Paper Contributor : IINSIGHT

PHYSICS

1. Potential difference across a resistance is measured as (100 ± 5)V and current through it is (10 ± 0.2)A.

   Maximum percentage error in resistance is

   (a) 3% (b) 4.5% (c) 6% (d) 7%

2. A ball is projected upwards with velocity v_0. It passes through a point above ground after T_0 time. The time after which ball passes the same point during downfall, is

   (a) $\frac{v_0}{g} - T_0$ (b) $2\frac{v_0}{g} - 2T_0$ (c) $\frac{v_0}{g} - 2T_0$ (d) $\frac{2v_0}{g}$

3. A particle starts from rest with constant acceleration and its velocity after t second is v. The displacement of the particle in last two second of motion is given by

   (a) $\frac{v}{t}(t-1)$ (b) $\frac{2v}{t}(t+1)$ (c) $\frac{2v}{t}(t-1)$ (d) $\frac{2v}{t}(t-2)$

4. A particle is projected with velocity v_0 at some angle θ from the horizontal so that its horizontal range is twice that of maximum height attained.

   (Neglect air resistance and symbols have their usual meanings).

   The maximum height attained by projectile is

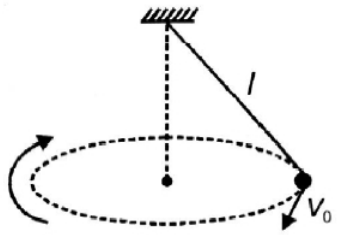
   (a) $\frac{4v_0^2}{5g}$ (b) $\frac{3v_0^2}{5g}$ (c) $\frac{2v_0^2}{5g}$ (d) $\frac{v_0^2}{5g}$

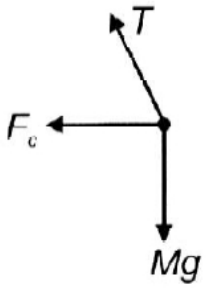
5. A projectile is projected with some initial velocity $2\hat{i} + 4\hat{j}\ m/s$. The equation of trajectory of the projectile is given by ($g = 10\ m/s^2$)

   (a) $y - 8x - 5x^2$ (b) $y = 2x - 5x^2$

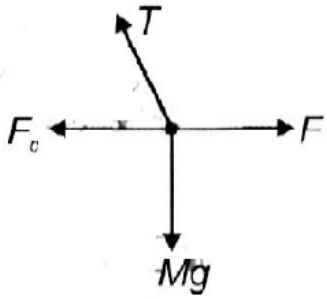
   (c) $4y = 8x - 5x^2$ (d) $4y - 2x - 5x^2 = 0$

6. A particle of mass m is connected with an ideal string and is moved in horizontal circle with constant speed v_0 as shown. The forces acting on the particle for an observer who is also moving along with particle so that it appears in rest to the observer, are correctly shown in

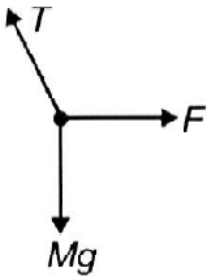




(a)



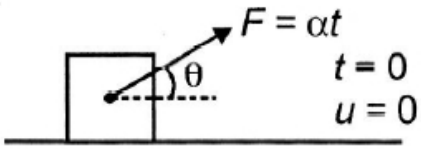
(b)



(c)

(d)

7. A variable force $F = \propto t$ is applied on a block, kept on smooth horizontal surface as shown. Speed of block when it is about to leave contact, is



(a) $v = \frac{mg^2 cos^2\theta}{2\alpha sin\theta}$

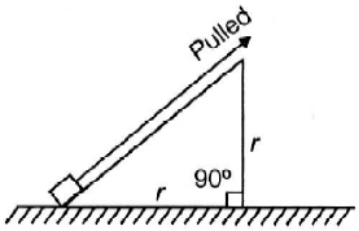
(b) $v = \frac{mg^2 cos\theta}{2\alpha sin^2\theta}$

(c) $v = \frac{mg^2 cos^2\theta}{\alpha sin\theta}$

(d) $v = \frac{mg^2 cos\theta}{\alpha cos^2\theta}$

8. A wedge of base r and height r is fixed as shown. A small block of mass m is pulled from bottom to top over the surface. The coefficient of friction between block and surface is μ. The minimum work done by external agent in the process, is

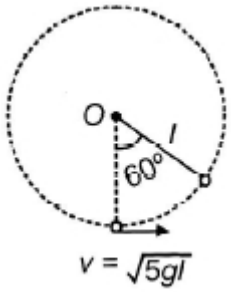
(Assumed that block move over surface with constant speed)



(a) $W_{ext} = mgr(\mu + 1)$ (b) $W_{ext} = mgr(\mu - 1)$

(c) $W_{ext} = mgr\mu$ (d) $W_{ext} = \frac{mgr}{(\mu+1)m}$

9. A particle of mass m is connected with an ideal string of length l, other end of string is fixed and particle is given $\sqrt{5gl}$ velocity at bottom. It revolves in vertical circle then speed of the particle when string makes angle 60° from vertical as shown, is



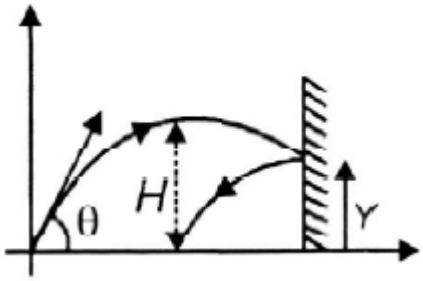
(a) $\sqrt{2gl}$ (b) $\sqrt{gl}$ (c) $\sqrt{3gl}$ (d) $2\sqrt{gl}$

10. If only internal forces are acting on a system, then select correct statement

(a) Momentum of system must not be conserved (b) Net work done on system may not be zero

(c) Net work done on system must be zero (d) Both (a) & (b)

11. A projectile is projected with speed u at an angle θ from horizontal. It collides with a wall elastically and then fall on ground at a point vertically below the highest point as shown. The value of Y is



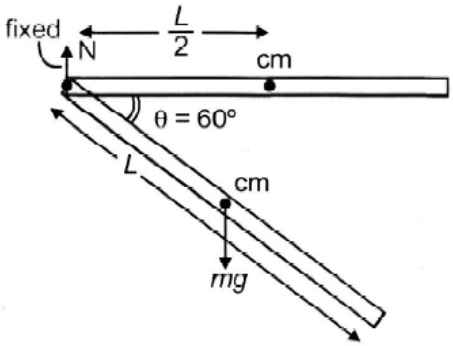
(a) $Y = \frac{H}{2}$ (b) $Y = \frac{2H}{3}$ (c) $Y = \frac{3H}{4}$ (d) $Y = \frac{H}{3}$

12. A ball of mass m is moving with speed v_0, collides head-on with an other identical ball at rest.

¼ th of KE is lost in collision then coefficient of restitution is

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{\sqrt{2}}$

13. A thin rod of mass m, length L is fixed at one end and free to rotate in vertical plane. Initially rod is held in horizontal position and then released. The torque on the rod at given position is



