

## PHYSICS + CHEMISTRY

1. What will be the current in straight wire if the magnetic field  $10^{-6} \text{ W/m}^2$  produced at  $0.02 \text{ m}$  away from it is

- (a)  $0.1 \text{ amp}$  (b)  $1 \text{ amp}$   
(c)  $0 \text{ amp}$  (d)  $10 \text{ amp}$

Ans. (a)

2. Ratio of Bohr radii are

- (a)  $1 : 2 : 3$  (b)  $2 : 4 : 6$   
(c)  $1 : 4 : 9$  (d)  $1 : 3 : 5$

Ans. (c)

3. If half life of radio isotope is 2 seconds and number of atoms are only 4, then after one half life, the remaining atoms are

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

Ans. (b)

4. If the work function of the photoelectric surface is  $3.3 \text{ eV}$ , then the value of threshold frequency is

- (a)  $8 \times 10^{14} \text{ Hz}$  (b)  $5 \times 10^{16} \text{ Hz}$   
(c)  $4 \times 10^{11} \text{ Hz}$  (d)  $8 \times 10^{10} \text{ Hz}$

Ans. (a)

5. Energy stored in capacitor and dissipated during charging a capacitor bear a ratio

- (a)  $1 : 1$  (b)  $1 : 2$   
(c)  $1 : 1/2$  (d)  $2 : 1$

Ans. (a)

6. What is called electrical energy tank

- (a) Resistor (b) Inductance  
(c) Capacitor (d) Motor

Ans. (c)

7. What is the value of capacitance if the thin metallic plate is introduced between two parallel plates of area  $A$  and separated at distance  $d$

- (a)  $\frac{\epsilon_0 A}{d}$  (b)  $\frac{2 \epsilon_0 A}{d}$   
(c)  $\frac{4 \epsilon_0 A}{d}$  (d)  $\frac{\epsilon_0 A}{2d}$

Ans. (a)

8. Which is known as capacitive time constant

- (a)  $R/L$  (b)  $R/C$   
(c)  $R/LC$  (d)  $\frac{R \epsilon_0 A}{d}$

Ans. (d)

9. The net charge on capacitor is

- (a)  $2q$  (b)  $q/2$   
(c) 0 (d)  $\infty$

Ans. (c)

10. Charge motion within the Gaussian surface gives changing physical quantity

- (a) Electric field (b) Electric flux  
(c) Charge (d) Gaussian surface area

Ans. (a)

11. Surface tension is an atomic/molecular property of

- (a) Atoms in the interior  
(b) Atoms at surface  
(c) Atoms which are exterior  
(d) Atoms at surface bounded entirely by different atoms

Ans. (d)

12. Surface tension of water at 1.2 atmospheric pressure

- (a) More than  $74 \text{ dyns/cm}$  (b) Less than  $74 \text{ dyns/cm}$   
(c) Same  $74 \text{ dyns/cm}$  (d) Cannot say

Ans. (c)

13. The surface temperature of the sun is

- (a)  $2900 \text{ K}$  (b)  $4000 \text{ K}$   
(c)  $5800 \text{ K}$  (d)  $9000 \text{ K}$

Ans. (c)

14. Specific heats of monoatomic and diatomic gases are same and satisfy the relation which is

- (a)  $C_p(\text{mono}) = C_p(\text{dia})$  (b)  $C_p(\text{mono}) = C_v(\text{dia})$   
(c)  $C_v(\text{mono}) = C_v(\text{dia})$  (d)  $C_v(\text{mono}) = C_p(\text{dia})$

Ans. (b)

15. Ideal gas and real gas has major difference of

- (a) Phase transition (b) Temperature  
(c) Pressure (d) None of them

Ans. (a)

16. Simple behaviour under all conditions of real gas is governed by the equation

- (a)  $Pv = \mu RT$  (b)  $\left(P + \frac{a}{v^2}\right)(v - b) = \mu RT$   
(c)  $Pv = \text{constant}$  (d)  $Pv^\gamma = \text{constant}$

Ans. (b)

17. Mean free path of gas molecule of constant temperature is inversely proportional to

- (a)  $P$  (b)  $V$   
(c)  $m$  (d)  $n$  (number density)

Ans. (d)

- 18.** Law of superposition is applicable to only  
 (a) Light waves (b) Sound waves  
 (c) Transverse waves (d) All kinds of waves

**Ans. (d)**

- 19.** Which is the correct expression of velocity of light

- (a)  $\frac{1}{\sqrt{\epsilon_0 \mu_0}}$  (b)  $\frac{E_0}{B_0}$   
 (c)  $\frac{C}{\mu}$  (d) All above

**Ans. (d)**

- 20.** The nature of X-ray's spectrum is

- (a) Continuous (b) Line  
 (c) Continuous and line (d) None of above

**Ans. (c)**

- 21.** Irreducible phase difference in any wave of 5000 Å from a source of light is

- (a)  $\pi$  (b)  $12\pi$   
 (c)  $12\pi \times 10^6$  (d)  $\pi \times 10^6$

**Ans. (a)**

- 22.** Angular resolving power of human eye is

- (a)  $3.6 \times 10^3$  (b)  $3.6 \times 10^2$   
 (c)  $3.6 \times 10^4$  (d)  $3.6 \times 10^6$

