

**PHYSICS**

**(SECTION-A)**

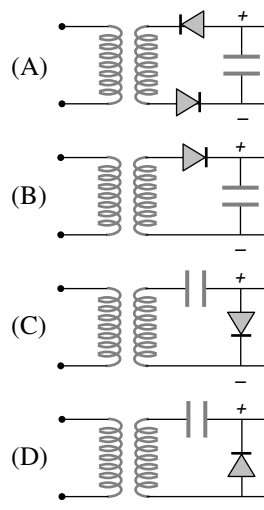
1. If in nature there may not be an element for which the principal quantum number  $n > 4$ , then the total possible number of elements will be  
(A) 60      (B) 32      (C) 4      (D) 64
2. In the  $n^{\text{th}}$  orbit, the energy of an electron  $E_n = -\frac{13.6}{n^2} eV$  for hydrogen atom. The energy required to take the electron from first orbit to second orbit will be  
(A) 10.2 eV      (B) 12.1 eV  
(C) 13.6 eV      (D) 3.4 eV
3. The Lyman series of hydrogen spectrum lies in the region  
(A) Infrared      (B) Visible  
(C) Ultraviolet      (D) Of X – rays
4. The size of an atom is of the order of  
(A)  $10^{-8} m$       (B)  $10^{-10} m$   
(C)  $10^{-12} m$       (D)  $10^{-14} m$
5. Which of the following is true  
(A) Lyman series is a continuous spectrum  
(B) Paschen series is a line spectrum in the infrared  
(C) Balmer series is a line spectrum in the ultraviolet  
(D) The spectral series formula can be derived from the Rutherford model of the hydrogen atom
6. The spectral series of the hydrogen spectrum that lies in the ultraviolet region is the  
(A) Balmer series      (B) Pfund series  
(C) Paschen series      (D) Lyman series
7. An electron makes a transition from orbit  $n = 4$  to the orbit  $n = 2$  of a hydrogen atom. The wave number of the emitted radiations ( $R =$  Rydberg's constant) will be  
(A)  $\frac{16}{3R}$       (B)  $\frac{2R}{16}$   
(C)  $\frac{3R}{16}$       (D)  $\frac{4R}{16}$
8. An electron has a mass of  $9.1 \times 10^{-31} kg$ . It revolves round the nucleus in a circular orbit of radius  $0.529 \times 10^{-10} metre$  at a speed of  $2.2 \times 10^6 m/s$ . The magnitude of its linear momentum in this motion is  
(A)  $1.1 \times 10^{-34} kg - m/s$   
(B)  $2.0 \times 10^{-24} kg - m/s$   
(C)  $4.0 \times 10^{-24} kg - m/s$   
(D)  $4.0 \times 10^{-31} kg - m/s$
9. The energy required to remove an electron in a hydrogen atom from  $n = 10$  state is  
(A) 13.6 eV      (B) 1.36 eV  
(C) 0.136 eV      (D) 0.0136 eV
10. The ratio of the energies of the hydrogen atom in its first to second excited state is  
(A) 1/4      (B) 4/9      (C) 9/4      (D) 4
11. An electron in the  $n = 1$  orbit of hydrogen atom is bound by 13.6 eV energy is required to ionize it is  
(A) 13.6 eV      (B) 6.53 eV  
(C) 5.4 eV      (D) 1.51 eV
12. When hydrogen atom is in its first excited level, its radius is .... its ground state radius  
(A) Half      (B) Same  
(C) Twice      (D) Four times
13. When the electron in the hydrogen atom jumps from 2<sup>nd</sup> orbit to 1<sup>st</sup> orbit, the wavelength of radiation emitted is  $\lambda$ . When the electrons jump from 3<sup>rd</sup> orbit to 1<sup>st</sup> orbit, the wavelength of emitted radiation would be  
(A)  $\frac{27}{32} \lambda$       (B)  $\frac{32}{27} \lambda$   
(C)  $\frac{2}{3} \lambda$       (D)  $\frac{3}{2} \lambda$
14. If the energy of a hydrogen atom in  $n^{\text{th}}$  orbit is  $E_n$ , then energy in the  $n^{\text{th}}$  orbit of a singly ionized helium atom will be  
(A)  $4E_n$       (B)  $E_n/4$   
(C)  $2E_n$       (D)  $E_n/2$
15. The ground state energy of hydrogen atom is  $-13.6 eV$ . What is the potential energy of the electron in this state  
(A) 0 eV      (B)  $-27.2 eV$   
(C) 1 eV      (D) 2 eV
16. The magnetic moment ( $\mu$ ) of a revolving electron around the nucleus varies with principal quantum number  $n$  as  
(A)  $\mu \propto n$       (B)  $\mu \propto 1/n$   
(C)  $\mu \propto n^2$       (D)  $\mu \propto 1/n^2$
17. Which of the following particles are constituents of the nucleus  
(A) Protons and electrons  
(B) Protons and neutrons  
(C) Neutrons and electrons  
(D) Neutrons and positrons