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

14. A solid sphere is given angular velocity ω_0 and then kept on rough horizontal surface gently. When sphere starts pure rolling its angular velocity ω is

(a) $\frac{2}{5}\omega_0$ (b) $\frac{3}{5}\omega_0$ (c) $\frac{2}{7}\omega_0$ (d) $\frac{3}{7}\omega_0$

15. A particle is rotating under influence of a central force then

(a) Its angular momentum is constant

(b) Its linear momentum is constant

(c) Torque on it may be zero

(d) Both (a) & (b)

16. A satellite is revolving around a planet in a circular orbit of radius r. If radius of orbit is increased by 0.5% then its speed will

(a) Increase by 0.5% (b) Increase by 1%

(c) Decrease by 0.25% (d) Decrease by 0.5%

17. Which of the following statements is/are correct?

(a) Breaking stress does not depend on area of V cross-section

(b) Breaking strength does not depend on area of cross-section

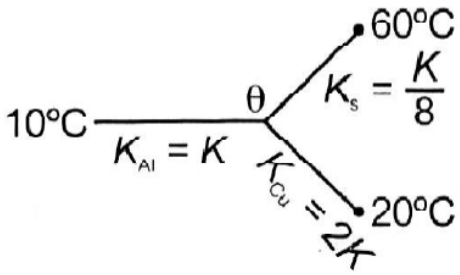
(c) Young's modulus decreases on decreasing the temperature

(d) Both (a) & (b)

18. A hollow sphere of volume V is floating on water surface with $\frac{1}{4}$ th immersed in it. The minimum volume of water that should be poured in the sphere so that it completely sinks in it, is

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

19. Three conducting rods of equal length and area made of aluminium, copper and steel respectively are joined at one end and other ends are maintained at 10°C, 60°C and 20°C as shown. The value of θ is (θ is temperature of common ends)

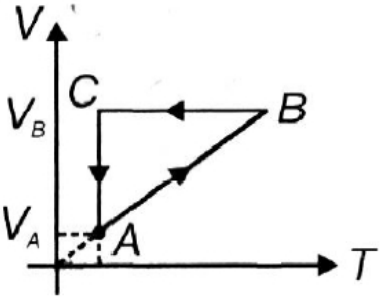


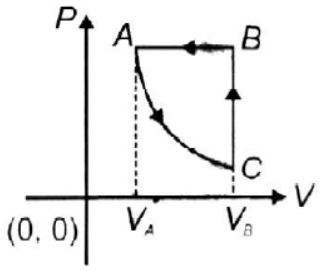
(a) $\frac{V}{2}$ (b) $\frac{2V}{3}$ (c) $\frac{3V}{4}$ (d) V

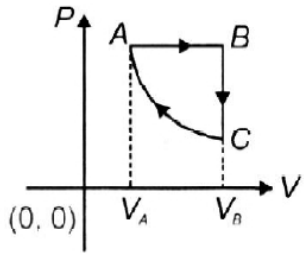
20. Temperature of a hot metal sphere changes from 60°C to 50°C in the first 10 minute and from 50°C to 42°C in next 10 minute. The temperature of surrounding is

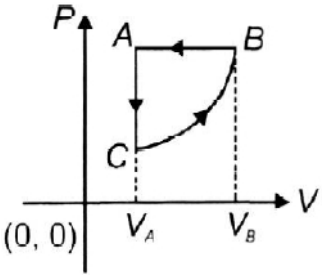
(a) 5°C (b) 10°C (c) 12°C (d) 16°C

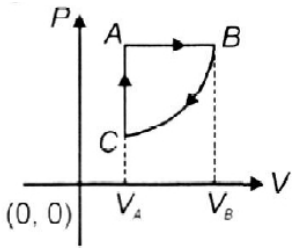
21. Select correct P-V cyclic curve for an ideal gas of constant mass whose V-T cyclic graph is given below



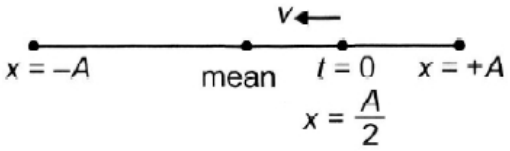
(a)


(b)


(c)


(d)


22. A particle performing simple harmonic motion is shown in the figure below. The correct equation for SHM is (symbols have their usual meanings)



(a) $x = A\sin\left(\omega t + \frac{\pi}{6}\right)$ (b) $x = A\sin\left(\omega t + \frac{3\pi}{2}\right)$

(c) $x = A\sin\left(\omega t + \frac{5\pi}{6}\right)$ (d) $x = A\sin\left(\omega t + \frac{\pi}{2}\right)$

23. Select correct statement(s) regarding damped oscillation
(a) Angular frequency is equal to natural angular frequency
(b) Amplitude decreases linearly
(c) Kinetic energy decreases while potential energy increases
(d) A non-conservative force acts on the oscillator

24. A car is moving away from a stationary observer, such that the frequency observed is $\frac{6}{7}$ th of original frequency. (Given speed of sound = 330 mis). The speed of the car is

(a) 42 m/s (b) 55 m/s (c) 65 m/s (d) 125 m/s

25. The expression of a travelling wave is given by $Y = -10\sin(200t - 20x + \frac{\pi}{4})$m. The speed of wave is

(a) 5 m/s (b) 10 m/s (c) 20 m/s (d) 30 m/s

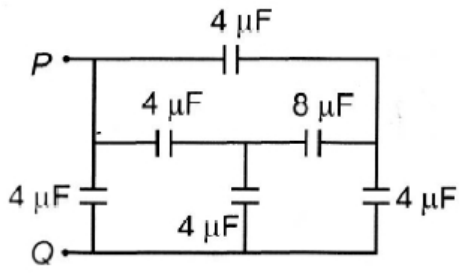
26. Electric field in a region is given by $\vec{E} = (6\hat{i} + 2\hat{j} + 4\hat{k})\ \frac{N}{C}$. The electric flux through a surface of area 50 unit in xy plane is

(a) 100 units (b) 150 units (c) 200 units (d) 400 units

27. A capacitor of capacitance C, charged up to potential V, is connected with an emf source $\frac{V}{2}$, such that the positive plate of capacitor is connected with the positive terminal of emf source. The work done by emf source of emf $\frac{V}{2}$ is

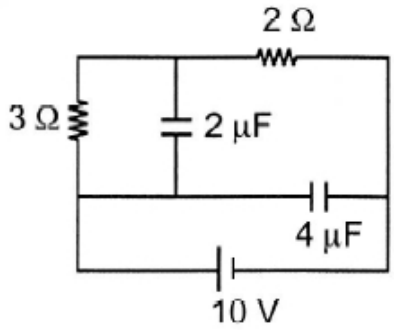
(a) $\frac{CV^2}{2}$ (b) $\frac{3CV^2}{4}$ (c) $-\frac{3CV^2}{4}$ (d) $-\frac{CV^2}{4}$