**Ans. (a)**

- 23.** Between two coherent waves phase is

- (a)  $\phi(x) = \text{constant}$  (b)  $\phi(t) = \text{constant}$   
 (c)  $\phi(x) = \phi(t) = \text{constant}$  (d)  $\phi(x) \neq \phi(t)$

**Ans. (b)**

- 24.** Which unit not the unit of length

- (a) Parsec (b) Light year  
 (c) Angstrom (d) Nanometre

**Ans. (W)**

- 25.** Momentum of photon is

- (a)  $h\nu/c^2$  (b)  $h\nu/c^3$   
 (c)  $h\nu/c$  (d)  $h/c$

**Ans. (c)**

- 26.**  $h\nu = e^+ + e^-$  is known as

- (a) Pair production (b) Photoelectric effect  
 (c) Compton effect (d) Zeeman effect

**Ans. (a)**

- 27.** Formula for true force is

- (a)  $F = ma$  (b)  $F = \frac{mdv}{dt}$   
 (c)  $F = \frac{dmv}{dt}$  (d)  $F = \frac{md^2x}{dt^2}$

**Ans. (c)**

- 28.** Which activity is not based upon friction

- (a) Writing (b) Speaking  
 (c) Hearing (d) Walking

**Ans. (c)**

- 29.** The mathematical equation for magnetic field lines of force is

- (a)  $\vec{\nabla} \cdot \vec{B} = 0$  (b)  $\vec{\nabla} \cdot \vec{B} \neq 0$   
 (c)  $\vec{\nabla} \cdot \vec{B} > 0$  (d)  $\vec{\nabla} \cdot \vec{B} < 0$

**Ans. (a)**

- 30.** The distance at which the magnetic field on axis as compared to the magnetic field at the centre of the coil carrying current  $I$  and radius  $R$  as  $1/8$ , would be

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

**Ans. (d)**

- 31.** Which is the most elastic

- (a) Iron (b) Copper  
 (c) Quartz (d) Wood

**Ans. (c)**

- 32.** Gauss's law of gravitation is

- (a)  $\oint \vec{g} \cdot \vec{ds} = m$  (b)  $\oint \vec{g} \cdot \vec{ds} = Gm$   
 (c)  $\oint \vec{g} \cdot \vec{ds} = -4\pi Gm$  (d) All above

**Ans. (c)**

- 33.**  $Y = \frac{mgl}{\pi^2 L}$  formula would give  $Y$  if  $mg$  is doubled

- (a)  $2Y$  (b)  $\frac{Y}{2}$   
 (c)  $Y$  (d) Zero

**Ans. (c)**

- 34.** What controls the conduction of PN Junction

- (a) Majority carriers (b) Minority carriers  
 (c) Holes (d) Electron

**Ans. (a)**

- 35.** The value of D.C. voltage in Half wave rectifier in converting A.C. voltage  $V = 100 \text{ gm}$  (314 t) into D.C. is

- (a) 100 volt (b) 50 volt  
 (c) 30.3 volt (d) 0

**Ans. (b)**

- 36.** 1 a.m.u. is equivalent to

- (a)  $1.6 \times 10^{-27} \text{ kg}$  (b) 934 MeV  
 (c)  $1.6 \times 10^{-24} \text{ gm}$  (d) All above

**Ans. (d)**

- 37.** Positive rays are very identical to  
 (a)  $\alpha$ -particle rays (b)  $\beta$ -rays  
 (c)  $\gamma$ -rays (d) None of above

**Ans. (a)**

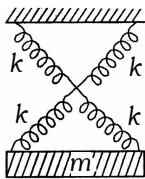
- 38.** Which force in nature exists every where  
 (a) Nuclear force (b) Electromagnetic force  
 (c) Weak force (d) Gravitation

**Ans. (d)**

- 39.** Correct form of gravitational law is  
 (a)  $F = -\frac{Gm_1m_2}{r^2}$  (b)  $\vec{F} = -\frac{Gm_1m_2}{r^2}$   
 (c)  $\vec{F} = -\frac{Gm_1m_2}{r^3}\hat{r}$  (d)  $\vec{F} = -\frac{Gm_1m_2\vec{r}}{r^3}$

**Ans. (d)**

- 40.** As shown in figure, a simple harmonic oscillator having identical for springs has time period



- (a)  $T = 2\pi\sqrt{\frac{m}{4k}}$  (b)  $T = 2\pi\sqrt{\frac{m}{2k}}$   
 (c)  $T = 2\pi\sqrt{\frac{m}{k}}$  (d)  $T = 2\pi\sqrt{\frac{2m}{k}}$

**Ans. (c)**

- 41.** The time period of a geostationary satellite is  
 (a) 12 hours (b) 24 hours  
 (c) 6 hours (d) 48 hours

**Ans. (b)**

- 42.** Newton's third law, action has equal and opposite reaction proves  
 (a) Law conservation of momentum  
 (b) Law of conservation of mass  
 (c) Charge conservation  
 (d) Law of conservation of energy

**Ans. (a)**

- 43.** A ball is thrown up under gravity ( $g = 10\text{m/sec}^2$ ). Find its velocity after 1.0 sec at a height of 10m  
 (a)  $5\text{ m/sec}^2$  (b)  $5\text{ m/sec}$   
 (c)  $10\text{ m/sec}$  (d)  $15\text{ m/sec}$