18. The mass number of a nucleus is  
 (A) Always less than its atomic number  
 (B) Always more than its atomic number  
 (C) Always equal to its atomic number  
 (D) Sometimes more than and sometimes equal to its atomic number
19. Consider an electron in the  $n^{\text{th}}$  orbit of a hydrogen atom in the Bohr model. The circumference of the orbit can be expressed in terms of the de Broglie wavelength  $\lambda$  of that electron as  
 (A)  $(0.259)n\lambda$  (B)  $\sqrt{n}\lambda$   
 (C)  $(13.6)\lambda$  (D)  $n\lambda$
20. Atomic power station at Tarapore has a generating capacity of 200 MW. The energy generated in a day by this station is  
 (A) 200 MW (B) 200 J  
 (C)  $4800 \times 10^6 J$  (D)  $1728 \times 10^{10} J$
21. One requires energy  $E_n$  to remove a nucleon from a nucleus and an energy ' $E_e$ ' to remove an electron from the orbit of an atom. Then  
 (A)  $E_n = E_e$  (B)  $E_n < E_e$   
 (C)  $E_n > E_e$  (D)  $E_n \geq E_e$
22. Equivalent energy of mass equal to 1 a.m.u. is  
 (A) 931 KeV (B) 931 eV  
 (C) 931 MeV (D) 9.31 MeV
23. Which of the following transitions in a hydrogen atom emits photon of the highest frequency  
 (A)  $n = 1$  to  $n = 2$  (B)  $n = 2$  to  $n = 1$   
 (C)  $n = 2$  to  $n = 6$  (D)  $n = 6$  to  $n = 2$
24. Which of the transitions in hydrogen atom emits a photon of lowest frequency ( $n =$  quantum number)  
 (A)  $n = 2$  to  $n = 1$  (B)  $n = 4$  to  $n = 3$   
 (C)  $n = 3$  to  $n = 1$  (D)  $n = 4$  to  $n = 2$
25. The maximum efficiency of full wave rectifier is  
 (A) 100% (B) 25.20%  
 (C) 40.2% (D) 81.2%
26. A nucleus ruptures into two nuclear parts which have their velocity ratio equal to 2 : 1. What will be the ratio of their nuclear size (nuclear radius)  
 (A)  $2^{1/3} : 1$  (B)  $1 : 2^{1/3}$   
 (C)  $3^{1/2} : 1$  (D)  $1 : 3^{1/2}$

27. **Assertion :** Density of all the nuclei is same.  
**Reason :** Radius of nucleus is directly proportional to the cube root of mass number.  
 (A) If both assertion and reason are true and the reason is the correct explanation of the assertion.  
 (B) If both assertion and reason are true but reason is not the correct explanation of the assertion.  
 (C) If assertion is true but reason is false.  
 (D) If the assertion and reason both are false.