28. The equivalent capacitance of network of capacitors shown in the figure between points P and Q, is



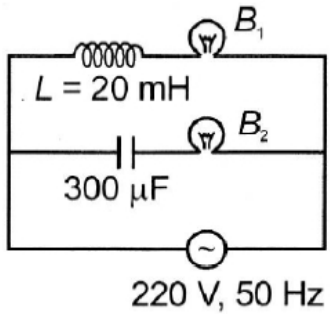
(a) $2\mu F$ (b) $4\mu F$ (c) $8\mu F$ (d) $12\mu F$

29. The potential difference across $2\mu F$ capacitor in the given network in steady state is equal to



(a) 2 volt (b) 4 volt (c) 6 volt (d) Zero

30. Two identical bulbs B_1 and B_2 are connected in circuit with a capacitor and an inductor as shown in figure



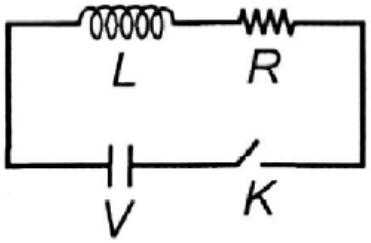
(a) Brightness of both bulbs are same
(b) B_2 is brighter than B_1

(c) B_1 is brighter than B_2
(d) B_2 will not glow, because capacitor offers infinite impedance

31. ω_1 and ω_2 are the two half power angular frequencies and ω_0 is angular resonant frequency of an LCR series circuit then select incorrect relation

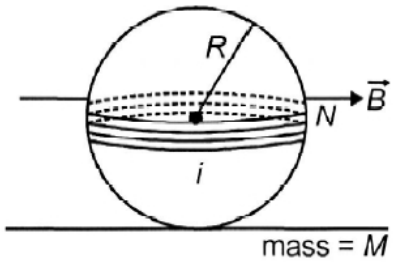
(a) $\omega_0 = \sqrt{\omega_1\omega_2}$ (b) $\omega_0 = \frac{\omega_1+\omega_2}{2}$ (c) $|\omega_1 - \omega_2| = \frac{R}{L}$ (d) $\omega_1 - \omega_2 = band\ width$

32. An inductor (L) and a resistor (R) are connected in series with a battery as shown in figure. If key is closed at t - 0, then the current through battery at t = 0, is



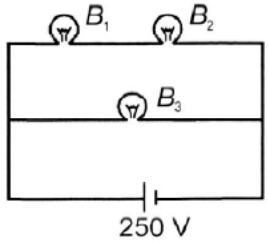
(a) $\frac{V}{R}$ (b) $\frac{V}{2R}$ (c) Zero (d) $\frac{2V}{R}$

33. Thin massless conducting wire is wrapped around the diametrical cross-section (yz plane) of a solid sphere of mass M kept on smooth horizontal surface as shown. A magnetic field of strength 6 is switched on along x-axis. The initial magnitude of angular acceleration of the sphere is
(N = number of turns, current in wire is i)



(a) $\frac{3}{2}\frac{NiB\pi}{M}$ (b) $\frac{5}{2}\frac{NiB\pi}{M}$ (c) $\frac{5}{2}\frac{NiB\pi}{M^2}$ (d) $\frac{5}{2}\frac{N^2iB\pi}{M}$

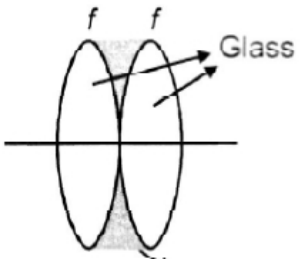
34. Three bulbs B_1(100 W), B_2(60 W) and B_3(60 W) are connected with a battery 250 V. If power consumed are P_1, P_2 and P_3 respectively, then



(a) $P_1 : P_2 : P_3 = 20 : 45 : 90$ (b) $P_1 : P_2 : P_3 = 15 : 25 : 64$

(c) $P_1 : P_2 : P_3 = 5 : 7 : 9$ (d) $P_1 : P_2 : P_3 = 1 : 3 : 5$

35. Two equiconvex lenses are kept in contact and the space between them is filled with water. The effective length of the combination is (focal length of each equiconvex lens is f, $\mu g = 3/2$ *and* $\mu w = 4/3$



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

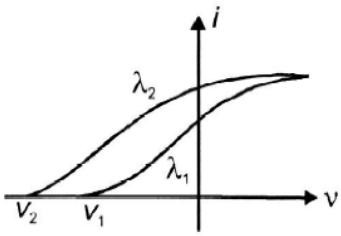
36. The intensity on the screen in Young's double slit experiment at a point where path difference between two waves is λ is I_2 , The intensity at point where path difference is $\frac{\lambda}{4}$, is

(a) I_0 (b) $\frac{I_0}{2}$ (c) $\frac{I_0}{4}$ (d) $\frac{I_0}{3}$

37. Let us assume a hypothetical annihilation of a stationary electron and positron. The wavelength of radiation emitted is (symbols have their usual meanings)

(a) $\frac{h}{2m_0c}$ (b) $\frac{3h}{2m_0c}$ (c) $\frac{2h}{3m_0c}$ (d) $\frac{h}{m_0c}$

38. Photoelectric current and stopping potential are shown for two radiations incident on a metal surface then



(a) $\lambda_1 = \lambda_2$ (b) $\lambda_1 < \lambda_2$ (c) $\lambda_1 > \lambda_2$ (d) All of these

39. $\alpha -$ particle and a proton are accelerated with same accelerating potential. The ratio of de-Broglie wavelength of proton to that of α- particle is

(a) $2:\sqrt{2}$ (b) $2\sqrt{2}:1$ (c) $1:\sqrt{2}$ (d) $\sqrt{2}:1$

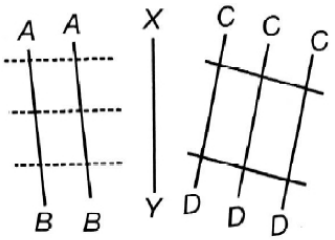
40. Balmer series limit of a hydrogen like atom, is equal to the series limit of Lyman series for hydrogen atom. The atomic number of hydrogen like atom is

(a) Z = 2 (b) Z = 4 (c) Z = 5 (d) Z = 3

41. The ratio of radii of nuclei $_{13}Al^{27}$ and $_{52}X^{A}$ is 3 : 5. The number of neutrons in the nuclei of X will be

(a) 62 (b) 68 (c) 73 (d) 82

42. A plane wavefront AB is incident on an optical system XY and comes out as a new wavefront CD as shown. Then optical system may be

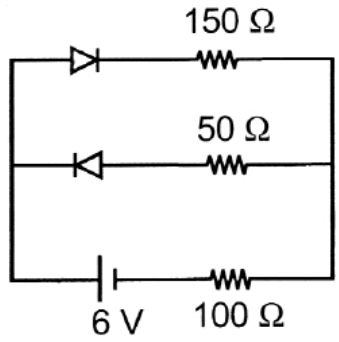


(a) Lens (b) Biprism (c) Glass slab (d) Prism

43. Half life of a radioactive substance is 4 days. The time interval in which substance decays from 20% to 80% is

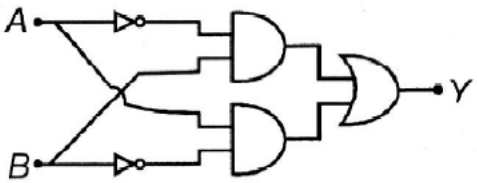
(a) 2 days (b) 4 days (c) 5 days (d) 8 days