**Ans. (b)**

- 44.** Moment of inertia of hollow spherical sphere about its diameter is found to be

- (a)  $\frac{2}{3}MR^2$  (b)  $\frac{2}{5}MR^2$   
 (c)  $\frac{2}{5}M\frac{(R^5 - r^5)}{(R^2 - r^2)}$  (d)  $\frac{2}{5}M\frac{(R^3 - r^3)}{(R^2 - r^2)}$

**Ans. (a)**

- 45.** In an adiabatic process the quantity which remains constant is  
 (a) Temperature  
 (b) Pressure  
 (c) Total heat content of the system  
 (d) Volume

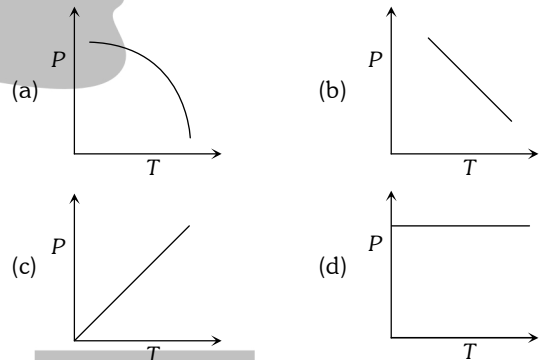
**Ans. (c)**

- 46.**  $\frac{h}{2\pi}$  has the dimension of

- (a) Velocity (b) Momentum  
 (c) Energy (d) Angular momentum

**Ans. (d)**

- 47.** Graph of isometric process is



**Ans. (c)**

- 48.** Electric field and current density have relation

- (a)  $E \propto \vec{J}$  (b)  $E \propto J$   
 (c)  $E \propto \frac{1}{J^2}$  (d)  $E^2 \propto \frac{1}{J}$

**Ans. (a)**

- 49.** The potential on the hollow sphere of radius 1 m is 100 volt. The potential at 1/4 m from the centre of sphere is  
 (a) 1000 volt (b) 500 volt  
 (c) 250 volt (d) 0 volt

**Ans. (a)**

- 50.** Induced potential in a coil is developed by change of magnetic flux from 1 Wb to 0.1 Wb in 0.1 second is  
 (a) 1/9 volt (b) 0.09 volt  
 (c) 1 volt (d) 9 volt

**Ans. (d)**

51. Which of the metal carbonates is decomposed on heating

- (a)  $MgCO_3$  (b)  $Na_2CO_3$   
(c)  $K_2CO_3$  (d)  $Rb_2CO_3$

Ans. (a)

52. Which of the following is a Lewis acid

- (a)  $PCl_3$  (b)  $AlCl_3$   
(c)  $NCl_3$  (d)  $AsCl_3$

Ans. (b)

53. On heating  $NH_4NO_3$  strongly is obtained

- (a)  $NO_2$  (b)  $NH_3$   
(c)  $N_2$  (d)  $N_2O$

Ans. (d)

54. Nitrous oxide is

- (a) Acidic (b) Basic  
(c) Amphoteric (d) Neutral

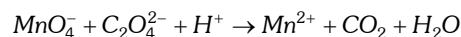
Ans. (d)

55. Equation of state is

- (a)  $M \times V = wPRT$  (b)  $\frac{MT}{R} = \frac{wV}{P}$   
(c)  $\frac{wR}{P} = \frac{VM}{T}$  (d) None of these

Ans. (c)

56. For the redox reaction,



the correct coefficients for the balanced reaction are

- | $MnO_4^-$ | $C_2O_4^{2-}$ | $H^+$ |
|-----------|---------------|-------|
| (a) 2     | 5             | 16    |
| (b) 16    | 5             | 2     |
| (c) 5     | 16            | 2     |
| (d) 2     | 16            | 5     |

Ans. (a)

57. To dissolve 0.9 gm metal 100 ml of 1N HCl is used. What is the equivalent wt. of metal

- (a) 7 (b) 9  
(c) 10 (d) 6

Ans. (b)

58. The yellow coloured flame is of

- (a) Na (b) K  
(c) Ca (d) Ba

Ans. (a)

59. Who gave uncertainty principle

- (a) Einstein (b) Heisenberg  
(c) Rutherford (d) Thomson

Ans. (b)

60. The relation between wave motion of photons and stream of particle is

- (a) Interference (b)  $E = mc^2$   
(c) Diffraction (d)  $E = hv$

Ans. (d)

61. Cobalt-60 isotope is used in treating

- (a) Heart problem (b) Skin problem  
(c) Diabetes (d) Cancer

Ans. (d)

62. Which is monoatomic

- (a) Sulphur (b) Helium  
(c) Phosphorus (d) Chlorine

Ans. (b)

63. In the following which reaction is not possible

- (a)  $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$   
(b)  $CaO + H_2 \rightarrow Ca + H_2O$   
(c)  $CuO + H_2 \rightarrow Cu + H_2O$   
(d)  $Fe + H_2SO_4 \rightarrow FeSO_4 + H_2$

