NEET – 2025

MODEL TEST

CENTRE FOR EDUCATIONAL DEVELOPMENT OF MINORITIES

OSMANIA UNIVERSITY

Minorities Welfare Department, Government of Telangana

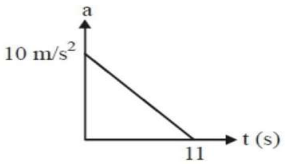
Nizam College Campus, Gunfoundry, Hyderabad – 500001.

PHYSICS

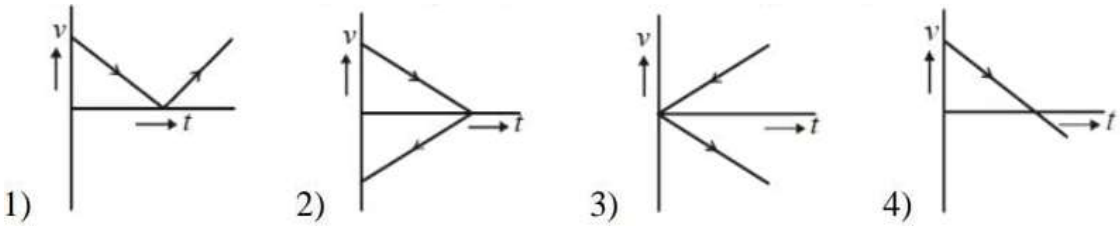
SECTION - A

1. In $S = a + bt + ct^2$, S is measured in meters and t in seconds. The unit of c is
   1) ms^{-2} 2) m 3) ms^{-1} 4) No units

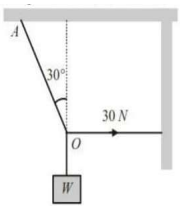
2. A particle starts from rest. Its acceleration (a) versus time (t) graph is as shown in the figure. The maximum speed of the particle will be
   1) 110 m/s 2) 55 m/s
   3) 550 m/s 4) 660 m/s



3. A ball is thrown vertically upwards. Which of the following graphs represent velocity-time graph of the ball during its flight? (air resistance is neglected)



4. As shown in figure the tension in the horizontal cord is 30 N. The weight W and tension in the string OA in Newtons are



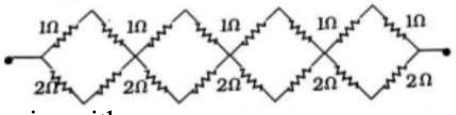
   1) $30\sqrt{3}, 30$ 2) $30\sqrt{3}, 60$ 3) $60\sqrt{3}, 30$ 4) None of these

5. A ball is thrown from ground level so as to just clear a wall 4 metres high at a distance of 4 metres and falls at a distance of 14 metres from the wall. The magnitude of velocity of the ball will be
   1) $\sqrt{182} m/s$ 2) $\sqrt{175} m/s$ 3) $\sqrt{165} m/s$
   4) $\sqrt{155} m/s$

6. A particle is moving in a circular path with velocity varying with time as $v = 1.5t^2 + 2t$. If the radius of circular path is 2 cm, the angular acceleration at t = 2 sec will be
   1) 4 rad/sec^2 2) 40 rad/sec^2 3) 400 rad/sec^2 4) 0.4 rad/sec^2

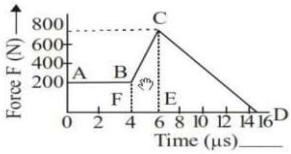
7. A body of mass m tied at the end of a string of length is projected with velocity $\sqrt{4\ell g}$, at what height will it leave the circular path
   1) $\frac{5}{3}\ell$ 2) $\frac{3}{5}\ell$ 3) $\frac{1}{3}\ell$ 4) $\frac{2}{3}\ell$

8. The equivalent resistance between A and B is



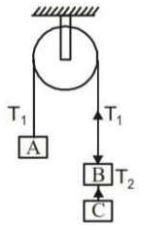
   1) $16/3\Omega$ 2) 16Ω 3) 8Ω 4) $3/16\Omega$

9. The magnitude of the force (in Newton) acting on a body varies with time t (in microsecond) as shown in fig. AB, BC, and CD are straight line segments. The magnitude of the total impulse on the body from t=4 μ s to to 16 μ s is



   1) 5×100^{-4} *N.s* 2) $5\times10^{-3} N.s$ 3) 5×10^{-5} *N*.s 4) 5×10^{-2} *N.s*

10. Three equal weights of mass m each are hanging on a string passing over a fixed pulley as shown in fig. The tensions in the string connecting weights A to B and B to C will respectively be



   1) $\frac{2}{3}mg, \frac{2}{3}mg$ 2) $\frac{2}{3}mg, \frac{4}{3}mg$ 3) $\frac{4}{3}mg, \frac{2}{3}mg$ 4) $\frac{3}{2}mg, \frac{3}{4}mg$

11. A block of mass 2 kg is on a horizontal surface. The co-efficient of static & kinetic frictions are 0.6 & 0.2 The minimum horizontal force required to start the motion is applied and if it is continued, the velocity acquired by the body at the end of the 2nd second is ($g = 10ms^{-2}$)

1) 8N, $8ms^{-1}$ 2) 8N, 4 ms^{-1} 3) 8N, 2 ms^{-1} 4) 8N, zero

12. Two satellites S_1, and S_2, revolve round a planet in the same direction in circular orbits. Their periods of revolutions are 1 hour and 8 hour respectively. The radius of S_1, is 10^4 km. The velocity of S_2, with respect to S_1, will be

1) $\pi\times10^4$ km/hr 2) $\pi/3\times10^4$ km/hr 3) $2\pi\times10^4$ km/hr 4) $\pi/2\times10^4$ km/hr

13. A uniform steel wire of density 7800kg/m^3 is 2.5 m long and weighs 15.6×10^{-3} kg. It extends by 1.25 mm when loaded by 8kg. Calculate the value of young's modulus of elasticity for steel.

1) $1.96\times10^{11} N/m^2$ 2) $19.6\times10^{11}\ N/m^2$ 3) $196\times10^{11}\ N/m^2$ 4) None of these

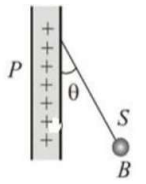
14. An ideal gas expands isothermally from a volume V_1 to V_2 and then compressed to original volume V_1 adiabatically. Initial pressure is Pand final pressure is P_3. The total work done is W. Then

1) $P_3 > P_1,\ W > 0$ 2) $P_3 < P_1,\ W < 0$ 3) $P_3 > P_1, W < 0$ 4) $P_3 = P_1,\ W = 0$

15. A charged ball B hangs from a silk thread S, which makes an angle with a large charged conducting sheet P, as shown in the figure. The surface charge density σ of the sheet is proportional to

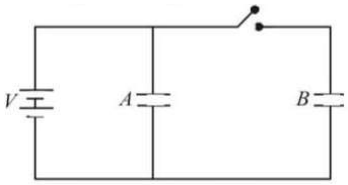
1) $\sin\theta$ 2) $\tan\theta$ 3) $\cos\theta$ 4) $\cot\theta$

16. Figure given below shows two identical parallel plate capacitors connected to a battery with switch S closed. The switch is now opened and the free space between the plates of capacitors is filled with a dielectric of dielectric constant 3. What will be the ratio of total electrostatic energy stored in both capacitors before and after the introduction of the dielectric?