44. Two diodes whose resistance in forward bias is 50Ω and in reverse bias is infinite are connected in circuit as shown. The current through the battery is



(a) 0.01 A (b) 0.02 A (c) 0.04 A (d) 0.05 A

45. Select correct output in the given networks of logic gates



(a) $A = 0, B = 1, Y = 0$ (b) $A = 1, B = 1, Y = 1$
(c) $A = 1, B = 1, Y = 0$ (d) $A = 0, B = 0, Y = 1$

CHEMISTSRY

46. If an iodized salt contains 2% Kl and a person takes 10 g of the salt, number of iodide ions going into his body will be (mol. mass of Kl = 166)

(a) 1.2×10^{-3} (b) 7.2×10^{20} (c) $0.02\ mol$ (d) 6×10^{24}

47. When pressure is applied to the equilibrium system ice ⇋ water, which of the following phenomenon will happen?

(a) More ice will melt (b) Water will evaporate
(c) More ice will be formed (d) Ice sublimes

48. Volume occupied by an ideal gas at one atmospheric pressure and 100°C is V mL. Its volume at 200°C and at constant pressure will be

(a) 2V mL (b) V mL (c) $\frac{V}{2}$ mL (d) 1.26V mL

49. Consider the following statements

(A) On increasing temperature; fraction of molecules having most probable speed increases

(B) Ideal gas do not show heating or cooling effect on adiabatic expansion

(C) Gas present in open container undergoes isobaric expansion upon heating

(D) All layers of liquid have same velocity in laminar flow of liquid.

Incorrect among the following are

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

50. Incorrect statement among the following is/are

(a) Emission spectra is always continuous

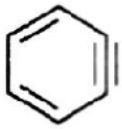
(b) Orbit angular momentum of 2p orbital electron is 1.41 times more than orbital angular momentum

(c) 4s orbital have more energy than 3d orbital in H-atom

(d) First line of Balmer series have smaller wavelength than second line of Balmer series

51. Compound/ion in which all the atoms have same hybridisation will be

(a)

(b) 

(c) $CH_2 = CH - \ddot{C}H_2$ (S)

(d) All of these

52. Which of the following is optically active?

(a) $[Pt(NH_3)_2Cl_2]$ (b) $[Ni(CN)_4]^{2-}$ (c) $[Cu(NH_3)_4]^{2+}$ (d) $[Ni(gly)_2]$

53. Which of the following is not correct or ideal solution?

(a) ΔHmix = 0 (b) ΔSmix > 0 (c) ΔGmix = 0 (d) ΔVmix = 0

54. For the following aqueous solution

0.1 M NaCl (aq) (A) 0.1 M $CaCl_2$(aq) (B) 0.1 M Sucrose solution (C)

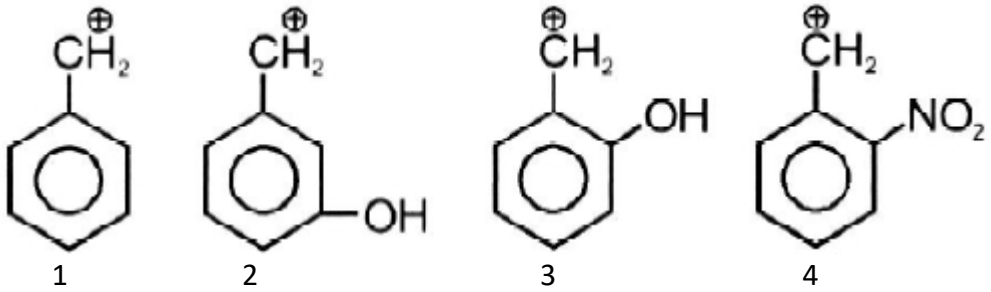
Correct order of freezing point will be:

(a) B < C < A (b) B < A < C (c) C < A < B (d) A = B = C

55. Consider the following statements:
(1) Work is state function in adiabatic process
(2) Standard enthalpy of formation of $CO_2(g)$ equals to standard enthalpy of combustion of CO(g)
(3) HF have more heat of neutralisation due to high hydration energy of F^S ion
Correct among the following are
(a) 1 & 2 (b) Only 3 (c) 1 & 3 (d) Only 2

56. Amongst the following hydroxides, the one which has the lowest value of solubility at 25°C will be
(a) $Mg(OH)_2$ (b) $Ca(OH)_2$ (c) $Ba(OH)_2$ (d) $Be(OH)_2$

57. Correct stability order of the following compound will be



1 2 3 4

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

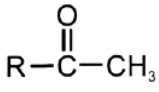
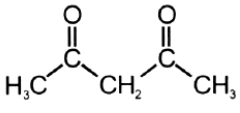
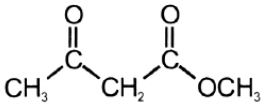
58. Two moles of FeSO4 are oxidize by x mole of $KMnO_4$ in acidic medium whereas 3 moles of $Fe(C_2O_4)$ are oxidized by y mole of $K_2Cr_2O_7$ in acidic medium. The value of $\frac{x}{y}$ will be

(a) $\frac{6}{5}$ (b) $\frac{14}{15}$ (c) $\frac{2}{15}$ (d) $\frac{3}{5}$

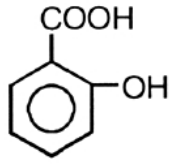
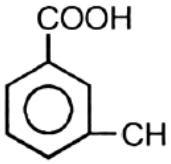
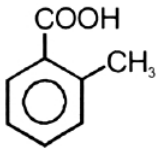
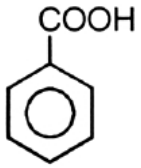
59. Reductive ozonolysis of benzene gives
(a) Acetone (b) Maleic anhydride (c) Phthalic acid (d) Glyoxal

60. Gold crystallizes in fee unit cell. If atomic radius of gold is 0.144 nm, what is the length of the side of the unit cell?
(a) 0.814 nm (b) 0.407 nm (c) 0.704 nm (d) 0.206 nm

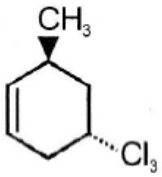
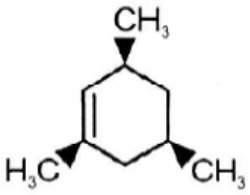
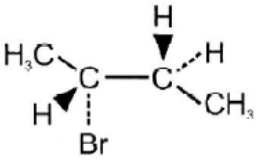
61. $A \xrightarrow{I_2 + NaOH}$ Iodofom. Compound 'A' can be

(a)  (b)  (c)  (d) All of these

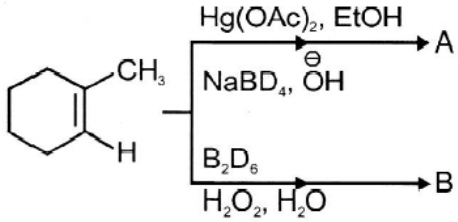
62. Which of the following have maximum acidic strength?