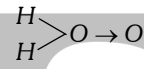
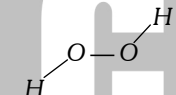
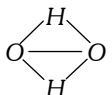
Ans. (b)

64. If, P, V, M, T and R are the symbols of pressure, volume, molecular weight and Gas constant, what is equation of density of ideal gas

- (a)  $\frac{RT}{PM}$  (b)  $\frac{P}{RT}$   
(c)  $\frac{M}{V}$  (d)  $\frac{PM}{RT}$

Ans. (d)

65. What is structure of  $H_2O_2$

- (a)  (b)  $H-O-O-H$   
(c)  (d) 

Ans. (c)

66. In an atom protons are present

- (a) Outside the nucleus  
(b) Inside the nucleus  
(c) Both inside and outside the nucleus  
(d) No where

Ans. (b)

67. The electronic configuration of chromium ( $z = 24$ ) is

- (a) 2, 8, 14 (b) 2, 8, 8, 6  
(c) 2, 8, 12, 2 (d) 2, 8, 13, 1

Ans. (d)

68. Which of the following has electrovalent linkage

- (a)  $\text{CaCl}_2$  (b)  $\text{AlCl}_3$   
(c)  $\text{SiCl}_4$  (d)  $\text{PCl}_3$

Ans. (a)

69. The colour of zinc sulphide is

- (a) White (b) Black  
(c) Brown (d) Red

Ans. (a)

70. The formula of mercurous ion is

- (a)  $\text{Hg}^+$  (b)  $\text{Hg}_2^+$   
(c)  $\text{Hg}_2^{2+}$  (d) None of these

Ans. (c)

71. The thermal decomposition of a molecule shows first order kinetics. The molecule decomposes 50% in 120 mts. How much time it will take to decompose 90%

- (a) 300 mts (b) 360 mts  
(c) 398.8 mts (d) 400 mts

Ans. (c)

72. The solution of  $\text{NH}_4\text{Cl}$  is

- (a) Acidic (b) Alkaline  
(c) Neutral (d) Coloured

Ans. (a)

73. The pH of  $M/100 \text{ NaOH}$  solution is

- (a) 2 (b) 10  
(c) 6 (d) 12

Ans. (d)

74. In the first order reaction the relation between the velocity constant ( $k_1$ ) and half life period ( $t_{1/2}$ ) is

- (a)  $t_{1/2} = \frac{0.693}{k_1}$  (b)  $k_1 = \frac{t_{1/2}}{0.693}$   
(c)  $t_{1/2} = 0.693 + k_1$  (d)  $t_{1/2} = \frac{k_1}{0.693}$

Ans. (a)

75. Tyndall effect is observed

- (a) In the solution (b) In the precipitate  
(c) In sols (d) In vapour

Ans. (c)

76. Which compound gives Iodoform test

- (a)  $\text{CH}_3\text{CHO}$  (b)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$   
(c)  $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_3$  (d)  $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$

Ans. (a)

77. The formula of phosgene is

- (a)  $\text{PH}_3$  (b)  $\text{POCl}_3$   
(c)  $\text{CS}_2$  (d)  $\text{CoCl}_2$

Ans. (D) It should be  $\text{COCl}_2$

78. In the reaction  $\text{CH}_3\text{NH}_2 + \text{X} + \text{KOH} \rightarrow \text{CH}_3\text{NC}$  the compound X is

- (a)  $\text{CH}_2\text{Cl}_2$  (b)  $\text{CHCl}_3$   
(c)  $\text{CH}_3\text{Cl}$  (d)  $\text{CCl}_4$

Ans. (b)

79. The electronic configuration of neon is

- (a)  $1s^2 2s^1 2p^7$  (b)  $1s^2 2s^2 2p^4$   
(c)  $1s^2 2s^2 2p^6$  (d)  $1s^2 2s^2 2p^8$

Ans. (c)

80. The number of neutrons in oxygen-18 are

- (a) 2 (b) 18  
(c) 10 (d) 12

Ans. (c)

81. Radioactive decay is

- (a) A physical change (b) A chemical change  
(c) A nuclear change (d) None of the above

Ans. (c)

82. Chlorine is in +1 oxidation state in

- (a)  $\text{HCl}$  (b)  $\text{HClO}_4$   
(c)  $\text{ICl}$  (d)  $\text{Cl}_2\text{O}$

Ans. (d)

83. In oxidation process

- (a) Oxidation number decreases  
(b) Number of electrons decreases  
(c) Oxygen content decreases  
(d) Number of ions decreases

Ans. (b)

84. When iron is rusted it is

- (a) Reduced  
(b) Decomposed  
(c) Oxidised  
(d) Changed in the fine powder

Ans. (c)

85. Which of the following is the most powerful oxidising agent

- (a)  $\text{F}_2$  (b)  $\text{O}_2$   
(c)  $\text{Br}_2$  (d)  $\text{I}_2$

Ans. (a)

86. Which equation is correct for adiabatic process

- (a)  $Q = +W$  (b)  $Q = 0$   
(c)  $\Delta E = Q$  (d)  $P + \Delta V = 0$

Ans. (b)

87. What is the product of the reaction



- (a)  $C_6H_5COOH + CH_3OH$   
(b)  $C_6H_5CH_2OH + CH_3OH$   
(c)  $C_6H_5CHO + CH_3COOH$   
(d) All the above products