28. Which one of the following is the weakest kind of bonding in solids  
 (A) Ionic (B) Metallic  
 (C) Vander Waals (D) Covalent
29. In Bohr's model of hydrogen atom, let  $PE$  represents potential energy and  $TE$  the total energy. In going to a higher level  
 (A)  $PE$  decreases,  $TE$  increases  
 (B)  $PE$  increases,  $TE$  increases  
 (C)  $PE$  decreases,  $TE$  decreases  
 (D)  $PE$  increases,  $TE$  decreases
30. Select the correct statement  
 (A) In a full wave rectifier, two diodes work alternately  
 (B) In a full wave rectifier, two diodes work simultaneously  
 (C) The efficiency of full wave and half wave rectifiers is same  
 (D) The full wave rectifier is bi-directional.

31. Which is the correct diagram of a half-wave rectifier



32. Zener diode is used as  
 (A) Half wave rectifier  
 (B) Full wave rectifier  
 (C) ac voltage stabilizer  
 (D) dc voltage stabilizer

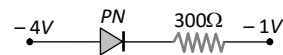
33. A *PNP* transistor conducts when  
 (A) Both collector and emitter are positive with respect to the base  
 (B) Collector is positive and emitter is negative with respect to the base  
 (C) Collector is positive and emitter is at same potential as the base  
 (D) Both collector and emitter are negative with respect to the base
34. Electrical conductivity of a semiconductor  
 (A) Decreases with the rise in its temperature  
 (B) Increases with the rise in its temperature  
 (C) Does not change with the rise in its temperature  
 (D) First increases and then decreases with the rise in its temperature
35. A *N*-type semiconductor is  
 (A) Negatively charged  
 (B) Positively charged  
 (C) Neutral  
 (D) None of these

**(SECTION-B)**

36. For a common base configuration of *PNP* transistor  $\frac{I_C}{I_E} = 0.98$  then maximum current gain in common emitter configuration will be  
 (A) 12 (B) 24 (C) 6 (D) 5
37. The part of a transistor which is heavily doped to produce a large number of majority carriers, is  
 (A) Base (B) Emitter  
 (C) Collector (D) None of these
38. The valence of an impurity added to germanium crystal in order to convert it into a *P*-type semiconductor is  
 (A) 6 (B) 5 (C) 4 (D) 3
39. In a common base amplifier the phase difference between the input signal voltage and the output voltage is  
 (A) 0 (B)  $\pi/4$  (C)  $\pi/2$  (D)  $\pi$
40. Three semi-conductors are arranged in the increasing order of their energy gap as follows. The correct arrangement is  
 (A) Tellurium, germanium, silicon  
 (B) Tellurium, silicon, germanium  
 (C) Silicon, germanium, tellurium  
 (D) Silicon, tellurium, germanium
41. When *Ge* crystals are doped with phosphorus atom, then it becomes  
 (A) Insulator (B) *P*-type  
 (C) *N*-type (D) Superconductor

42. In a *PN*-junction diode  
 (A) The current in the reverse biased condition is generally very small  
 (B) The current in the reverse biased condition is small but the forward biased current is independent of the bias voltage  
 (C) The reverse biased current is strongly dependent on the applied bias voltage  
 (D) The forward biased current is very small in comparison to reverse biased current
43. The reverse biasing in a *PN* junction diode  
 (A) Decreases the potential barrier  
 (B) Increases the potential barrier  
 (C) Increases the number of minority charge carriers  
 (D) Increases the number of majority charge carriers

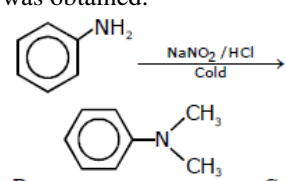
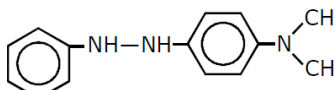
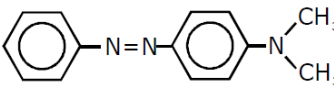
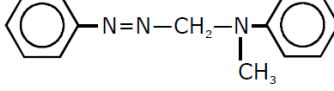
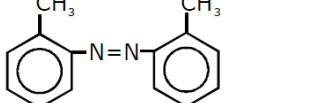
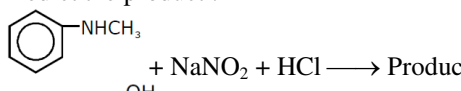
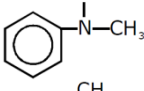
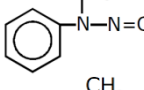
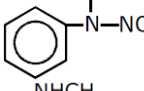
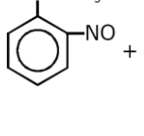
44. What is the current in the circuit shown below