(a)  (b)  (c)  (d) 

63. Compound having enantiomers not diastereomers

(a)  (b)  (c)  (d) All of these

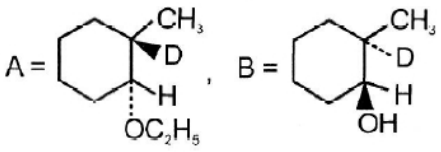
64.



Correct statement for the above reaction is/are

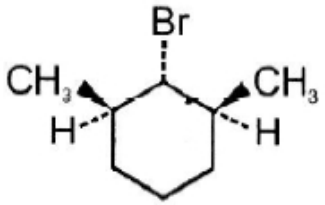
(a) A formed by anti addition

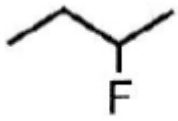
(b) B formed by syn addition

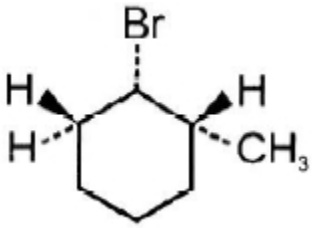
(c) 

(d) Both (a) & (b)

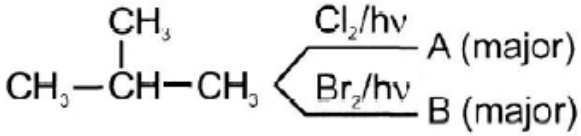
65. Which of the following will not undergo $\beta - E2$ elimination?

(a) 

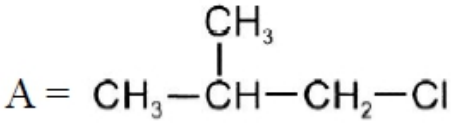
(b) 

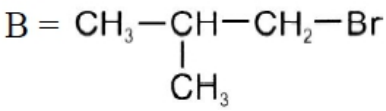
(c) 

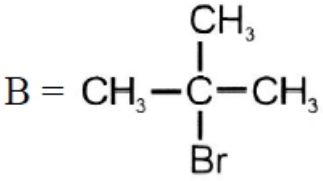
(d) Both (a) & (b)

66. 

Incorrect among the following is/are

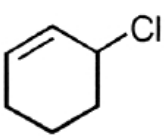
(a) 

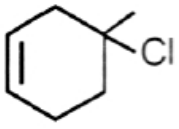
(b) 

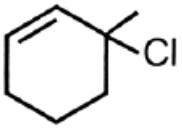
(c) 

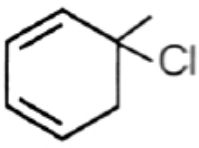
(d) Both (a) & (b)

67. Which of the following is most reactive alkyl halide for SN^1 reaction?

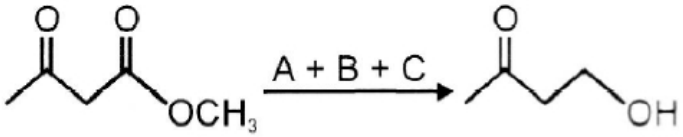
(a) 

(b) 

(c) 

(d) 

68. Correct sequence for the following transformation will be

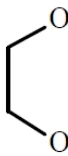


A, B and C respectively are

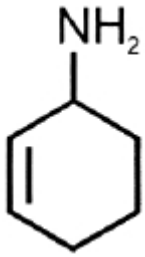
(a) $LiAlH_4$, $NaBH_4$, $H_3O^{\oplus}$

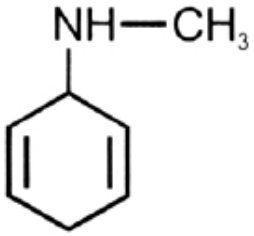
(b) $LiAlH_4$, , $H_3O^{\oplus}$

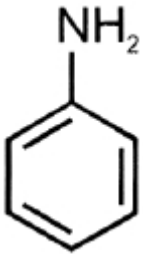
(c) $OH^{\ominus}$, $LiAlH_4$, $H_3O^{\oplus}$

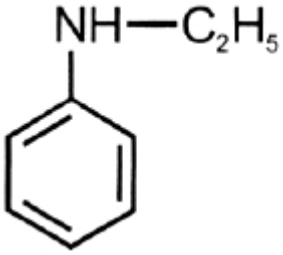
(d)  , $LiAlH_4$, $H_3O^{\oplus}$

69. 'A' $\xrightarrow{HNO_2}$ $N_2\uparrow$. Compound A can be if it decolourise Br_2/CCl_4

(a) 

(b) 

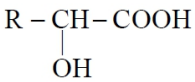
(c) 

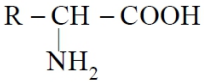
(d) 

70. Which carboxylic acid decarboxylate easily?

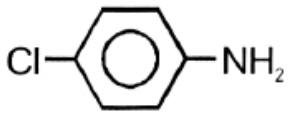
(a) **R**–CO–CH_2–COOH

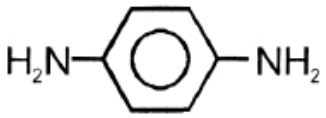
(b) R–CO–COOH

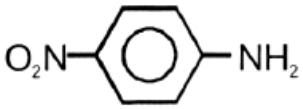
(c) 

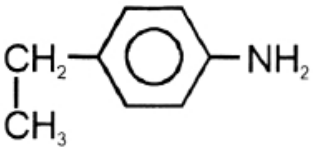
(d) 

71. Which of the following aryl amine most difficult to diazotize?

(a) 

(b) 

(c) 

(d) 

72. Which of the following will be oxidised by HIO4?

(1) R – CO – CO – R (2) R – CO – CHOH – R

(3) R – CHOH – CH_2 – CHOH – R (4) R – CHOH – CHOH – R

(a) 1, 4 (b) 1, 3 and 4 (c) 1, 2 and 4 (d) 1, 2

73. Correct order of bond angle is

(1) $OF_2 < OCl_2 < H_2O < ClO_2$ (2) $OF_2 < H_2O < OCl_2 < ClO_2$

(3) $H_2O < OF_2 < ClO_2 < OCl_2$ (4) $OF_2 < ClO_2 < OCl_2 < H_2O$

74. Which of the following does not contain Magnesium?

(a) Dolomite (b) Diaspore

(c) Magnetite (d) Both (b) & (c)

75. Froth stabilizers in froth floatation process is

(a) K-ethyl xanthate (b) Pine oil

(c) Cresol (d) Fatty acids

76. German silver contain

(a) Cu, Zn, Cr (b) Cu, Zn, Ni (c) Cu, Zn, Sn (d) Fe, Zn, Ni

77. Consider the following statements

(i) First order reaction completes in infinite time

(ii) Average life is independent of concentration for first order reactions

(iii) $t_{75\%} = 1.5\ t_{1/2}$ for zero order reaction

(iv) $t_{75\%} = 2\ t_{1/2}$ for first order reaction

Correct among the following are

(a) (i), (iii) and (iv) (b) (ii), (iv) (c) (i), (ii) (d) All are correct

78. For the following electrochemical cell $Ni \mid Ni^{2+}(aq) \parallel Cu^{2+}(aq) \mid Cu$

EMF of the cell will increase

(a) On adding NH_3 to cathode side (b) On adding (dimethylglyoxime) to anode side