Ans. (b)

88. The example of Friedel-Craft reaction is

- (a)  $C_6H_6 + C_2H_5Cl \xrightarrow{AlCl_3} C_6H_5C_2H_5 + HCl$   
(b)  $C_2H_5OH + HCl \xrightarrow{ZnCl_2} C_2H_5Cl + H_2O$   
(c)  $C_6H_5Cl + CH_3COCl \xrightarrow{AlCl_3} C_6H_5COCH_3 + Cl_2$   
(d)  $C_2H_5Br + Mg \xrightarrow{Ether} C_2H_5MgBr$

Ans. (a)

89. The night blindness is developed due to shortage of which vitamin

- (a) Vitamin  $B_6$  (b) Vitamin C  
(c) Vitamin  $B_{12}$  (d) Vitamin A

Ans. (d)

90. The formula of amino acid is

- (a)  $RCHNH_2COOH$  (b)  $RCONH_2$   
(c)  $RCH_2NH_2$  (d)  $RCH_2COONa$

Ans. (a)

91. In the following which is not glyceride

- (a) Fats (b) Oils  
(c) Phospholipids (d) Soaps

Ans. (d)

92. Water hydrolysis of sucrose produces

- (a) Two molecules of Glucose  
(b) Two molecules of Fructose  
(c) One molecule of each Glucose and Fructose  
(d) One molecule and each Glucose and Mannose

Ans. (c)

93. In the following which is soap

- (a)  $CH_3COONa$  (b)  $CH_3ONa$   
(c)  $C_{17}H_{35}COONa$  (d)  $C_{17}H_{35}SO_3Na$

Ans. (c)

94. The main product of the reaction,



- (a)  $CH_3Br$  (b)  $CH_4$   
(c)  $CH_3OBr$  (d)  $CH_3NH_2$

Ans. (d)

95. When glycerol is heated with  $KHSO_4$ , it gives

- (a)  $CH_2 = CH - CH_3$  (b)  $CH_2 = CH - CH_2OH$   
(c)  $CH_2 = CH - CHO$  (d)  $CH_2 = C = CH_2$

Ans. (c)

96. The IUPAC name of  $CH_3COCH_3$  is

- (a) Acetone (b) 2-Propanone  
(c) Di-methyl ketone (d) Propanal

Ans. (b)

97. The formula chloral is

- (a)  $CHCl_3$  (b)  $CH_2ClCHO$   
(c)  $CCl_3CHO$  (d)  $CHCl_2CHO$

Ans. (c)

98. Which acid is present in vinegar

- (a)  $CH_3COOH$  (b)  $H_2SO_4$   
(c)  $HCl$  (d)  $HNO_3$

Ans. (a)

99. Washing soda is

- (a)  $Na_2CO_3$  (b)  $Na_2CO_3 \cdot H_2O$   
(c)  $Na_2CO_3 \cdot 5H_2O$  (d)  $Na_2CO_3 \cdot 10H_2O$

Ans. (d)

100. Formula of Hypo is

- (a)  $Na_2S_2O_3$  (b)  $Na_2S_2O_3 \cdot 2H_2O$   
(c)  $Na_2S_2O_3 \cdot 3H_2O$  (d)  $Na_2S_2O_3 \cdot 5H_2O$

Ans. (d)

## Biology (Botany + Zoology)

101. The term biosystematics was coined by

- (a) Bentham and Hooker (b) Linnaeus  
(c) Engler and Prantl (d) Camp and Gilly

Ans. (b)

102. The first seed plants appeared during

- (a) Silurian era (b) Devonian era  
(c) Carboniferous era (d) Cretaceous era

Ans. (c)

103. 'Transgenic' plants are produced by

- (a) Inducing gene mutation  
(b) Arresting spindle fibre formation  
(c) Deleting sex chromosomes  
(d) Introduction of foreign genes

Ans. (d)

104. DNA synthesis during replication is

- (a) Discontinuous (b) Continuous  
(c) Semi-discontinuous (d) None of the above

Ans. (c)