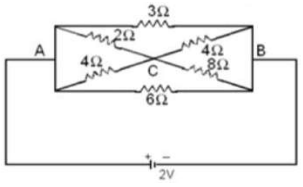
1) 3:1 2)5:1 3)3:5 4)5:3

17. In the fig. shown, Calculate the current through 3 ohm resistor. The emf of battery is 2 volt and its internal resistance is 2/3 ohm.



1) 0.33 amp 2) 0.44 amp 3) 1.22 amp 4) 0.88 amp

18. A thin circular wire carrying a current I has a magnetic moment M. The shape of the wire is changed to a square and it carries the same current. It will have a magnetic moment



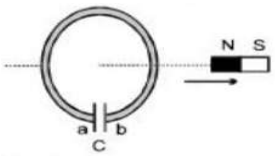
1) M 2) $\frac{4}{\pi^2}M$ 3) $\frac{4}{\pi}M$

4) $\frac{\pi}{4}M$

19. Consider the arrangements shown in figure in which the north pole of a magnet is moved away from a thick conducting loop containing capacitor. Then excess positive charge will arrive on

1) plate a 2) plate b
3) both plates a and b 4) None of the plates a and b

20. A current 10 A in the primary coil of a circuit is reduced to zero at a uniform rate in 10^{-3} second. If the coefficient of mutual inductance is 3H, the induced e. m.f. in the secondary coil will be



1) 3 kV 2) 30 kV 3) 2 kV
4) 20 kV

21. An alternating current is given by the equation $i = i_1 \cos \omega t + i_2 \sin \omega t$. The r.m.s. current is given by

1) $\frac{1}{\sqrt{2}}(i_1 + i_2)$ 2) $\frac{1}{\sqrt{2}}(i_1 + i_2)^2$ 3) $\frac{1}{\sqrt{2}}(i_1^2 + i_2^2)^{1/2}$ 4) $\frac{1}{2}(i_1^2 + i_2^2)^{1/2}$

22. A light beam travelling in the X-direction is described by the electric field E_y, (300V/m) $\sin \omega(t - x/c)$. An electron is constrained to move along the Y - direction with a speed of 2.0×10^7 m/s. The maximum magnetic force (in N) on the electron is.

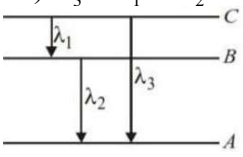
1) 3.2×10^{-18} 2) 5.1×10^{-16} 3) 6.5×10^{-11} 4) 7.8×10^{-12}

23. In Bohr model of atom an electron of charge (-e) and mass m is revolving around a nucleus of charge +ze. If $\bar{L}$ is the orbital angular momentum of electron, then its magnetic moment is given by

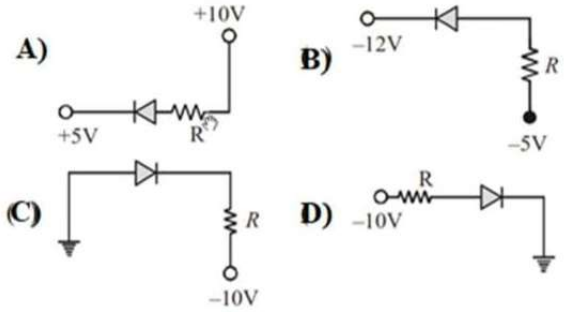
1) $-\frac{e}{2m}\bar{L}$ 2) $\frac{e}{2m}\bar{L}$ 3) $\frac{-Ze}{2m}\bar{L}$ 4) $\frac{Ze}{2m}\bar{L}$

24. Energy levels A, B, C of a certain atom corresponding to increasing values of energy i. e. $E_A < E_B < E_C$. If $\lambda_1, \lambda_2, \lambda_3$ are the wavelengths of radiations corresponding to the transitions C to B, B to A and C to A respectively, which of the following statements is correct?

1) $\lambda_3 = \lambda_1 + \lambda_2$ 2) $\lambda_3 = \frac{\lambda_1 \lambda_2}{\lambda_1 + \lambda_2}$ 3) $\lambda_1 + \lambda_2 + \lambda_3 = 0$ 4) $\lambda_3^2 + \lambda_1^2 + \lambda_2^2$



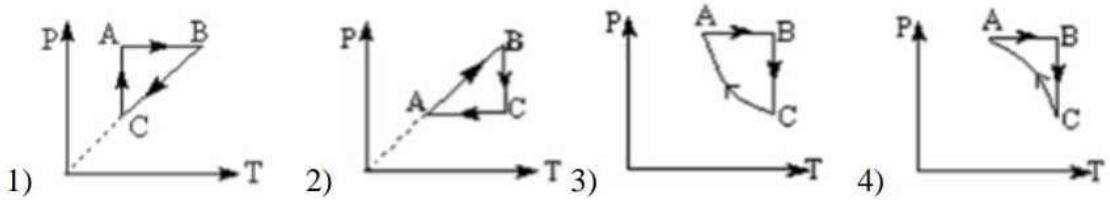
25. In the given figure, the diodes in forward biased are



1) A, B, C only 2) B, C only 3) A, C only 4) A only

26. An ideal gas undergoes a thermodynamics cycle as shown in figure. Which of the following graphs represents the same cycle?

27. A uniform rope of mass m and length L is hung freely from stationary ceiling. If the cross sectional area of rope is A and Young's modulus Y, then net elongation in the rope due to its

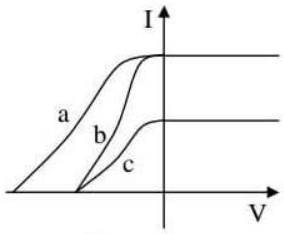


28. Two soap bubbles to form a single large drop (r = radius of small bubbles R = radius of large drop)

Column: I	**Column - II**
A) surface energy in the process	P) $2^{1/3}$ r
B) pressure of the soap bubble inside will be	Q) Decreases
C) temperature of drop will be	R) $4^{1/3}$ r
D) radius of final single drop	S) increases.