(c) On adding water to cathode side (d) On increasing mass of Ni electrode

79. Consider the following statements

(1) ∝ - D - glucose contain five chiral carbon (2) Glucose and fructose form same osazone

(3) Fructose reduces Tollen's reagent (4) Nucleic acids are chiral due to D-sugar component

Correct among the following is/are

(a) 1, 2, 3, 4 (b) 1, 3, 4 (c) 3, 4 (d) 3 only

80. 2-Ethylanthraquinol $\xrightarrow[\text{Air}]{O2}$ 2-Ethylanthraquinone + 'X' $\xrightarrow[(ii)\ H_2SO_4]{(i)\ K_2Cr_2O_7}$ 'A' product

Oxidation state of metal in compound A will be

(a) +10 (b) +8 (c) +7 (d) +6

81. Which of the following have maximum solubility?

(a) $SrCO_3$ (b) $BaCO_3$ (c) $MgCO_3$ (d) $CaCO_3$

82. $H_3BO_3 + Na_2CO_3 \rightarrow$ 'X' + $6H_2O + CO_2$

Correct for compound 'X' will be

(a) Contain sp^2 and sp^3 hybridized Boron (b) Salt of Weak acid strong base

(c) Non-planar structure (d) All are correct

83. Gases formed during heating of $Pb(NO_3)_2$ are

(a) N_2, O_2 (b) NO_2, O_2 (c) NO_2 only (d) O_2 only

84. Incorrect match among the following are

(a) In < Ti — 1st ionisation energy

(b) OF_2 — Anhydride of HF

(c) NO_2 — Mixed anhydride of HNO_2 & HNO_3

(d) $[Fe(H_2O)_5NO]^{2+}$ — Coloured due to charge transfer

85. Maximum negative electron gain enthalpy among the following is

(a) S (b) O (c) Cl (d) Se

86. Which one of the following is not a pseudo halide?

(a) CNO^S (b) N_3^s (c) CN^S (d) $RCOO^-$

87. Chromyl chloride test is not given by

(a) AgCl (b) $PbCl_2$ (c) $SnCl_2$ (d) All of these

88. Correct among the following are

(a) Sm^{3+} and Dy^{3+} have same colour (b) Ce^{+4} can oxidize water

(c) Cm have half filled stability (d) All of these

89. In $[Ni(CO)_4]$ complex Ni - C bond have

(a) Ionic character (b) Both π & σ character

(c) π character (d) Only σ character

90. $NiCl_2 + 2NH_4OH$ + dimethylglyoxime $\rightarrow$complex

Incorrect statement for complex is

(a) It have sp^3 hybridisation (b) It have 4 rings

(c) Complex is diamagnetic (d) All are correct

BIOLOGY

91. Which of the following options correctly describes the plant body of liverworts?

(a) thalloid (dorsiventral) appressed closely to the substrate

(b) Leafy with tiny leaf like appendages in two rows on a stem like structure

(c) Densely leafy erect structure

(d) Both 'a' and 'b'

92. The structure present laterally of the embryonic axis in the grass family is called
(a) scutellum (b) plumule (c) hypocotyl (d) epicotyl

93. The sum of all the allelic frequencies in a given population is always _____.
(a) indeterminate (b) one (c) infinity (d) None of the above

94. Scientific studies shows that a certain substance shortens recovery time after intense physical activity in athletes and race horses. This substance is probably –
(a) SCP (b) Golden rice (c) Pollen grains (d) Both 'a' and 'b'

95. Which one of the following elements is responsible for the normal functioning of cell membranes?
(a) Potassium (b) Sodium (c) Magnesium (d) Calcium

96. The substance which get oxidised with the transfer of electrons to cytochrome c via cytochrome bc1 complex is
(a) Ubiquinone (b) Ubiquinol (c) Plastoquinone (d) Plastoquinol

97. Nitrogenase is an important class of enzyme which is responsible for the reduction of nitrogen to ammonia. Which one of the element is responsible for the activation of nitrogenase?
(a) Magnesium (b) Zinc (c) Molybdenum (d) Ferric

98. An E.Coli was transformed using pBR322. The gene of interest was introduced at the Sal I region of the vector. If the transformed bacteria were introduced into a culture media containing ampicillin, it will –
(a) survive
(b) die
(c) survive without proliferating
(d) depends on the dosage of the antibiotic

99. In 1983, Eli Lilly an American company, first prepared two DNA sequences corresponding to A and B-chains of the human insulin and introduced them in the plasmids of Escherichia coli to produce insulin chains. Chains A and B were prepared separately, extracted and combined by creating
(a) hydrogen bond (b) disulphide bond (c) covalent bond (d) peptide bond

100. In RNAi, genes are silenced using
(a) dsDNA (b) dsRNA (c) ssDNA (d) ssRNA

101. During "gene cloning" which is called a gene taxi?
(a) Vaccine (b) Plasmid (c) Bacteria (d) Protozoa

102. The wrong triplet present on the non-sense strand of DNA of a sickle cell patient is
(a) CTC (b) CAC (c) GAG (d) GUG

103. Tobacco plant resistant to a nematode have been developed by the introduction of DNA, which is produced (in host cells) as
(a) an antifeedant (b) both sense and antisense RNA
(c) a particular hormone (d) dsDNA

104. With respect to the Morgan's experiment on linkage with Drosophila melanogaster which one of the following statements is true
(a) In a cross between yellow body, white eye fly and wild type fly will produce a greater number of recombinants in F2
(b) In a cross between white eye, miniature wing fly and wild type fly will produce a greater number of recombinants in F2
(c) Genes for body colour and eye colour are loosely linked
(d) Genes for eye colour and wing shape are tightly linked

105. Which one of the following is not a symptom of Klinefelter's syndrome?
(a) Gynaecomastia (b) sterility (c) furrowed tongue (d) masculine development

106. The most important data which lead to the discovery of the structure of DNA by Watson and Crick was
(a) X-crystallography image of DNA (b) Denaturation temperature of DNA
(c) Chargaff's rule (d) Central Dogma

107. An individual member of a clone is called as
(a) ramet (b) pack (c) progeny (d) none of the above

108. Zoospores are
(a) motile gametes of Chlamydomonas
(b) non-motile gametes of sponges
(c) motile gametes of Hydra
(d) non-motile gametes of Penicillium

109. The experimental organism used by Griffith is
(a) Diplococcus pneumoniae (b) Chlamydia pneumoniae
(c) Streptococcus pneumoniae (d) Mycoplasma pneumoniae

110. The type of cell division which takes place in apomixis is
(a) reductional (b) meiosis (c) Both 'a' and 'b' (d) mitosis

111. Formation of a wide variety of habitats takes place by
(a) types of species inhabiting that area
(b) types of predation
(c) regional and local variation of environment conditions
(d) All of the above

112. Alexander von Humboldt observed that, within a region species richness _____ with increasing explored area. The most appropriate word to fill in the blank is
(a) increased (b) decreased (c) increased upto a limit (d) decreased upto a limit