- (A) 0 amp (B)  $10^{-2}$  amp  
 (C) 1 amp (D) 0.10 amp
45. Holes are charge carriers in  
 (A) Intrinsic semiconductors  
 (B) Ionic solids  
 (C) *n*-type semiconductors  
 (D) Metals
46. In the depletion region of an unbiased *P-N* junction diode there are  
 (A) Only electrons (B) Only holes  
 (C) Mobile ions (D) Immobile ions
47. Fermi level of energy of an intrinsic semiconductor lies  
 (A) In the middle of forbidden gap  
 (B) Below the middle of forbidden gap  
 (C) Above the middle of forbidden gap  
 (D) Outside the forbidden gap
48. Resistance of semiconductor at  $0^\circ K$  is  
 (A) Zero (B) Infinite  
 (C) Large (D) Small
49. Which of these is unipolar transistor  
 (A) Point contact transistor  
 (B) Field effect transistor  
 (C) *PNP* transistor  
 (D) None of these
50. Match the statements of Column A with those of Column B.
- |     | Column A    |     | Column B           |
|-----|-------------|-----|--------------------|
| (P) | Oscillators | (a) | Diode              |
| (Q) | Rectifier   | (b) | Pentavalent dopent |
| (R) | Phosphorus  | (c) | Trivalent dopent   |
| (S) | Bismuth     | (d) | Transistors        |
- (A) P → d; Q → b; R → c; s → a  
 (B) P → d; Q → c; R → b; s → a  
 (C) P → d; Q → a; R → b; s → c  
 (D) P → c; Q → d; R → a; s → b

**CHEMISTRY**

**(SECTION-A)**

51. The structure of intermediate acetyl nitrene is  
 (A)  $\text{CH}_3 - \text{CO} - \overset{+}{\text{N}}$   
 (B)  $\text{CH}_3 - \text{CO} - \overset{-}{\text{N}}$   
 (C)  $\text{CH}_3 - \text{CO} - \overset{-}{\text{N}}$   
 (D)  $\text{CH}_3 - \text{CO} - \text{N}$
52. In hypobromite reaction of amide, carbonyl carbon atom is lost as -  
 (A) CO (B)  $\text{CO}_2$   
 (C)  $\text{CO}_3^{-2}$  (D) None of above
53. Which one of the following will give primary amine on hydrolysis ?  
 (A) Nitroparaffins  
 (B) Alkyl cyanide  
 (C) Amide  
 (D) Alkyl isocyanide
54. Formaldoxime on reaction with Na/EtOH gives  
 (A) 1° Amine (B) 2° Amine  
 (C) 3° Amine (D) All above
55. Which gas will be evolved out when  $[\text{CH}_3\text{CH}_2\text{NH}_2 + (\text{CH}_3)_2\text{CHNH}_2]$  is treated with sodium nitrite and HCl ?  
 (A) Chlorine (B) Ammonia  
 (C) Nitrogen (D)  $\text{NO}_2$
56. Which set of the following compounds on reaction with an alkyl amine gives schiff's base ?  
 (A) HCHO,  $\text{C}_6\text{H}_5\text{CHO}$ ,  $\text{CH}_3\text{CHO}$   
 (B) HCHO,  $\text{NH}_2\text{OH}$ ,  $\text{NH}_2 - \text{NH}_2$   
 (C)  $\text{CH}_3\text{CHO}$ ,  $\text{NH}_2\text{OH}$ ,  $\text{NH}_2 - \text{NH}_2$   
 (D)  $\text{CH}_3\text{COCH}_3$ ,  $\text{C}_2\text{H}_5\text{OH}$
57. In a set of reactions propionic acid yielded a compound (D)  $\text{CH}_3\text{CH}_2\text{COOH}$  (A)  $\xrightarrow{\text{SOCl}_2}$   
 (B)  $\xrightarrow{\text{NH}_3}$  (C)  $\xrightarrow[\text{Br}_2]{\text{KOH}}$  (D), What is the structure of (D) ?  
 (A)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$  (B)  $\text{CH}_3\text{CH}_2\text{CONH}_2$   
 (C)  $\text{CH}_3\text{CH}_2\text{NHCH}_3$  (D)  $\text{CH}_3\text{CH}_2\text{NH}_2$
58. Which one of the following on reduction with  $\text{LiAlH}_4$  yields a secondary amine ?  
 (A) Methyl isocyanide (B) Acetamide  
 (C) Methyl cyanide (D) Nitroethane
59. In a reaction of aniline a coloured product C was obtained.  
  
