of these four options is correct.**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

151. The exaggerated response of the immune system to certain antigen present in the environment is called allergy ,in this condition body response increase

(a)RBC (b)Antihistamine

(c)Thyroxine (d)IgA

152. Match the following with respect to their location

(a)caecum (1)villi

(b)Stomach (2)papillae

(c)Tongue (3) symbiotic micr organism

(d)small intestine (4)pylorics phincter

(a)a-2b-3c-4d-1 (b)a-3b-4c-2d-1

(c)a-1b-2c-3d-4 (d)a-3b-1c-2d-4

153. Which part of the brain is responsible for long term memory

(a)hippocampus (b)hypothalamus

(c)mid brain (d)amygadla

154. Consider the following feature

(A)Bilateral symmetry

(B)celomate and segmentation

(C)digestive system complete which of the following group of organism correctly show above charecter

(a)Neophron, Neris, Drosophila, Balnoptera, Limulus

(b)Neries, Locust, Culex, Taenia, Ctenophore

(c)Panther, Rattus, Physalia, Pleurobrachia

(d)Fasciola, Pheretima, Apis,Asterias,Ascidia

155. Asseration-The development of periplaneta Americana is paurometabolus

Reason-In the development of the cockroach there are many nymphal stage.The nymph –look very much like adults

(a)Asseration and reason both true and reason is correct explanation of asseration

(b)Asseration and reason both true but reason is not correct explanation of asseration

(c)Asseration true but reason is false

(d)Both asseration and reason is false

156. Which of the following is autoimmune disorder

(a)rheumatid arthritis

(b)phenylketonuria

(c)osteoporosis

(d)gout

157. Cuboidale pithelial tissue is mainly responsible for the absorpation of nutrient these cell are present in
(a)illeum and PCT
(b)fallopian tube and ovary
(c)mouth and vasa deference
(d)urethra and ureter

158. Match the column

ColumnA	**ColumnB**
A. pectinate muscle	1. ventricle
B. Papillary muscle	2. Atria
C. Ligamen- tum arteriosum	3. Interatrial septum
D.Fossa ovalis	4. Connect Aorta and Pulmonary trunk

(a)A-4B-1C-2D-3
(b)A-4B-3C-1 D-2
(c)A-2B-1C-4D-3
(d)A-3B-2 C-4D-1

159. The mean (μ) and standered deviation (s) of body size in drosophila population are 8.5 and 2.2mm,respectively.Under natural selection over many generation the μ and s of body size change to 8.5 and 0.8mm, respectively.the type of natural selection responsible for the change is called
(a)Directional (b)Neutral
(c)Disruptive (d)Stabilizing

160. How does cortisol affect the body
(a)stimulate RBC production
(b)it stimulate phagocytosis
(c)it increase lipolysis and decresase proteolysis
(d)stimulate cellular uptake of in amino acid

161. Ricin is a
(a)toxin (b)pigment
(c)alkaloid (d)terpenoids

162. Consider the following statement about enzyme
A.Km is initial amount of substrate to start the reaction
B.At transition sate less energy is required in enzyme mediated reaction select the following statement
(a)both A and Bis true
(b)A is trueB is false
(c)Both A and B false
(d)A is false but B is true

163. Match the following

ColumnA	**ColumnB**
A.Charles darwin	1.Mutation theory
B. Lamarack	2.Germplam theory
C. Hugodevries	3. *Philosophie Zoologique*
D. Ernst Haeckel	4.Biogenetic law
E.Weisman	5. Essay Onpopulation
	6.Origin of species

(a)A-6B-3C-1D-4E-2
(b)A-3B-2C-1 D-5E-4
(c)A-2B-3C-4D-5E-1
(d)A-1B-2 C-3D-4E-5

164. Plasmidis utilize for the multiplication of desirable gene.genes introduce at oneof the reconition site in plasmid if three genes introduce at three different site in plasmid then which of the following will occur
(a)plasmid cannot multiply
(b)more number of non- recombinant will produce
(c)three different restriction enzyme required
(d)three selectable marker required for identification of recombinant and

nonrecombinant

165. Which of the following factor is responsible for the retention of more water in body during summer
(a)secretion of low level of aldosteron
(b)secretion of low level of ADH
(c)hyperosmalrity in medullary interstitum
(d)secretion of high level of ADH

166. The cardiac output of the person is 7.2L and and stroke volume is 100ml heartbeat is 72 per minute.suppose if this person heart pump only 70ml blood in one minute then how much blood is present in left ventricle after ventricular diastole?
(a)40ml (b)30ml
(c)50ml (d)70ml