1) A-Q,B-Q,C-S,D-P
2) A-Q,B-P,C-S,D-P
3) A-P,B-Q,C-P,D-S
4) A-P,B-Q,C-P,D-S

29. In a photo electric experiment, I(current)-V (voltage) graph is as shown. Curves a,b,c correspond to three different metal surfaces irradiated with monochromatic light of same frequency. Assuming the ratio of number of electrons emitted per second to the number of photons incident per second is the same for all the three surfaces, choose the INCORRECT statement:
1) the work function of metals b and c are equal
2) the intensities of light incident on a and b are same
3) the work functions of metals a and b are not equal
4) the intensities of light incident on a, b and c are all different



30. The value of L, C and R in an LCR series circuit are 4 mH, 40 pF and 100 Ω respectively. The quality factor of the circuit is

1) 10,000 2) 100 3) 1000
4) 10

31. Two coherent sources of light emit waves with wavelength with constant phase difference of 180°. The intensity due to each at a point on a screen is I. At a point on the screen where the path difference between two waves is $\frac{3\lambda}{2}$ the total intensity will be:

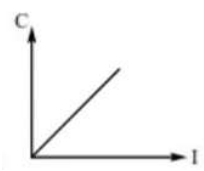
1) $2I_0$ 2) $4I_0$ 3) $6I_0$ 4) $3I_0$

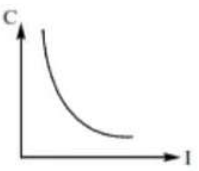
32. Statement - A: A diver under water, looks obliquely at a fisherman standing on the bank of a lake. The fisherman look shorter to the diver than what he actually is

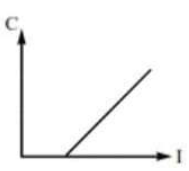
Statement - B: A convex mirror always produces a virtual image independent of location of the real object

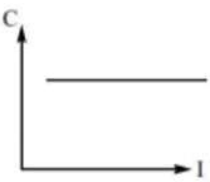
1) Both statements A & B are true 2) Statement A is true and Statement B is false
3) Statement A is false and Statement B is true 4) Both statements A & B are false

33. In photoelectric effect experiment, the intensity of light is varied by changing the distance of light source from emitter. Which of the following graphs depict he variation of photoelectric current 'C' with intensity of light 'I'?

1) 

2) 

3) 

4) 

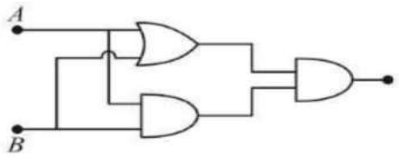
34. Assertion (A): The Bohr model is not applicable to atoms having many electrons.

Reason (R): In atoms having many electrons, each electron interacts not only with positively charged nucleus but also with all other electrons.

1) Both assertion and reason are true and reason is correct explanations of assertion.
2) Both assertion and reason are true but reason is not correct explanation of essertion.

3) Assertion is true and reason is false
4) Assertion is false and reason is true

35. The combination of gates shown in the diagram is equivalent to



1) OR 2) AND

3) NAND 4) NOR

PHYSICS

SECTION - B

36. Two identical capacitors have the same capacitance C. One of them is charged to a potential Vi and the other to V2. If they are connected with their unlike plates together, the decrease in energy of the combined system is

1) $\frac{1}{4}C(V_1^2 - V_2^2)$ 2) $\frac{1}{4}C(V_1^2 + V_2^2)$ 3) $\frac{1}{4}C(V_1 - V_2)^2$ 4) $\frac{1}{4}C(V_1 + V_2)^2$

37. Some relations and laws related to fluids are given in column A, While the reasons behind them are given in column B. Match A and B

Column - I	Column - II
(a) Stoke's law energy	e) Surface potential
(b) Equation of continuity	f) Viscosity
(c) Bernoulli's theorem	g) Conservation of mass
(d) Velocity efflux	h) Conservation of energy

1) (a) – (e), (b) – (f), (c) – (g), (d) – (h) 2) (a) – (f), (b) – (h), (c) – (g), (d) – (e)

3) (a) – (f), (b) – (g), (c) – (h), (d) – (e) 4) (a) – (e), (b) – (h), (c) – (g), (d) – (f)

38. When two identical batteries of internal resistance 10 each are connected in series across a resistor R, the rate of heat produced in R is P_1. When the same batteries are connected in parallel across R, the rate is P_2. If P_1=2.25 P_2, the value of R is

1) 2Ω 2) 4Ω 3) 10Ω 4) 12Ω

39. If θ is the angle of projection and H, R are the maximum height, range of a projectile, then Tan θ is

1) 4H/R 2) 4R/H 3) 2H/R 4) 2R/H

40. The force per unit length on a wire carrying current of 8A making an angle of 30^0 with a uniform magnetic field of 0.15 T is

1) 1.2 N 2) 1.02 N 3) 0.6 N 4) 2.4 N

41. A body of mass of 0.5kg travels in a straight line with velocity $V = 5X^{3/2}$. Work done by the net force during its displacement from x=0 to *x*=2m is

1) 10 J 2) 12 J 3) 40 J 4) 50 J

42. From a uniform disc of radius R, a circular hole of radius R/2 is cut out. The centre of the hole is at R/2 from the centre of the original disc. The shift in centre of gravity of the resulting body

1) R/3 2) R/4 3) R/12 4) R/6

43. A body weights 63N on the surface of earth. The gravitational force on the earth at a height equal to half of the radius earth is

1) 28N 2) 32 N 3) 126N 4) 7N

44. **Statement (A):** The stretching of a coil is determined by its shear modulus.

Statement (B): Of the three states of matter the bulk modulus of elasticity is maximum for gases.

1) Both Statements - A & B are true
2) Statement A is true and Statement B is false
3) Statement - A is false and Statement - B is true
4) Both Statements A & B are false

45. Excess pressure inside the drop of mercury of radius 3.00mm is (surface tension of mercury is $4.65\times10^{-1}Nm^{-1}$)

1) 860 Pa 2) 1240 Pa 3) 620 Pa 4) 310 Pa

46. For an ideal gas at absolute temperature T, the coefficient of volume expansion at constant pressure is

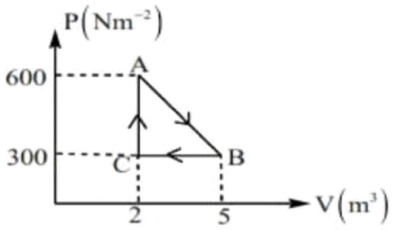
1) 2/T 2) 3/T 3) 1/T 4) 1/T2

47. A uniform wire of resistance R is uniformly compressed along its length, until its radius becomes n times the original radius. Now resistance of the wire becomes

1) $\frac{R}{n^4}$ 2) $\frac{R}{n^2}$

3) $\frac{R}{n}$ 4) nR

48. A gas undergoes a thermodynamic process ABC. The total work done by the gas is



1) 200 J 2) 300 J

3) 900 J 4) 450 J

49. A body describes S.H.M. with an amplitude 5cm and period 0.2s. Velocity of the body when the displacement is 3cm is (in cm s1)

1) $5\pi^2$ 2) 40π 3) 50π 4) $3\pi^2$

50. A string of mass 2.5kg is under a tension of 200N. The length of stretched string is 20m. If a transverse jerk is struck at one end of the string, the time taken by the jerk to reach the other end

1) 0.5 s 2) 1.5 s 3)2 s 4) 2.5 s

CHEMISTRY

SECTION - A

51. A mixture of gases contains H_2 and O_2 gases in the ratio of 1:4 (w/w). What is the molar ratio of the two gases in the mixture?