 The structure of C would be :  
 (A)   
 (B)   
 (C)   
 (D) 
60. Predict the product :  
  
 (A)   
 (B)   
 (C)   
 (D) 
61. Which of the following statements about primary amines is 'False' ?  
 (A) Alkyl amines are stronger bases than ammonia  
 (B) Alkyl amines are stronger bases than aryl amines  
 (C) Alkyl amines react with nitrous acid to produce alcohols  
 (D) Aryl amines react with nitrous acid to produce phenols
62. Acetamide is treated with the following reagents separately. Which one of these would yield methylamine ?  
 (A)  $\text{PCl}_5$   
 (B)  $\text{NaOH}/\text{Br}_2$   
 (C) Sodalime  
 (D) Hot conc.  $\text{H}_2\text{SO}_4$

63. An example of a primary amine is -  
 (A) n-Propylamine (B) Isopropylamine  
 (C) t-Butyl amine (D) All of above
64. For the elimination of  $\begin{matrix} \text{O} \\ || \\ -\text{C}- \end{matrix}$  group of amide following reaction is used -  
 (A) Hoffmann hypobromite reaction  
 (B) Kolbe reaction  
 (C) Hunsdiecker reaction  
 (D) Liebermann's reaction
65. The correct set of the products obtained in the following reactions-  
 (1)  $\text{RCN} \xrightarrow{\text{reduction}}$   
 (2)  $\text{RCN} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) CH}_3\text{MgBr}}$   
 (3)  $\text{RNC} \xrightarrow{\text{hydrolysis}}$   
 (4)  $\text{RNH}_2 \xrightarrow{\text{HNO}_2}$   
 The answer is -
- |              |               |          |          |   |
|--------------|---------------|----------|----------|---|
|              | 1             | 2        | 3        | 4 |
| (A) 2° Amine | Methyl ketone | 1° Amine | Alcohol  |   |
| (B) 1° Amine | Methyl ketone | 1° Amine | Alcohol  |   |
| (C) 2° Amine | Methyl ketone | 2° Amine | Acid     |   |
| (D) 2° Amine | Methyl ketone | 2° Amine | Aldehyde |   |
66. Gabriel phthalimide reaction is used to prepare  
 (A) Primary amine  
 (B) Secondary amine  
 (C) Tertiary amine  
 (D) All the above
67. An alkyl amine is prepared by the following reaction -  

$$\text{RCOOH} + \text{N}_3\text{H} \xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{RNH}_2 + \text{CO}_2 + \text{N}_2$$
  
 Name of the above reaction is :  
 (A) Schmidt reaction  
 (B) Stephan reaction  
 (C) Schotten-Baumann reaction  
 (D) Reimer- Tiemann reaction
68. Which amine will not react with nitrous acid ?  
 (A) Methylamine  
 (B) Ethylamine  
 (C) Dimethylamine  
 (D) N, N-Dimethyl ethanamine
69. In the following sequence of reactions the product B, will be  

$$\text{C}_2\text{H}_5\text{MgBr} \xrightarrow{\text{Cl-NH}_2} \text{A} \xrightarrow[\text{HCl}]{\text{NaNO}_2} \text{B}$$
  