167. Following are the statements regarding enzyme restriction endonuclease.identify the incorrect statements
(a)it used E.coli for defence mechanism
(b)it cut both DNA strand
(c)it cut DNA at specific palindromic sequences
(d)it only give a cohesive end after cutting DNA

168. which of the following is true for RNAi technology
(a)*Meloigdegyne incognitia* infection in tobbaco can be prevent by this method
(b)increase efficiency of mineral usage by plant
(c)made crop more tolerant to abiotic stresses
(d)source of this complementary RNA would be from infectious virus havingRNA genome

169. Drug called smack is produced by
(a)acetylation of morphine
(b)methylation of morphine
(c)glycosylation of morphine
(d)nitration of morphine

170. Which of the following feature of genetic code allow *Agrobacterium tumifaciens* to introduce bt gene and produce bt-cotton
(a)Genetic code is specific
(b)Genetic code is universal
(c)Genetic code is redundant
(d)Genetic code is nonambiguous

171. Which of the following sexually transmitted disease is not completely curable?
(a)Hepatatis-B (b)typhoid
(c)malaria (d)bubonic plague

172. Which of the following is drug obtained from plant
(a)curcumin (b)anthocyanin
(c)concavalin-A (d) lectin

173. Which of the following immune response is responsible for rejection of graft
(a)hummoral immune response
(b)cell mediated immune response
(c)inflammatory immune response
(d)Autoimmune response

174. Match the column

ColumnA	**ColumnB**
a.*Pinctada*	1.Chiton
b.*Loligo*	2.seahare
c. *Chaetopleura*	3.Pearl oyster
d. *Dentalium*	4.squid
e. *Aplysia*	5.Tuskshell

(a)a-3b-4c-1d-5e-2 (b)a-1b-2c-3d-4e-5
(c)a-5b-4c3d-2e-1 (d)a-1b-3c-4d-5e-2

175. The condition uremia result in the following
(a)Increase production of ketone bodies in urine
(b)Increase urea in blood
(c)Inflammation of glomeruli in kidney

(d)Increase production of potassium ion in body

176. Which of the incorrect about the mechanism of vision

(a)Light ray is visible wavelength focused on the retina induce dissociation of the retinal from opsin resulting in changes in the structure of the opsin

(b)due to change in the structure of opsin membrane permeability changes and potential difference are generated in the photoreceptor cell

(c)a signal is produced in photoreceptor cell that generates action potential in the bipolar cell through the ganglion cell

(d)The action potential are transmitted by optic nerve to the visual cortex areaof the brain where the neural impulses are analyzed and the image formed on the retina is recognized based on earlier memory and experience

177. Arrange the correct order of sequence frome evolutionary point of view

(a)rhynia-tracheophyte- cholorophyte-psilophyton-conifer

(b)cholorophyte-tracheophyte-rhynia-psilophyton-conifer

(c)conifer -tracheophyte-rhynia-psilophyton-cholorophyte

(d)cholorophyte-rhynia-psilophyton-conifer

178. Identify the following cell which help in absorption of iron

(a)goblet cell (b)parietalcell

(c)duodenal cell (d) chief cell

179. During bleeding phase of menstrualcycle unfertilized secondary oocyte undergo autolysis this interplay of hormone at that time is

(a)progesterone and estrogen continue hypertrophy of endometrial lining

(b)prolactin and progesterone reduce LH level causing regression of corpus luteum

(c)progesterone inhibit the release of LH from pituitary causing regression of corpus luteum

(d)prolactin and estrogen inhibit progesterone secretin leading to sloughing off uterine lining

180. What trigger activation of prototoxin to bt toxin in beetle if infect btcorn

(a)low body temperature

(b)acidic pH of gut

(c)alkaline pH of gut

(d)hardbodysurface

181. Identify correct pair

(a)Plague-Lungs

(b)Typhoid-mouth

(c)Hepapatis-Bone marrow

(d)Meningities- spleen

182. Which ofthe following non medicated IUD

(a)Lippers loop (b)CuT

(c)LNG-20 (d)Multiload375

183. Select the incorrect statements

(a)repeated activation of the muscle can lead to accumaltion of lactic acid

(b)myoglobin contain is high in some of the muscle

(c)white fibre contained very less mitochondria

(d)white fibe depend on aeorobic respiration for energy

184. Matchthecolumn

ColumnA	**ColumnB**
A.addision disease	1.cortisol
B.goiter	2.PTH
C.hypercalcemia	3.glucagon
D.Dibeties	4.T3