1) 16 : 1 2) 2 : 1 3) 1 : 4 4) 4 : 1

52. In H-atom spectrum electron jumps from 5th excited state to 1st excited state then total number of spectral lines, number of lines in Lyman series and Paschen series respectively are:

1) 10, 4, 3 2) 15,0,4 3) 15, 4, 5 4) 10,0,3

53. The angular momentum of electron in 'd' orbital is equal to:

1) $2\sqrt{3}h$ 2) h 3) $\sqrt{6}h$ 4) $\sqrt{2}h$

54. Which of the following is correct with respect to -I effect of the substituents? [R = alkyl]

1) $-NH_2 > -OR > -F$ 2) $-NR_2 < -OR < -F$

3) $-NH_2 < -OR < -F$ 4) $-NR_2 > -OR > -F$

55. The species, having bond angles of 120° is:

1) PH_3 (b) CIF_3 (c) $NC1_3$ BCl_3

56. The species Ar, K^+ and Ca^{2+} contain the same number of electrons. In which order do their radii increase?

1) $Ca^{2+} < K^+ < Ar$ 2) $K^+ < Ar < Ca^{2+}$

3) $Ar < K^+ < Ca^{2+}$ 4) $Ca^{2+} < Ar < K^+$

57. The solubility of $BaSO_4$, in water is $2.42 \times 10^{-3} gL^{-1}$ at 298K. The value of solubility product (K_{sp}) will be [Given molar mass of $BaSO_4 = 233\ g\ mol^{-1}$]

1) $1.08 \times 10^{-2}\ mol^2L^{-1}$ 2) $1.08 \times 10^{-12}\ mol^2L^{-2}$

3) $1.08 \times 10^{-14}\ mol^2L^{-2}$ 4) $1.08 \times 10^{-8}\ mol^2L^{-2}$

58. What is the activation energy for a reaction if its rate doubles when the temperature is raised from 20°C to 35°C? ($R = 8.314 J\ mol^{-1}\ K^{-1}$)

1) 342 kJ mol^{-1} 2) 269 kJ mol^{-1} 3) 34.7 kJ mol^{-1} 4) 15.1 kJ mol^{-1}

59. In which of the following options the order of arrangement does not agree with the variation of property indicated against it?

1) I < Br< Cl< F (increasing electron gain enthalpy)
2) Li < Na < K < Rb (increasing metallic radius)
3) $Al^{3+} < Mg^{2+} < Na^+ < F^-$ (increasing ionic size)
4) B < C <N< O (increasing first ionization enthalpy)

60. Aqueous solution of which of the following compounds is the best conductor of electric current?

1) Hydrochloric acid, HCI 2) Ammonia, NH_3

3) Fructose, $C_6H_{12}O_6$ 4) Acetic acid, $C_2H_4O_2$

61. The rate of first-order reaction is 0.04 mol $L^{-1}\ s^{-1}$ at 10 seconds and 0.03 mol $L^{-1}s^{-1}$ at 20 seconds after initiation of the reaction. The half-life period of the reaction is:

1) 44.1 s 2) 54.1 s 3) 24.1 s 4) 34.1 s

62. In acidic medium, H_2O_2 changes $Cr_2O_7^{2-}$ to CrO_5 which has two (–O–O–) bonds. Oxidation state of Cr in CrO_5 is:

1) +5 2) +3 3) +6 4) -10

63. The reaction of H_2O_2 with hydrogen sulphide is an example of ..... reaction:

1) addition 2) oxidation 3) reduction 4) redox acidic

64. The enthalpy of vaporization of $H_2O(l)$ is x kJ/mol and enthalpy of formation of water vapour y kJ/mol. Enthalpy of formation of $H_2O(l)$. would be

1) $(y - x)$ kJ mol^{-1} 2) $(x - y)$ kJ mol^{-1} 3) $(x + y)$ kJ mol^{-1} 4) $(2x–y)$ kJ mol^{-1}

65. Equal volumes of four acid solutions having pH 1, 2, 3 and 4 are mixed in a container. The concentration of hydrogen ion in the mixture of.

1) 4.25×10^{-4} M 2) 2.78×10^{-2} M 3) 2.30×10^{-3} M 4) 1.35×10^{-2} M

66. A button cell used in watches functions as following:

$Zn(s) + Ag_2O(s) + H_2O(l) \rightarrow 2\,Ag(s) + Zn^{2+}(aq) + 20H^-(aq)$

If half-cell potentials are: $Zn^{2+}(aq) + 2e^-\ Zn(s)$ E° = –0.76 V

$Ag_2O(s) + H_2O(l) + 2e^- \rightarrow 2Ag(s) + 2OH^-(aq)$, E° = 0.34 V

The cell potential will be:

1) 1.10 V 2) 0.42 V 3) 0.84 V 4) 1.34 V

67. The correct order of increasing bond length of C–H, C–O, C–C and C = C is:

1) C—C < C = C < C—O < C—H 2) C—O < C—H < C—C < C = C

3) C—H < C—O < C—C < C = C 4) C—H < C = C < C—O < C—C

68. Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?

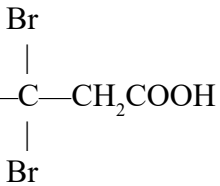
1) $Br_2 > I_2 > F_2 > Cl_2$ 2) $F_2\ Cl_2 > Br_2 > I_2$ 3) $I_2 > Br_2 > Cl_2 > F_2$ 4) $Cl_2 > Br_2 > F_2 > I_2$

69. Gadolinium belongs to 4f series. It's atomic number is 64. Which of the following is the correct electronic configuration of gadolinium?

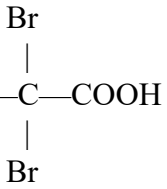
1) [Xe] $4f^8\ 6s^2$ 2) [Xe] $4f^9\ 5s^1$ 3) [Xe] $4f^7\ 5d^1\ 6s^2$ 4) [Xe] $4f^6\ 5d^2\ 6s^2$

70. Propionic acid with Br_2/P yields a dibromo product. Its structure would be:

1) $CH_2Br—CHBr—COOH$

2) 

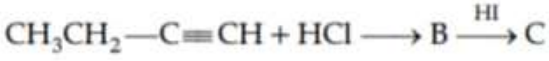
3) $CH_2Br—CH_2—COBr$

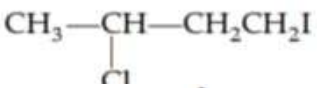
3) 

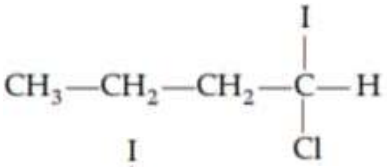
71. At 25°C and 730 mm pressure, 380 ml of dry oxygen was collected. If the temperature is constant, what volume will the oxygen occupy at 760 mm pressure?

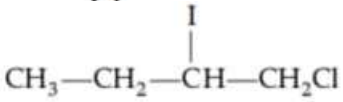
1) 365 ml (b) 2 ml (c) 10 ml (d) 20 ml

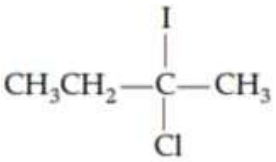
72. Predict the product C obtained in the following reaction of 1-butyne.



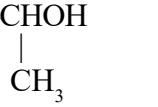
1) 

2) 

3) 

4) 

73. Following compounds are given:

(i) CH_3CH_2OH (ii) CH_3COCH_3 (iii)  (iv) CH_3OH

Which of the above compound(s), on being warmed with iodine solution and NaOH, will give iodoform?