- 105.** Crossing over may result in  
 (a) Addition of genetic material  
 (b) Deletion of genetic material  
 (c) Exchange of genetic material  
 (d) All the above  
**Ans.** (c)
- 106.** In coconut fruit, the hard shell is  
 (a) Endocarp  
 (b) Fused structure of mesocarp and endocarp  
 (c) Fused structure of epicarp and mesocarp  
 (d) Epicarp  
**Ans.** (a)
- 107.** Clove oil is obtained from  
 (a) Wood of *Santalum album*  
 (b) Leaf of *Syzygium aromaticum*  
 (c) Flower bud of *Syzygium aromaticum*  
 (d) Rhizome of *Vetiveria zizanioides*  
**Ans.** (c)
- 108.** Citrus canker is caused by  
 (a) *Micrococcus* (b) *Xanthomonas*  
 (c) *Diplococcus* (d) *Streptococcus*  
**Ans.** (b)
- 109.** Air polluting gasses caused acid rains contain  
 (a)  $CO_2$  and  $Cl_2$  (b)  $CO_2$  and  $O_3$   
 (c)  $SO_2$  and  $NO_2$  (d) CFC and  $CO_2$   
**Ans.** (c)
- 110.** From which of the following parts of the plant is opium obtained  
 (a) New leaves (b) Roots  
 (c) Unripe capsule (d) Seeds  
**Ans.** (c)
- 111.** The process of photosynthesis is most active in  
 (a) Blue light (b) Green light  
 (c) Red light (d) White light  
**Ans.** (c)
- 112.** The apparatus used to measure the rate of transpiration is known as  
 (a) Porometer (b) Potometer  
 (c) Lux meter (d) Altimeter  
**Ans.** (b)
- 113.** In which of the following kinds of ovules, the embryo sac is horse-shoe shaped  
 (a) Hemitropous ovule (b) Orthotropous ovule  
 (c) Amphitropous ovule (d) Circintropous ovule  
**Ans.** (c)
- 114.** The female gametophyte in angiosperms is  
 (a) Carpel (b) Ovule  
 (c) Embryo sac (d) Egg  
**Ans.** (c)
- 115.** Turpentine oil is derived from  
 (a) *Pinus* (b) *Cycas*  
 (c) *Cedrus* (d) *Abies*  
**Ans.** (a)
- 116.** Which of the following is not a bryophyte  
 (a) Pteris (b) Funaria  
 (c) Porella (d) Pellia  
**Ans.** (a)
- 117.** In which era did life originate  
 (a) Precambrian (b) Proterozoic  
 (c) Mesozoic (d) Coenozoic  
**Ans.** (a)
- 118.** Periderm comprises of  
 (a) Phellem (b) Phellogen  
 (c) Phelloderm (d) All of the above  
**Ans.** (d)
- 119.** Isomorphic alternation of generations is found in  
 (a) *Oedogonium* (b) *Chara*  
 (c) *Vaucheria* (d) *Ectocarpus*  
**Ans.** (d)
- 120.** The fungus, commonly known as bread mould is  
 (a) *Alternaria* (b) *Rhizopus*  
 (c) *Penicillium* (d) *Aspergillus*  
**Ans.** (b)
- 121.** 'The lock and key principle' is related to  
 (a) Chemical action (b) Hormonal action  
 (c) Enzyme action (d) Dark reaction  
**Ans.** (c)
- 122.** The transitional zone between two distinct communities is known as  
 (a) Ecosphere (b) Ecotone  
 (c) Ecocline (d) Rhizosphere  
**Ans.** (b)
- 123.** In India, tropical rain forests occur in  
 (a) Jammu Kashmir (b) Andamans  
 (c) Uttar Pradesh (d) Himachal Pradesh  
**Ans.** (b)
- 124.** Pollution in big cities can be controlled to a large extent by  
 (a) Wide roads and factories away from the city  
 (b) Cleanliness drive and proper use of pesticides  
 (c) Proper sewage and proper exit of chemicals from factories  
 (d) All the above  
**Ans.** (d)
- 125.** The most important element associated with protoplasm and proteinaceous materials of plants is  
 (a) Oxygen (b) Sulphur  
 (c) Potassium (d) Nitrogen  
**Ans.** (d)

**126.** The ultimate biological unit which controls heredity is called

- (a) Genome (b) Chromosomes  
 (c) Genotype (d) Gene

**Ans.** (d)

**127.** The theory of 'Germ plasm' for organic evolution was put forward by

- (a) Darwin (b) Lamarck  
 (c) Weisman (d) Muller

**Ans.** (c)

**128.** Hargovind Khorana is known for

- (a) Discovery of DNA structure  
 (b) Synthesis of protein  
 (c) Discovery of DNA ligase enzyme  
 (d) Discovery of tRNA

**Ans.** (b)

**129.** For making important contributions in respect of the nature of gene, the Noble Prize was rewarded to

- (a) T. H. Morgan (b) De Vries  
 (c) H.J. Muller (d) Darwin

**Ans.** (a)

**130.** Botanical generic name of bladderwort is

- (a) *Drosera* (b) *Nepenthes*  
 (c) *Utricularia* (d) *Dionaea*

**Ans.** (c)

**131.** During photosynthesis,  $O_2$  evolved from

- (a)  $CO_2$  (b)  $H_2O_2$   
 (c)  $H_2O$  (d)  $HCO_3^-$

**Ans.** (c)

**132.** Loss of water from the tip of the leaves is called

- (a) Guttation (b) Transpiration  
 (c) Respiration (d) Evaporation

**Ans.** (a)

**133.** The respiratory process of yeast is

- (a) Rarely anaerobic  
 (b) Anaerobic  
 (c) Purely aerobic  
 (d) Both aerobic and anaerobic

**Ans.** (d)

**134.** In mitosis the chromosomes can be seen most distinctly during

- (a) Interphase (b) Prophase  
 (c) Metaphase (d) Telophase

**Ans.** (c)

**135.** Penicillin was discovered by

- (a) A. Fleming (b) W. Fleming  
 (c) Blackeslee (d) Dodge

**Ans.** (a)

**136.** The fungus which grows on dung is called

- (a) Humicolous (b) Lignicolous  
 (c) Coprophilous (d) Fungicolous

**Ans.** (c)

**137.** The substrate for photorespiration is

- (a) Pyruvic acid (b) Acetyl coenzyme - A  
 (c) Glycolate (d) Glucose

**Ans.** (c)

**138.** Seeds develop from

- (a) Embryo (b) Embryo sac  
 (c) Ovary (d) Ovule

**Ans.** (d)

**139.** Which of the following is a character of gymnospermous wood

- (a) Porous (b) Ring porous  
 (c) Diffused porous (d) Non-porous

**Ans.** (d)

**140.** Some flowers open in the day and close at night. Such a movement is known as

- (a) Phototropic movement (b) Phototaxis movement  
 (c) Photoperiodism (d) Photonastic movement