 (A)  $\text{C}_2\text{H}_5\text{OH}$  (B)  $\text{C}_2\text{H}_5\text{NO}_2$   
 (C)  $\text{C}_2\text{H}_2$  (D) All of the above
70. Which of the following does not give a sulphur compound with 1° amine ?  
 (A) Hinsberg reaction  
 (B) Mustard oil reaction  
 (C) Schotten-Baumann reaction  
 (D) Con.  $\text{H}_2\text{SO}_4$
71. Which of the following compounds has a smell of mustard oil ?  
 (A) Alkyl cyanate  
 (B) Alkyl thiocyanate  
 (C) Alkyl isothiocyanate  
 (D) alkyl isocyanate
72. Which of the following amine does not react with Hinsberg reagent ?  
 (A) Neopentyl amine  
 (B) Isopropyl amine  
 (C) Triethylamine  
 (D) Ethyl methylamine
73. In which of the following sequence of reaction the end product does not exhibit tautomerism ?  
 (A)  $\text{CH}_3\text{CH}_2\text{NH}_2 \xrightarrow{\text{NOCl}} \xrightarrow{\text{AgNO}_2}$   
 (B)  $(\text{CH}_3)_2\text{CHNH}_2 \xrightarrow{\text{NOCl}} \xrightarrow{\text{AgNO}_2}$   
 (C)  $(\text{CH}_3)_3\text{CNH}_2 \xrightarrow{\text{NOCl}} \xrightarrow{\text{AgNO}_2}$   
 (D)  $\text{CH}_3\text{CH}(\text{NH}_2)\text{C}_2\text{H}_5 \xrightarrow{\text{NOCl}} \xrightarrow{\text{AgNO}_2}$
74. The acid used for the determination of molecular weights of amines is -  
 (A)  $\text{H}_2\text{PtCl}_6$  (B) Picric acid  
 (C)  $\text{HAuCl}_4$  (D)  $\text{H}_2\text{SO}_4$
75. Biochemical reactions take place spontaneously  
 (A) at pH 7 and at 298 K  
 (B) at pH 7 and at 310 K  
 (C) at pH 0 and at 310 K  
 (D) at pH 10 and at 298 K
76. The living plants may convert the glucose produced during photosynthesis into following  
 (a) Disaccharides (b) Polysaccharides  
 (c) Starches (d) Cellulose  
 (e) Proteins  
 (A) a, b and c (B) a, b, c, d  
 (C) a, b, c, d, e (D) None of these
77. Glucose on heating with dilute sodium hydroxide undergoes in a reversible isomerisation (known as Lobry de Bruyn-van Ekenstein rearrangement) and gives -  
 (A) D-glucose (B) D-mannose  
 (C) D-fructose (D) All of these