1) (i), (iii) and (iv) 2) Only (ii) 3) (i), (ii) and (iii) 4) (i) and (ii)

74. Consider the following statements.

(1) XeF_4 is colourless crystalline solid and undergoes sub-limation.

(2) $XeOF_4$ is colourless volatile liquid.

(3) XeO_4 is colourless explosive solid.

The correct statements are:

1) (1) and (2) only 2) (2) and (3) only 3) (1) and (3) only 4) (1), (2) and (3)

75. A solution has 1 : 4 mole ratio of pentane to hexane. The vapour pressure of the pure hydrocarbons at 20°C are 440 mm of Hg for pentane and 120 mm of Hg for hexane. The mole fraction of pentane in the vapour phase would be:

1) 0.549 2) 0.200 3) 0.786 4) 0.478

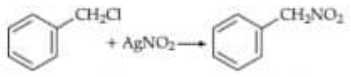
76. One mole of $Al3^+$ discharged completely by using charge?

1) 3F 2) 1F 3) 0.3F 4) 2F

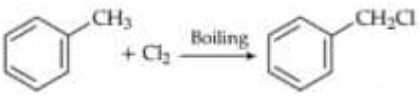
77. In which of the following molecules/ions BF_3, NO_2^-, NH_2^- and H_2O, the central atom is sp^2 hybridised?

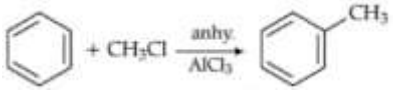
1) NO_2^- and NH_2^- 2) NH_2^- and H_2O 3) NO_2^- and H_2O 4) BF_3 and NO_2^-

78. Which one of the following is a free-radical substitution reaction?

1) 

2) $CH_3CHO + HCN \longrightarrow CH_3-\underset{OH}{CH}-CN$

3) 

4) 

79. Consider the following reaction:

$$\text{Ethanol} \xrightarrow{PBr_3} X \xrightarrow{\text{alc. KOH}} Y \xrightarrow[H_2O,\ \text{heat}]{H_2SO_4,\ \text{room temperature}} Z$$

1) $CH_3CH_2O—CH—CH_3$ 2) $CH_3—CH_2—O—SO_3H$

3) CH_3CH_2OH 4) $CH_2=CH_2$

80. Which of the following is an ideal solution?

1) Ethanol + water 2) Nitric acid + water

3) Ethanol + benzene 4) Benzene + toluene

81. The efficiency of a fuel cell is given by:

1) $\frac{\Delta G}{\Delta S}$ 2) $\frac{\Delta G}{\Delta H}$ 3) $\frac{\Delta S}{\Delta G}$ 4) $\frac{\Delta H}{\Delta G}$

82. Which of the following will not show cis-trans isomerism?

1) $CH_3—CH = CH—CH_3$ 2) $CH_3—CH_2—CH=CH—CH_2CH_3$

3) $CH_3—\underset{\displaystyle CH_3}{\underset{|}{C}} = CH—CH_2—CH_3$ 4) $CH_3—\underset{\displaystyle CH_3}{\underset{|}{C}}—CH = CH—CH_2—CH_3$

83. Among the following compounds, one that is most reactive towards electrophilic nitration is

1) benzoic acid. 2) nitrobenzene. 3) toluene. 4) benzene.

84. At 25°C, the dissociation constant of a base, BOH is 1.0×10^{-12}. The concentration of hydroxyl ions in 0.01 M aqueous solution of the base would be:

1) 2.0×10^{-6} mol L^{-1} 2) 1.0×10^{-5} mol L^{-1}

(c) 1.0×10^{-6} mol L^{-1} (d) 1.0×10^{-7} mol L^{-1}

85. If the enthalpy change for transition of liquid water to steam is 30 $kJmol^{-1}$ at 27°C. The entropy change for the process would be:

1) 1.0J mol^{-1} K^{-1} 2) 0.1 J mol^{-1} K^{-1} 3) 100 J mol^{-1} K^{-1} 4) 10J mol^{-1} K^{-1}

SECTION - B

86. In which electrophilic substitution reaction slow step is breaking of C—H bond?

1) Sulphonation of benzene 2) Nitration of benzene

3) Chlorination of benzene 4) All of these

87. Acetone and ethanol can be chemically distinguished by:

(a) I_2/NaOH (b) 2,4 DNP 3) Tollen's reagent 4) Both (a) and (b)

88. In which of the following reaction C—C bond formation does not take place?

(1) Gattermann-Koch reaction (2) Étard reaction

(3) Benzoin condensation (4) Swarts reaction

89. The value of Δ AH and AS for the reaction,

$C_{(gradually)}(s) + CO_2(g) \rightarrow 2CO(g)$ are 170 kJ and 170 JK^{-1}, respectively. This reaction will be spontaneous at:

1) 710 K 2) 910 K 3) 1110 K 4) 510 K

90. The experimental data for the reaction $2A + B_2 \longrightarrow 2AB$

Exp.	[A]	[B]	Rate (Ms^{-1})
1.	0.50	0.50	1.6×10^{-4}
2.	0.50	1.00	3.2×10^{-4}
3.	1.00	1.00	3.2×10^{-4}

The rate equation for the above data is:

1) rate = $k[B_2]$ 2) rate = $k[B_2]^2$ 3) rate = $k[A]^2[B]^2$ (c) rate = $k[A]^2[B]$

91. Given below are two statements

Statement I: SF_6 exists but SH_6 does not.

Statement II: $d\pi - p\pi$ bonding cannot take place in SH_6

Choose the correct answer from the options given below:

1) Statement I is incorrect but Statement II is true.

2) Both statement I and Statement II are true.

3) Both Statement I and Statement II are false.

4) Statement I is correct but statement II is false.

92. What is the correct IUPAC name of the following coordination compound.

$[Cr(py)_3Ch_3]$

1) Trichlorotripyridinium chromium (III) 2) Tripyridiniumtrichloro chromium (III)

3) Trichlorotripyridine chromium (III) 4) Trichlorotripyridine chromium (II)

93. The incorrect statements among the following is:

1) Glucose on oxidation with Br_2/H_2O gives gluconic acid.

2) The pentaacetate of glucose does not react with hydroxyl amine.

3) The six membered cyclic structure of glucose is called furanose structure.

4) The two cyclic hemiacetal forms of glucose are ano- mers of each other.

94. How many isomers are possible for coordination complex $[Co(NH_3)(NO_2)](NO_3)_2$

1) 6 2) 10 3) 4 4) 12

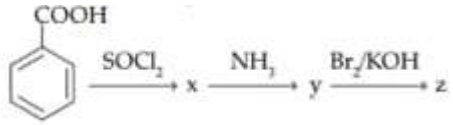
95. The numbers of mole of phenylhydrazine needed to form fructosazone when react with fructose is:

1) 1 2) 2 3) 3 (d) 4

96. Indicate the coordination number and oxidation state of the complex $[Ni(en)_2(C_2O_4)NO_2$

1) +1 2) +2 3) -2 4) +3

97. Give the IUPAC nomenclature of the final product(z) formed in the following reactions.



1) Aniline 2) Chlorobenzne 3) Benzamide 4) Benzoyl chloride

98. Match list I with List II.

List I	**List II**
(A) Protein	(i) DNA,
(B) Nucleic acid	(ii) Polymer of α-amino acids
(C) Polysaccharides	(iii) glucogen
(D) Enzymes	(iv) maltase

Choose the correct answer from the options given below.