113. The Western Ghats having a greater amphibian diversity than the Eastern Ghats is an example of
(a) species diversity (b) genetic diversity (c) ecological diversity (d) None of these

114. The total amount of nutrients like carbon, phosphorus, calcium, etc. present in soil at any time is called
(a) standing crop (b) standing state (c) nutrient crop (d) sediment

115. Diapause is a
(a) stage of development
(b) stage of suspended development
(c) stage of delayed morphology
(d) rapid development stage

116. High level radioactive waste can be managed in which of the following ways?
(a) Open dumping (b) Composting
(c) Incineration (d) Dumping in lead containers

117. Michaelis Menten constant (Km) is equal to
(a) the rate of enzymatic activity
(b) the rate of reaction

(c) substrate concentration at which the reaction attains half its maximum velocity
(d) substrate concentration at which the rate of reaction is maximum

118. Claviceps is a member of
(a) Ascomycetes (b) Basidiomycetes (c) Zygomycetes (d) Phycomycetes

119. A specialised differentiated form of the cell membrane of prokaryote is
(a) ribosome (b) mesosomes (c) microvilli (d) vacuoles

120. Which one of the following does not contribute towards the building of proton motive force across the thylakoid membrane?
(a) Splitting of water molecule on the inner side of the membrane
(b) Presence of primary acceptor towards the inner side of the membrane which passes the electron to a hydrogen carrier
(c) Presence of the enzyme NADP reductase on the outer side of the membrane
(d) Presence of cytochrome B6f complex

121. What is true about the genetic material of prokaryotic cell?
(a) Posses small circular DNA called plasmids
(b) Not enveloped by nuclear membrane
(c) Composed of a circular chromosomal DNA
(d) All of the above

122. Ascent of sap in plants can be demonstrated by
(a) Ganong experiment (b) Went experiment
(c) Lever auxanometer (d) Girdling experiment

123. Give the name of the phases of meiosis, in which
I. The chromosome number is reduced to haploid state
II. The amount of DNA is reduced to haploid state
(a) Anaphase II, Anaphase I (b) Anaphase I, Telophase II
(c) Anaphase I, Anaphase II (d) Anaphase II, Telophase I

124. Which one of the following statements is not true about monocot stem?
(a) The hypodermis is made up of sclerenchyma
(b) bundle sheath of the stem is made up of sclerenchyma

(c) Phloem parenchyma are scattered are present in large numbers
(d) Water containing cavities are present within the vascular bundles

125. Which one of the following structures is not present in a young dicot plant?
(a) trichomes (b) starch sheath (c) root hairs (d) complimentary cells

126. Which one of the following plants have roots arising from the nodes of the stem?
(a) Oxalis (b) Bougainvillea (c) Rhizophora (d) Chrysanthemum

127. Identify the structure in a dicot stem which is made up of sclerenchyma?
(a) pericycle (b) endodermis (c) hypodermis (d) phelloderm

128. Which one of the following is not primary in origin?
(a) root vascular cambium (b) intrafascicular cambium
(c) conjuctive tissue of root (d) metaxylem

129. Which one of the following is a correct combination of family and its members?
(a) Fabaceae – Tomato Chilli (b) Solanaceae – Tobacco, Brinjal
(c) Liliaceae – Petunia, Potato (d) None of the above

130. For classification of plants, the characters which can be easily influenced by environment are not c onsidered. Which one of the character of plants can be the most easily influenced by environment?
(a) Vegetative characters (b) Reproductive characters
(c) Sexual characters (d) Genetic characters

131. Citrus canker is a
(a) viral disease (b) bacterial disease (c) fungal disease (d) protozoan disease

132. The full form of “BSE” which is a disease caused by prion is
(a) Bovarian spongiform encephalodegradation
(b) Bovarian spongiform encephalopathy
(c) Bovine spongiform encephalaodegradation
(d) Bovine spongiform encephalopathy

133. Which one of the following plant genus belongs to order Polymoniales?
(a) Convolvulaceae (b) Liliaceae
(c) Fabaceae (d) Both ‘a’ and ‘b’

134. Which one of the following organism shows mutualism with a sloth bear?
(a) Entamoeba (b) Algae (c) Fungus (d) Silkworm

135. Which one of the following algae has a thallus with a main axis and branches arising from them?
(a) Volvox (b) Ulothrix (c) Porphyra (d) Polysiphonia

136. The bicarbonates in the intestine which help in providing an alkaline media are secreted by the
(a) pancreas (b) Brunner's gland (c) gall bladder (d) both 'a' and 'b'

137. Choose the correct option
(a) Pneumotaxic centre – negative effect on breathing rate
(b) Chemo-sensitive receptor – negative effect on breathing rate
(c) Aortic arch receptor – negative effect on breathing rate
(d) Rhythm centre – neither negative or positive effect on breathing rate

138. The duct which carries the bile from the liver cells to the gall bladder is called as
(a) hepatic duct (b) cystic duct (c) common bile duct (d) hepatopancreatic duct

139. On post synaptic neuron, the new potential developed is
(a) always inhibitory (b) always excitatory
(c) may be inhibitory or excitatory (d) neither excitatory or inhibitory

140. The thyroid gland is composed of
(a) follicles (b) stromal tissue (c) trachea (d) Both 'a' and 'b'

141. Which one of the following statements about cortisol is incorrect?
(a) cortisol has positive effect on gluconeogenesis
(b) cortisol has a positive effect on immune response
(c) cortisol has a positive effect on RBC production
(d) cortisol has a positive effect on lipolysis

142. The sensory part present in the cochlea is called as organ of corti. Similar structure which is present in semicircular canal is called as
(a) ampulla (b) cristae ampullaris (c) macula (d) otolith apparatus

143. In the absence of which of the following organ in the female reproductive system can fertilization take place?
(a) clitoris (b) fallopian tube (c) ovaries (d) vagina

144. The follicle with antrum and secondary follicle is called as the
(a) primary follicle (b) secondary follicle
(c) tertiary follicle (d) both 'b' and 'c'

145. Select the correct statement
(a) The foetal ejaculation reflex originates from the uterine wall
(b) All cells of the inner cell mass are stem cells
(c) At least 60 of the sperms ejaculated must show vigorous motility
(d) Uterus is the only unpaired organ of the female reproductive system

146. Select the incorrect statement regarding contraceptive methods
(a) Natural methods of contraception have high failure rates
(b) Abortion is not a contraceptive method
(c) The emergency contraceptive methods prevent implantation but can't fully prevent fertilization
(d) Contraceptive pills can also contain LH inhibitors instead of progesterone which directly inhibits LH production.

147. Which one of the following is not used to classify protozoan?
(a) Mode of obtaining nutrition (b) Mode of locomotion
(c) Mode of respiration (d) None of the above

148. Reproduction in Ctenoplana takes place by
(a) budding (b) sexual reproduction
(c) binary fission (d) multiple fission

149. Choose the correct statement from the following
(a) Cells of all connective secrete their own matrix.
(b) Neuroglia make up more than one-half the volume of the body
(c) Malphigian tubules are the only organs/cells in the cockroach body which help in excretion
(d) Compound epithelium is not mostly involved in absorption and secretion.