**Ans.** (d)

**141.** Capitulum is found in the members of the family

- (a) Ranunculaceae (b) Solanaceae  
 (c) Asteraceae (d) Labiatae

**Ans.** (c)

**142.**  $O_3$  is a pollutant gas in

- (a) Tropopause (b) Lower stratosphere  
 (c) Troposphere (d) Mesosphere

**Ans.** (c)

**143.** Companion cells are present in

- (a) Epidermis (b) Cortex  
 (c) Phloem (d) Xylem

**Ans.** (c)

**144.** Where do bacteroids occur

- (a) Root nodules (b) Leaves  
 (c) Stem (d) Flower

**Ans.** (a)

**145.** Which one of the following is a denitrifying bacterium

- (a) *Nitrobacter* (b) *Nitrosomonas*  
 (c) *Pseudomonas* (d) *E. Coli*

**Ans.** (c)

**146.** Which one of the following disease is caused by bacteria

- (a) Small pox (b) Rabies  
 (c) Tuberculosis (d) Measles

**Ans.** (c)

**147.** Bracts, perianth and seeds are edible parts of

- (a) *Cocos nucifera*  
 (b) *Artocarpus heterophyllus*  
 (c) *Magnifera indica*  
 (d) *Argemone mexicana*

**Ans.** (b)

**148.** During summer, khas khas mats for cooling air are prepared from the roots of

- (a) *Bambusa nana* (b) *Saccharum munja*  
 (c) *Vetiveria zizanioides* (d) *Setaria pumila*

**Ans.** (c)

- 149.** An ecosystem having highest primary productivity is  
 (a) Tropical forest  
 (b) Temperate forest  
 (c) Coniferous forest  
 (d) Shrubby thorn forest

**Ans.** (a)

- 150.** A virus infecting a bacterium is  
 (a) Plasmid (b) Bacteriophage  
 (c) Bacteroid (d) Phage

**Ans.** (b)

- 151.** Antibodies are of which class of proteins  
 (a) Structural (b) Enzymatic  
 (c) Transport (d) Immunoglobulin

**Ans.** (d)

- 152.** HIV infects usually  
 (a) Helper T-cells (b) Cells of nervous system  
 (c) B-lymphocytes (d) Cytotoxic-C cells

**Ans.** (a)

- 153.** The mammalian blastula is known as  
 (a) Foetal blastula (b) Blastocyst  
 (c) Trophoderm (d) Oolema

**Ans.** (b)

- 154.** The acrosome of a sperm contains  
 (a) Hydrolytic enzymes (b) DNA  
 (c) Mitochondria (d) Fructose

**Ans.** (a)

- 155.** The basic unit of taxonomy is  
 (a) Genus (b) Species  
 (c) Order (d) Class

**Ans.** (b)

- 156.** Radial cleavage is found in  
 (a) Tunicates (b) Annelids  
 (c) Coelenterates (d) Protozoans

**Ans.** (c)

- 157.** The basis of protozoan classifications is its  
 (a) Measurement (b) Shape  
 (c) Locomotion (d) Number of nucleus

**Ans.** (c)

- 158.** Another term for adaptive evolution is  
 (a) Clinal change (b) Microevolution  
 (c) Macro-evolution (d) Speciation

**Ans.** (a)

- 159.** Human blood groups are example of a  
 (a) Gradualism (b) Cline  
 (c) Gradient of diploidy (d) Polymorphism

**Ans.** (d)

- 160.** Which factor controls the population density  
 (a) Psychological factor (b) Geographic factor  
 (c) Socio-economic factor (d) Demographic factor

**Ans.** (b)

- 161.** In mesolecithal egg the cleavage is  
 (a) Meroblastic (b) Unequal holoblastic  
 (c) Equal holoblastic (d) None of the above

**Ans.** (b)

- 162.** Which protozoan causes Kala azar  
 (a) *Giardia* (b) *Tytrponosoma*  
 (c) *Leishmania* (d) *Monocystis*

**Ans.** (c)

- 163.** The study of tissue is known as  
 (a) Physiology (b) Anatomy  
 (c) Ecology (d) Histology

**Ans.** (d)

- 164.** The word "phylum" in taxonomy was coined by  
 (a) Johann Ray (b) G.L. Couvier  
 (c) C. Linnaeus (d) Aristotle

**Ans.** (b)

- 165.** The "Central Wildlife Board" was established in  
 (a) 1951 (b) 1955  
 (c) 1968 (d) 1970

**Ans.** (a)

- 166.** Pebrine disease is related with  
 (a) Honey bee (b) Silk worm  
 (c) Lac insect (d) Aphids

**Ans.** (b)

- 167.** The cavity formed during gastrulation is  
 (a) Archenteron (b) Gastrocoel  
 (c) Primitive gut (d) All of the above