1) (A)-(ii), (B)-(i), (C)-(iii), (D)-(iv) 2) (A)-(i), (B)-(ii), (C)-(iv), (D)-(iii)

3) (A)-(iv), (B)-(iii), (C)-(ii), (D)-(i) 4) (A)-(iii), (B)-(ii), (C)-(iv), (D)-(i)

99. Which of the following statement(s) is correct?

(a) $[Fe(CN)_6]^{4-}$ is diamagnetic but $[Fe(CN)_6]^{3-}$ is paramagnetic.
(b) Fe^{3+} ions always form tetrahedral complexes.
(c) In a compound with an octahedral structure, the d_{xy} and d_{yz} orbitals of a metal ion should be vacant.
(d) The ferric ammonium alum is a complex salt.

100. The fluoride of xenon with zero dipole moment is

1) XeF_6 2) XeO_3 3) XeF_4 (d) XeF_2

BIOLOGY

101. The term taxon refers to
1) Name of a species 2) Name of genus
3) Name of family 4) A taxonomic group of any rank.

102. Class is present between
1) Kindom & Phyllum 2) Phylum and order
3) Order and family 4) family & genus.

103. Descending arrangement of Categories is called
1) Key 3) Heirarchy 3) Taxonomy 4) Classification

104. The label of a herbarium Sheet dres not carry information on
1) Date Collection 2) Name the collector 3) Local names 4) Height of the plant

105. Viroids differ from viruses is having
1) DNA molecules without.
2) RNA molecules with protein coat
3) RNA molecules without protein coat
4) DNA molecules with protein coat

106. After Karyogamy followed by meiosis, spores are produced exogenously in
1) Agarious 1) Alternaria 3) Neurosppra 4) Sacharomyces

107. Bacillus thuringiensis (Bt) strains have been used for designing novel
1) Bioinsecticidal plants 2) Bio-mineralizations
3) Biofuertizers 4) Bio-metallurgical techniques

108. Cry protein is obtained from
1) Bacillus thuringiensis 2) Bacillus subtilis
3) Clostridium Welchi 4) E-coli

109. In primary settling tank, all sediments that settle are termed as
1) Primary sludge 2) Effluent 3) Activated sludge 4) Flocs

110. The term poly adelphous is related to
1) Gyroceium 2) Androecium 3) Corella 4) Calyx

111. Coconut fruit is a
1) Berry 2) Nut 3) Capsule 4) Drupe

112. When Stamens are attached to perianth, Condition is known as
1) Epipetalous 2) Epiphyllous 3) Polyandrous 4) Diadelphous

113. Tricarpellary syncarpous gynoecium is found in flowers of
1) Fabaceae 2) Poaceoe 3) Liliacee 4) Solanaceoe

114. Placentation in tomato and Lemon is
1) Marginal 2) Axile 3) Parietal 4) Free Central

115. Cork is formed from
1) Cork combium 2) Vascular combium 3) Phloem 4) Xylem

116. Companion cells are associated with
1) Vessel elements 2) Trichomes 3) Guard celle 4) Sieve elements

117. The most primitive type of stele is
1) Eustete 2) Solenostele 3) Protostele 4) Siphonostele.

118. The functional xylem of dicet tree is
1) Sap wood 2) Hard wood 13) Heartwood 4) Autumn

119. Age of a tree Can be estimated by
1) Number of annual rings 2) Diameter of its heartwood
3) Its height and girth 4) Biomass

120. Infloresence is racemose in
1) Brinjal 2) Tulip 3) Aloe 4) Soyabean

121. 1The mechanism that causes a gene is called to move from one linkage group to another
1) Inversion 2) Duplication 3) Translocation 4) Crossing-over

122. Which of the following most appropriately describes haemophilia.
1) Cchromosomal disorder 2) Dominant gene disorder
3) Recessive gene disorder 4) Recessive gene disorder

123. The ratio of complementary genes in F_2 generation
1) 12:3:1 2) 9:8 3) 9:3:4 4) 9:6:1

124. Wich one is the incorrect statement with regard to the importance of Pedigree analysis.
1) It confirms that DNA is the Carries of genes information
2) It helps to understand whether the trait question is dominant of recessive
3) It confirms that the trait is linked to one of the autosome
4) It helps to trace the inheritance of a specific trait

125. Down's Syndrome in humans is due to
1) The X chromosom 2) Three copies of Chrome of chromosomes
3) Monosomy 4) Two Y chromosomes.

126. Uridine, present only in RNA is a
10 Nucleoside 2) Nucleotide 3) Purine 4) Pyrimidine

127. Which of the following is the starter codon
1) UAA 2) UAG 3) AUG 4) UGA

128. The final proof of DNA as the genetic Material Came from the experiments of
1) Hershey & Chase 2) Avery, Mcleod & McCarty
3) Hangdoind Khorana 4)Griffith

129. Which of the following is codons codes for Proline
1) CCC, CCU, CCG 2) UCC, UGU, CCU 3) CUG, CUU, CUA 4) CGC, CGG, CCA.

130. Which one of the following is a restriction endonuclease
1) DN asel 2) R Nase 3) Hind II 4) Protease

131. The cutting of DNA at specific Locations because possible with the discovery of
1) Selectable maskers 2) Ligases 3) RE 4) Probes

132. Which organism is used to transfer T-DNA
1) Streptomycis hygroscopices 2) Agrobacterium tumefacium
3) Salmonella typhi 4) E-coli

133. A gene whose expression helps to transformed cell is known as
1) Vector 2) Plasmid 3) Structural gene 4) Selectable markers

134. Natality refers to
1) Number of individuals leaving the habitat 2) Birth rate
3) Death rate 4) Number of individuals entering a habitat

135. Mycorrhizae are the example of
1) Ammensalism 2) Antibiosis 3) Mutalism 4) Fungistasis

136. The age pyramid with broad base indicates
1) High percentage of old individuals 2) Low Percentage of young individuals
3) A stable population 4) High Percentage of Young individuals.