Select the correct option

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

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

185. Which of the following is a basic feature of all the organisms of Animalia?

(a) Multi cellular structure

(b) Sensory and neuromotor system

(c) Terrestrial habitat

(d) Locomotion

SECTION –B

(MAXIMUM MARKS 40)

- **This section contains FIFTEEN questions. (From question 186 to 200)**
- **Attempt any 10 questions out of 15 question .**
- **Answer to each question will be evaluated according to the following marking scheme:**
- **For each question, marks will be awarded in one of the following categories :Full Marks : +4 If only the bubble corresponding to the correct option is darkened. Zero Marks : 0 If none of the bubbles is darkened.**
- **Negative Marks : –1 In all other cases**

186. Choose the correct statement for epithelial tissue:

(a) Possesses loosely packed cells with little intercellular matrix

(b) The free surface of epithelium faces the body fluid but not the outside environment

(c) Has a basal surface and a free surface

(d) This tissue is always made of only one layer of cells

187. Which of the following is correct?

(a) Palmitic acid has sixteen carbon atoms including carboxyl carbon

(b) Arachidonic acid has twenty carbon atoms excluding carboxyl carbon

(c) Stearic acid has eighteen carbon atoms excluding carboxyl carbon

(d) All are correct

188. Which of the following is the largest lymphatic vessels of the human body?

(a) Lacteal duct

(b) Thoracic duct

(c) Cisterna chili

(d) Right lymphatic duct

189. Steroid-based hormones are able to act inside the cell. This is possible because

(a) there are no receptors for hormones on the cell surface.

(b) hormones must interact with the nucleus to have an effect.

(c)proteins carry them into the cell.

(d) steroid-based hormones are hydrophobic molecules that can pass through the cell membrane.

190. Which of the following correctly traces the energy of sound waves into the ear?

(a) Auditory canal-ear drum-ear bones-cochlea

(b) Eardrum-auditory canal-cochlea-ear bones

(c) Auditory canal-ear bones-eardrum-cochlea

(d) Eardrum-auditory canal-ear bones-cochlea

191. Proteins are broken down by a number of enzymes. What proteolytic enzyme is released by the wall of the small intestine

(a) Peptidase (b) Trypsin

(c) Chymotrypsin (d) All of these

192. Kidneys help in the conservation of useful materials and excretion of wastes and therefore they receive 20% of the heart's output of blood (as much as the

heart and brain combined). On a percentage basis which substance is most completely reabsorbed by the kidneys?

(a) Water (b) Glucose

(c) Urea (d) Sodium

193. An advantage of gas exchange in water, compared with gas exchange in air, is that

(a)water usually contains a higher concentration of O2 than air.

(b)water is easier to move over the respiratory surface.

(c)the respiratory surface does not dry out in water

(d) ventilation requires less energy in water

194. Which of the following is incorrect ?

(a) Earth originated about 4.5 billion years back

(b) The first organisms were chemoautotroph

(c) Experimental proof that some simple molecules like H_2, NH_3, CH_4, and H_2O gave rise to amino acids during origin of life was provided by S.L. Miller

(d) Oxygen was absent at the time of origin of earth

195. Organic compounds first evolved on earth and required for origin of life were:

(a) Amino acids and urea

(b) Nucleic acid (RNA) and protein

(c) Amino acid and protein

(d) Nucleic acid and urea

196. In the immune system, interferons are a part of

(a) physiological barriers

(b) cellular barriers

(c) physical barriers

(d) cytokine barriers.

197. The letter T in T-lymphocytes refers to

(a)tonsil (b)thalamus

(c)thymus (d) thyroid

198. Which of the following revolution help in triple the food Supply?

(a) Green revolution b. Blue revolution

(b)Farming facility (d) Both (a) & (b)

199. The colonies of recombinant bacteria appear white in contrast to blue colonies of non-recombinant bacteria because of

(a)Non-recombinant bacteria containing B-galactosidease

(b)Insertional inactivation of beta - galactosidase in recombinant bacteria

c.Insertional inactivation of alpha-galactosidase in recombinant bacteria

(d) Inactivation of glycosidase enzyme in recombinant bacteria

200. Which one represents a triglyceride?

(a) Oil

(b) Phospholipid

(c) Polysaccharides

(d) Chitin

Best Luck