150. Which one of the following organisms shows different body symmetry at different stages of its life cycle?

(a) Gorgonia (b) Taenia (c) Ophiura (d) Dentalium

151. Which one of the following group of organisms have open circulatory system?
(a) Urochordata (b) Cephalochordata
(c) Annelida (d) Hemichordata

152. Which one of the following structures undergoes meiosis to form spores in Puccinia?
(a) ascus (b) basidium (c) ascospores (d) basidiospores

153. Which one of the following structures is present between the head and sheath of a bacteriophage?
(a) collar (b) neck (c) venter (d) base plate

154. If a pond food chain gets polluted by DDT, the tissue concentration of DDT would be highest in
(a) aquatic weed (b) herbivorous fish
(c) carnivorous fish (d) bird feeding on fish

155. One of the chief casual factor of desertification is
(a) overgrazing (b) human developmental activities
(c) irrigated agriculture (d) population

156. Under normal conditions positive growth or rapid increase in the population is indicated by
(a) less number of young individuals
(b) large number of young individuals
(c) large number of old individuals
(d) large number of childbirth

157. Select the incorrect statement from the following about AIDS
(a) The HIV viruses causes major metabolic breakdown in our vital organs leading to death
(b) HIV can be detected by ELISA
(c) The target cell of HIV is T-helper cells
(d) HIV can stay dormant in the human body for years without showing symptoms

158. To stop the expression of the lac genes in absence of lactose, which one of the following is applicable
(a) the inhibition of expression of the i gene by the inducer
(b) the silencing of i gene by the binding of inducer with repressor
(c) binding of the repressor with the inducer

(d) binding of repressor with the lac Mrna

159. While formulating the law of inheritance Mendel was not familiar with which of the following phenomenon

(a) structure of chromosome (b) crossing over

(c) linkage (d) All of the above

160. Natural indicator of industrial pollution is

(a) algae (b) fungi (c) lichen (d) bacteria

161. Similar experiments like Meselson and Stahl was performed by Taylor. The experimental organism of Taylor was

(a) Vicia faba (b) Fungi (c) E.coli (d) Protista

162. Match the following columns

Column I	Column II
A. Testis	i. Gives specific constituents to semen
B. Vulva	ii. Oogenesis
C. Prostate Fluid	iii. Scrotum
D. Production of ova	iv. Labia majora

(a) A-iii, B-iv, C-i, D-ii (b) A-iv, B-ii, C-iii, D-i

(c) A-iv, B-iii, C-ii, D-i (d) A-iv, B-iii, C-i, D-ii

163. Match the following columns

Column I	Column II
A. Life Span of RBC	i. 10-13 days
B. Life Span of WBC	ii. 120 days
C. Life Span of Platelets	iii. 8 days

(a) A-i, B-ii, C- iii (b) A-ii, B-i, C-iii (c) A-ii, B-iii, C-i (d) A-iii, B-ii, C-i

164. Match the following columns

Column I	Column II
A. Delivers blood to glomerulus	i. Ascending and Descending limb
B. Carries urine to renal pelvis	ii. Renal artery
C. Collects filtrate from Bowman's capsule	iii. Collecting duct
D. Loop of Henle	iv. Proximal convoluted tubules

(a) A-iv, B-i, C-iii, D-ii (b) A-i, B-ii, C-iii, D-iv

(c) A-ii, B-iii, C-iv, D-i (d) A-ii, B-iii, C-i, D-iv

165. Choose the incorrect pair
(a) Dub – Opening of semilunar valve
(b) Lub – Sharp closure of the AV valves
(c) Initiation of heart impulses – SA node of heart
(d) Pulmonary artery – Deoxygenated blood artery

166. Pulmonary ventilation is another term for
(a) inspiration (b) expiration (c) breathing (d) Pulmonary circulation

167. The sphincter which regulates the movement of chyme is called as
(a) gastro-oesophageal sphincter
(b) pyloric sphincter
(c) sphincter of Oddi
(d) ileo-caecal valve

168. For how long, contraction of the muscles continues in the sliding filament theory?
(a) Till ATP binds to Myosin head
(b) Till ADP binds to Myosin head
(c) Till Ca2+ present in sarcoplasm
(d) Till polymerisation of myosin head is going on

169. Grey matter of the brain is
I. present outside the white matter
II. contain medullated nerve fibres
III. grey in colour
IV. contains cell bodies of nerve fibres
Which of the statements mentioned above is/are correct?
(a) Only I (b) Only II (c) I,III and IV (d) II,III and IV

170. The conversion of sucrose to glucose and fructose for cellular respiration is carried out by the enzyme
(a) glucose kinase (b) isomerase (c) mutase (d) invertase

171. The hormone ethylene, was first demonstrated to hasten ripening of stored unripened bananas was first extracted from
(a) apple (b) strawberry (c) pineapple (d) orange

172. The average space of the perinuclear space is about
(a) 70-80 nm (b) 10-50 nm (c) 50-90 nm (d) 60-100 nm

173. Which one of the following structures is not a part of mesosomes?
(a) vesicles (b) tubules (c) cisternae (d) all of the above

174. Which one of the following components is not present in the cell wall of higher plants?
(a) galactans (b) cellulose (c) hemicellulose (d) pectins

175. The injection shot which is give after a dog bite for rabies is a
(a) vaccine (b) rabies antibody (c) rabies antigen (d) Both 'a' and 'c'

176. Choose the correct statement
(a) The viral oncogenes are the genes which activate the proto-oncogene in our cells
(b) The metastasis of lung tumor into the liver can cause liver cancer
(c) The abnormal growth of any tissue in our body is called neoplastic transformation.
(d) Non-ionizing radiation like UV can't cause cancers

177. The theory of saltation for evolution was put forward by
(a) Hugo DeVries (b) Mendel (c) Charles Darwin (d) Thomas Malthus

178. Monascus purpureus is a yeast used commercially in the production of
(a) ethanol (b) streptokinase (c) citric acid (d) statins

179. The modern ferns, cycads, conifers, monocots and dicots all evolved from
(a) Zosterophyllum (b) Psilophyton
(c) Rhynia type plants (d) Tracheophyte ancestors

180. Frame shift mutation arises due to
(a) deletion of base pair of DNA (b) insertion of base pair of DNA
(c) Both 'a' and 'b' (d) change in single base in DNA

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NEET Full Test-1 Answer Key

PHYSICS

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

CHEMISTRY

46.	b	60.	b	74.	d
47.	a	61.	a	75.	c
48.	d	62.	a	76.	b
49.	d	63.	c	77.	d
50.	a	64.	d	78.	b
51.	d	65.	d	79.	a
52.	d	66.	b	80.	d
53.	c	67.	d	81.	c
54.	b	68.	d	82.	d
55.	c	69.	a	83.	b
56.	d	70.	a	84.	b
57.	b	71.	c	85.	c
58.	b	72.	c	86.	d
59.	d	73.	b	87.	d

88. d
89. b
90. a

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BIOLOGY

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