137. The term ecosystem was coined by
1) Haeckel 2) E. Warming 3) E. P. Odun 4) A.G. Tansley

138. Which ecosystem has the maximum biomass
1) Grassland ecosystem 2) Pond ecosystem 3) Lake ecosystem 4) Forect ecosystem

139. What is the National Aquatic Animal of India?
1) Blue Whale 2) Sea Horse 3) Gangetic Shark 4) River Dolphin

140. Which of the following structures is not found in a prokaryotic cell
1) Mesosome 2) Plasmamembrane 3) Nuclear enuelope 4) Ribesome

141. A cell organelle containing hydrolytic enzmes
1) Lysosome 2) Microsone 3) Ribosome 4) Mesosome

142. The Golgi Complex participates in
1) Respiration in bacteria 2) Formation of secretory Vesicles
3) Fatty acid breakdown 4) Activation of Amino acid

143. Which of the following are not polymeric
1) Proteins 2) Polysaccharides 3) Lipids 4) Nucleic acids

144. Which of the following is the least likely to be involved in stabilising the 3-dimensional folding in most protein
1) Hydrogen bonds 2) Electrostatic Interaction
3) Hydrophobic Interaction 4) Ester bonds

145. In cell cycle, changes of which stage are not visible inder microscope
1) Interphase 2) Prophase 3)Metaphase 4) Anaphase

146. Duplication of DNA occurs in
1) GI-phase 2) S-phase 3) G2-Phase 4) M-phase

147. In meiosis Crossing over is initiated at
1) Zygotene 2) Diplotene 3) Pachytene 4) Leptotene

148. Which is the longest phase of the cell cycle
1) M-phase 2) Interphase 3) Leptotene 4) S-phase

149. During Cell growth, DNA synthesis takes place in
1) S-phase 2) Inteçkinesis 3) Diploteme 4) Interphase

150. Chromosome can be seen best during
1) Prophase 2) Metaphase 3) Anaphase 4) Telophase

ZOOLOGY

151. Branch of Zoology connected with the improvement of Human Race through laws of heredity is
1) Eugenics 2) Euthenics 3) Euphenics 4) Eithology

152. Father of Taxonomy is
1) William Harvey 2) Carolous Lineus 3) Aristotle 4) Theophrastus

153. Inter convertibility of Sol-gel is
1) Natural change 2) Physical change
3) Chemical change 4) Physico-Chemical change

154. Which of the following coelenterate does not exhibit metagenesis
1) Obelic 2) Aurelia 3) Hydra 4) Physalia

155. Match the following columns and choose the correct answer

Column – A	**Column – B**
A. Polyembryony	I. Schistosoma hasmatobium
B. Liver fluke	II. Dibothricephulus
C. Bilharziasis	III. Trematoda
D. Largest tape worm	IV. Hymenolepis nana
E. Smallest tape worm	V. Fasciola

	A	B	C	D	E
1)	II	I	III	IV	V
2)	III	V	I	IV	II
3)	III	V	I	II	IV
4)	III	IV	I	II	V

156. The larva which performs Nocturnal periodicity
1) Planula 2) Rhabiditi form larva
3) Microfilaria 4) Cysticercus

157. Match the following and choose the correct answer

Column – A	**Column – B**
A. Stratified cuboidal epithelium	I. Ducts of Paratid
B. Simple cuboidal epithelium	II. Thyroid gland
C. Simple columnar epithelium	III. Cornea of eyes
D. Simple squamous epithelium	IV. Conjuctiva of eyes
	V. Trachea and Bronchi

	A	B	C	D
1)	V	III	II	I
2)	IV	II	I	V
3)	II	IV	I	III
4)	V	II	III	IV

158. Find out the correct series of diagram
1) artery, lacunae, canaliculi 2) Canaliculi, volkman's canal, vein
3) Volkman's canal, lacunae, bone lamellae 4) Vollkman's canal, lacunae, canaliculi

159. Aristotle's lanten in echinoids is known as

1) Alimentary organ 2) Supplementary organ 3) Mastigatory organ 4) All

160. Aquatic organism with limited power of locomotion are called

1) Plankton 2) Nektons 3) Neustons 4) Periphytons

161. One of the following is useful measures for prevention and control of TDA abuse among the adolescents

A) Avoid undue parental pressure, and by Responsibility of parents and teachers

B) Seeking help from peers, education and counseling

C) Seeking help from professional, alcohol and drug consumptive persons

1) A and C are true, B is false 2) B and C are true, A is false

3) A and B are true, C is false 4) A, B and C are true, None is false

162. In earthworm lateral Heart can be differentiated from lateral oesophageal Hearts by the presence of

1) 2 pairs of valves 2) 3 pairs of valves 3) 4 pairs of valves 4) All

163. Rapid increase in the number of cells in the organ of host due to the presence of a parasite is known as

1) Hyperplasia 2) Hypertrophy 3) Over growth 4) Necrosis

164. The body cavity of cockroach is not a true body cavity, filled with blood is called

1) Haemato fluid 2) Haemalymph 3) Haemocoel 4) Pseudocuel

165. Read the following statement and choose the correct answer

A. In Phereretima dorsal Blood vessel is collecting and distributing Blood vessel.

B. Dorsal Blood vessel is considered as true heart in earthworm.

1) A & B are false 2) A is correct and B is correct explainaihen to A.

3) A is false and B is true. 4) A is correct explaination to B, But B is false

166. Choose the Correct Statement regarding malaria and its parasite.

I. Malaria Caused in man by plasmodium vivax.

II. Every year world Mosquito day is celebrated on 20th August

IIL. Sexual Cycle of plasmocdium discovered by Ronald Ross in female Anopheles.

IV. Anisogamy and Isogamy are the Naturally Seen Reproduction in plasmodium vivax.

1) I, II, & III 2) II, III, IV 3) I, II & III 4d) III, IV, II

167. Choose the Correct statement of the following regarding circulation in frog.

I. Heart is 3 Chambered.

II. Heart Situated in pericardial Cavity

IIII. Conus arteriosus is absent

IV. Blood contains erythrocytes, leucocyles and thrombocytes.

V. Sinus venosus is not a Pacemaker.

1) I, II & V, 2) I, III & IV 3) I, II & III 4) I, II, IV

168. The Mass of eggs are released by the female frog is named

1) milt 2) Spawn 3) 1 & 2 4) ova

169. The arrangemeats of Abdominal ganglia in Seguments cockroach is

1) 1,2,3,5,6,7 2) 1, 2, 3, 4, 6, 7 3) 1, 3, 4, 5, 6, 7 4) 1, 2, 3, 4, 5, 7

170. Fat bodies in Cockroach are Similar to

1) The liver of Invertebrates stores food & uric acid

2) The liver of vertrebrates stores food & uric and, Symbioses & Synthesize lipids.

3) The heart of vertebrates, filter the blood & Circulation,

4) The Brain of Invertebrate & co-ordinate the all body functions.

171. Mouth parts of Insects are

1) Homologous organs 2) Analogous organs. 3) Vestigeal organs. 4) Atavistic organs.

172. Break-bone fever is also known as

1) yellow fever 2) Malaria 3) Filariasis 4) Dengue fever

173. Chikungunya transmit to man by

1) Infected person 2) Mosquito

3) infected female Aedes aegyptimosquito 4) Culex female

174. The Symptoms of Dengue fever are are begins after biting of mosquito to man is

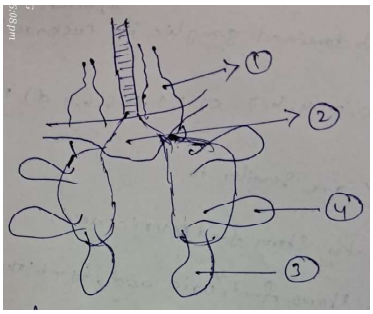
1) 1 to 2 days 2) 2 to 4 days 3) 7 to 10 days 4) 4 to 10 days.