**Ans.** (d)

- 168.** "Project-Tiger" in India was launched in  
 (a) 1989 (b) 1975  
 (c) 1973 (d) 1968

**Ans.** (c)

- 169.** Who was first to develop artificial skin by tissue culture  
 (a) Harrison (b) Carrel  
 (c) Maximov (d) Engene-Bell

**Ans.** (d)

- 170.** The author of "Origin of Species" was  
 (a) Lamarck (b) Erasmus Darwin  
 (c) Charles Darwin (d) Mendel

**Ans.** (c)

- 171.** Kanha National Park is located in  
 (a) Uttar Pradesh (b) Bihar  
 (c) Tamilnadu (d) Madhya Pradesh

**Ans.** (d)

- 172.** Gastric juice has a pH of about  
 (a) 1 (b) 2  
 (c) 6 (d) 10

**Ans.** (b)

- 173.** Malathion insecticide is  
 (a) Organochlorine (b) Organophosphate  
 (c) Carbamate (d) Pyrethroid

**Ans.** (b)

174. bee keeping is known as

- (a) Pearl culture (b) Pisciculture  
(c) Sericulture (d) Apiculture

Ans. (d)

175. The main cause of Bhopal Tragedy was

- (a) Hydrogen cyanide (b) Carbon dioxide  
(c) Hydrogen sulphide (d) Methyl isocyanate

Ans. (d)

176. The PCR technique was invented by

- (a) Karry Mullis (b) Cohen  
(c) Boyer (d) Sanger

Ans. (a)

177. Leydig cells are found in

- (a) Ovary (b) Testis  
(c) Prostate (d) Liver

Ans. (b)

178. Henle's loop is found in

- (a) Liver (b) Pancreas  
(c) Kidney (d) Gall bladder

Ans. (c)

179. Hamburger's phenomenon is called

- (a) Bicarbonate shift (b) Chloride shift  
(c) Hydrogen shift (d) Sodium shift

Ans. (b)

180. The most important mineral for blood coagulation is

- (a) Calcium (b) Magnesium  
(c) Sodium (d) Iron

Ans. (a)

181. A mutation in DNA molecule involving the replacement of one nucleotide base pair with another is called

- (a) A frame shift mutation (b) A point mutation  
(c) A transposon (d) A deletion mutation

Ans. (b)

182. Moody describes the mutation as

- (a) Sports (b) Saltation  
(c) Factors (d) Shotgun

Ans. (a)

183. The pacemaker of the human heart is

- (a) AV node (b) SV node  
(c) SA node (d) M node

Ans. (c)

184. Which of the following is an autoimmune disease

- (a) Rheumatoid arthritis (b) Grave's disease  
(c) Hashimoto's disease (d) All of the above

Ans. (d)

185. Osteomalacia can occur due to

- (a) Vitamin C deficiency (b) Vitamin D deficiency  
(c) Lack of thyroid hormone (d) Lack of growth hormone

Ans. (b)

186. Which of these causes contraction of all gall bladder

- (a) Cholecystokinin (b) Gastrin  
(c) Pepsin (d) Secretin

Ans. (a)

MASTERMIND CLASSES

187. Which hormone is a modified amino acid

- (a) Prostaglandin (b) Estrogen  
(c) Epinephrine (d) Progesterone

Ans. (c)

188. Which of the following is not a major organ of lymphatic system

- (a) Lymph nodes (b) Thymus  
(c) Kidney (d) Spleen

Ans. (c)

189. Which of the blood group can be given to any person

- (a) A (b) B  
(c) AB (d) O

Ans. (d)

190. Which of the following conditions is not X-linked

- (a) Colour blindness (b) Haemophilia  
(c) Down's syndrome (d) Myopia

Ans. (c,d)

191. Polar bodies are formed during

- (a) Spermatogenesis (b) Oogenesis  
(c) Fertilization (d) Cleavage

Ans. (b)

192. Present in nucleolus is

- (a) Golgi complex (b) Lysosome  
(c) Mitochondria (d) Chromosome

Ans. (W)

193. Which is not found in RNA

- (a) Thyamine (b) Uracil  
(c) Guanine (d) Cytocine

Ans. (a)

194. The number of autosomes in human sperm are

- (a) 11 (b) 22  
(c) 44 (d) 45

Ans. (b)

195. Salivary amylase of saliva begins digestion of

- (a) Carbohydrate (b) Protein  
(c) Fats (d) Nucleic acid

Ans. (a)

196. Which type of tissue form glands

- (a) Epithelial (b) Connective  
(c) Nervous (d) Muscle

Ans. (a)

197. The life of RBC is approximately

- (a) 7 days (b) 30 days  
(c) 120 days (d) 365 days

Ans. (c)

198. Breathing rate in human is controlled by

- (a) Thalamus (b) Hypothalamus  
(c) Cerebellum (d) Medulla oblongata

Ans. (d)

199. In which phylum the body is segmented

- (a) Porifera (b) Coelenterata  
(c) Annelida (d) Mollusca

Ans. (c)

200. Which of these if not found in connective tissue

- (a) Hyaluronic acid (b) Basement membrane  
(c) Collagen fibres (d) Fluid

Ans. (b)