175. One of the following are Symptoms & Signs of dengue fever.

1) Headach & muscular pain 2) Bone or Joint pains

3) High fever, Rash & Swollen glands 4) All

176. Look the diagram & find out the correct Series of Names



1) Posterier thoracic air sac, Inter claricle, Abdominal, trachea

2) Cervical, Inter claricle, Right lung, Abdominal

3) Cervical, Inter claricle, Abdominal & Posterier thoracic air sac.

4) Cervical, Inter claricle, left lung, posterier therocic

177. Match the following columns.

S.NO	**Food Substances.**	**Enzyme**	**Products.**
I	Carbohydrates.	Amylase	maltose, Sucrose & lactose
II	Maltose	Maltase	Glucose & Galaclose
III	Sucrose	Invertrase	Glucose + Cellulose
IV	Lactose	Lactase	Glucose & Galaclose

which of the Above are Correct.

1) I & II 2) II & III 3) III & IV 4) I & IV

178. A Healthy human breaths normally per minute.

1) 12 to 13 times 2) 12 to 15 times 3) 12 to 16 times 4) 13 to 18 times.

179. Match the following and choose the correct Answer

A. Asbestosis I. in halation of coal dust

B. Silicosis II in halation of cold dust

C. Siderosis III. Hyper ferremia

D. Black lung disease IV. Asbestos industry

V. Silica dust

	A	B	C	D
1)	I	II	III	IV
2)	IV	V	III	II
3)	IV	V	II	I
4)	IV	V	III	I

180. In human being Heart beat is initiated by

1) A. V.node b) S. A node 3) Sinus venosus 4) Purkenji fibres.

181. Steps involve in Heart beat are

1) Auricular systole $\rightarrow$ ventricular diastole $\rightarrow$ ventricular Systole

2) Auricular systole $\rightarrow$ ventricular systole $\rightarrow$ ventriculer diastole

3) Auricular systole $\rightarrow$ ventricular systole $\rightarrow$ diastole of Complete Heart

4) None of these

182. One of the following high, B.P is fatal to human's Kidney & Brain.

1) $1\frac{190}{110}Hg$ 2) $\frac{120}{190}Hg$ 3) $\frac{150}{90}Hg$ 4) $\frac{120}{80}Hg$

183. **Assertion (A)** Infection of the urinery fract is more common in woman than in man.

Reasen (R) Due to Short urethra, which is more close to the Anal aperture.

1) A is true, R is false

2) A is true, R is true, but R is not the correct explaination of A.

3) A is true, R is true and R is the correct explaination of A.

4) A is false R is false and R is the correct explainaitien of A.

184. Match the following & choose the correct Answer

A. Motor unit	I. Neuron & set of the Muscle fibres innervated by
B. Neuro Musculer Junction	telodendrites & constitute.
C. Functional unit	II. Sarcomere of striated muscle.
D. Voluntary muscle	III. Cardiac muscle
	IV. Junction between a motor neuron and Sarcolemma.
	V. Skeletal muscles.

	A	B	C	D
1)	I	II	III	IV
2)	II	I	III	IV
3)	I	IV	V	II
4)	I	IV	II	V

185. Smallest bone in human's body

1) Atlas 2) Malleus 3) Stepes 4) Patella

186. Match the following & choose the correct Answer

Column-I	**Column - II**
A. Myocuel	I. Ol factory lobe
B. Diacoel	II. Cerebral hemisphere.
C. Lateral ventricle	III. Foramen of monro
D. Rhinocoel	IV. Diencephalon
	V. Medulla oblengata

	A	B	C	D
1)	V	IV	III	I
2)	V	IV	II	I
3)	V	IV	I	II
4)	IV	V	II	I

187. Re absorption of H_2O in Nephrons is controlled by

1) ACTH 2) STH 3) Vasopressin 4) Oxytocin

188. Hormone which stops ovulation is

1) F.S.H 2) L. H 3) Prolactin 4) Progesterone

189. The body is covered by fine hair, eye lids, ey lashes are formed by the end of

1) 24 weeks in third trimester 2) 24 weeks in 2nd trimester

3) 36 weeks in 2nd trimester 4) 36 weeks in 3rd trimester..

190. Formation & Development of blastocyst and its attachment to the uterine wall is called

1) Pertirution 2) Puberty 3) Implantation 4) Gestation

191. Match the following & chose the correct Answer.

Column-I	**Column-II**
A. Gonorrhea	I. Trichomonas vaginalis.
B. Hepatitis	II. Troponema pallidium
C. Trichomoniasis	III. HBV
D. Syphlis	IV. Neisseria gonorrles
	V. Typhi Salmonella

	A	B	C	D
1)	IV	V	I	II
2)	IV	III	V	I
3)	IV	III	I	II
4)	IV	III	II	I

192. A man known to be a victim of Haemophilia marries a normal woman, whose father was known to be ableader then this expected that

1) one fourth of their children will be bleeders.

2) All their children will be bleeders.

3) Half of their children will be bleeders

4) None of these.

193. A Colourblind man married a woman who is the daughter of a Colourblind father and mother is homogenous Normal vision.

What is the probability of their daughters being colorblind.

1) 50% 2) 100% 3) 75% 4) 25%

194. DNA finger printing is a method for Identifying individuals, paternity & forensicwork. The DNA can be obtained from

1) Blood, Semen & Hairs 2) Vaginal fluid 3) 1 & 2 4) None of these.

195. One of the following is sex influence trait.

1) albinism 2) Baldness 3) Blood Group inheitance 4) All

196. Match the following Columns & Choose the correct Answer

S.NO.	Sex Chromosomes	Haplord Seb of Auto Seames	Sex Ratio	Phenotype
I	XX	AA	1.0	female
II	XX	AA	0.5	female
III	XXY	AA	1.0	female
IV	XXXY	AA	1.5	meta female
V	XO	AAA	0.33	meta male

which one of the above is correct match.

1) I, II & III 2) I, II, III & IV 3) I, III, IV, V 4) II, III, IV & V

197. A woman's father shows IP (Incontinentia pigmenti). But her Mother & Husband are normally pigmented. What will be the phenotypic ratio of her children of I.P.

1) 50%, Sons 2) 50%. daughters 3) 100% Sons. 4) 1 & 2

198. Match the following & Choose the Correct Answer.

Column-I	**Column-II**
A. Biogenetic law	I. August Weismann
B. Mutation	II. Darwin
C. Germ plasm	III. Louis Pasture
D. Pangenesis	IV. Ernst Haukle
	V. Hugo Devries

	A	B	C	D
1)	IV	V	II	I
2)	IV	V	I	II
3)	IV	V	I	III
4)	IV	I	II	III

199. Hyper Sensitivity is

1) Produced by Antigen

2) Produced by Immune Complexe called Allergy.

3) Produced by high temperature of the body,

4) None of these.

200. Match the following & choose the Correct Answer.

Column-I	**Column-II**
A. CAT	I. Electro Encephalography
B. EEG	II. Magnetic Resonance Image
C. MRI	III. Computerised Axial Tomography
D. ECG	IV. Electro Crdio graphy
	V. Electro Angio graphy.

	A	B	C	D
1)	III	II	I	IV
2)	III	I	II	V
3)	III	I	II	IV
4)	III	II	I	V