78. The spontaneous change in specific rotation of an optically active compound is called –  
 (A) Mutarotation (B) Rearrangements  
 (C) Inversion (D) Renaturation
79. Hydrolysis of sucrose brings about a change in sign of rotation from dextro(+) to Laevo(–) and such a sign change is known as –  
 (A) Racemization (B) Inversion  
 (C) Mutarotation (D) None of these
80. Methyl  $\alpha$ -D-glucoside and methyl  $\beta$ -D-glucoside does not test by followings –  
 (A) Fehling's solution  
 (B) Hydrogen cyanide  
 (C) Both of these  
 (D) None of these
81. Anomers of glucose ( $\alpha$ -form &  $\beta$ -form) are differ in the stereochemistry at which carbon –  
 (A) C-1 (B) C-2  
 (C) C-3 (D) All of these
82. The six membered cyclic structure of glucose is proposed by –  
 (A) R.D. Haworth  
 (B) E.Chargaff  
 (C) James Dewey Watson  
 (D) Har Gobind Khorana
83. Which is known as milk sugar?  
 (A) Lactose (B) Maltose  
 (C) Both of these (D) None of these'
84. On hydrolysis of one mole of maltose two moles of D-glucose are obtained. These two glucose units are linked together through a  $\alpha$ -glycoside linkage between –  
 (A) C-2 of one unit and C-4 of another unit  
 (B) C-1 of one unit and C-2 of another unit  
 (C) C-1 of one unit and C-4 of another unit  
 (D) C-2 of one unit and C-3 of another unit
85. The simplest amino acid is-  
 (A) Glycine (B) Alanine  
 (C) Guanine (D) All the above
86. The main structural feature of protein is-  
 (A) Ester linkage (B) Ether linkage  
 (C) Peptide linkage (D) All of these
87. DNA molecule consists of units of-  
 (A) Base-sugar  
 (B) Base-sugar-phosphate  
 (C) Base-phosphate  
 (D) None of these
88. Ring structure of glucose is due to formation of hemiacetal and ring formation between-  
 (A) C<sub>1</sub> and C<sub>5</sub> (B) C<sub>1</sub> and C<sub>4</sub>  
 (C) C<sub>1</sub> and C<sub>3</sub> (D) C<sub>2</sub> and C<sub>4</sub>
89. Glucose is-  
 (A) Monosaccharide (B) Disaccharide  
 (C) Trisaccharide (D) Polysaccharide
90. Secondary structure of proteins refers to-  
 (A) Mainly denatured proteins and structure of prosthetic group  
 (B) Three dimensional structure specially the bond between amino acid residues that are distant from each other in polypeptide chain  
 (C) Linear sequence of amino acid residue in the polypeptide chain  
 (D) Regular folding patterns of continuous portion of the polypeptide chain
91. The end product of protein digestion is-  
 (A) Peptides (B) Peptones  
 (C) Protone (D)  $\alpha$ -Amino acids
92. A good source of vitamins A and D is:  
 (A) Whole cereal (B) Cod liver oil  
 (C) Yeast (D) Water melon
93. Calorific value is in the order-  
 (A) Fats > Proteins > Carbohydrates  
 (B) Carbohydrates > Fats > Protein  
 (C) Fats > Carbohydrates > Protein  
 (D) Protein > Fats > Carbohydrates
94. The main structural feature of proteins is-  
 (A) An ester linkage  
 (B) An ether linkage  
 (C) The peptide linkage  
 (D) All
95. The pH value of a solution in which a polar amino acid does not migrate under the influence of electric field is called-  
 (A) Isoelectric point (B) Isoelectronic point  
 (C) Neutralisation point (D) None
96. 'Kwashiorkor' is a disease caused by the deficiency of-  
 (A) Vitamins  
 (B) Hormones  
 (C) Blood  
 (D) Essential amino acids
97. Hair, finger, nails, hoofs etc. are all made of-  
 (A) Fat (B) Vitamins  
 (C) Proteins (D) Iron

**(SECTION-B)**

98. Riboflavin deficiency causes-
- (A) Scurvy (B) Pellagra  
(C) Beri-beri (D) Cheilosis
99. **Assertion :** All monosaccharides are sweet in taste.  
**Reason :** All monosaccharides have the general formula,  $C_6H_{12}O_6$ .
- (A) If both assertion and reason are true and reason is a correct explanation of assertion.  
(B) If both assertion and reason are true but reason is not a correct explanation of assertion.  
(C) If assertion is true but reason is false.  
(D) If assertion and reason both are false.

100. **Assertion :** Glyptal is obtained by the addition polymerization of ethylene glycol and terephthalic acid.  
**Reason :** Glyptal is used in the manufacture of paints and lacquers.
- (A) If both assertion and reason are true and reason is a correct explanation of assertion.  
(B) If both assertion and reason are true but reason is not a correct explanation of assertion.  
(C) If assertion is true but reason is false.  
(D) If assertion and reason both are false.

# BIOLOGY

## BOTANY (SECTION-A)

- 101.** Which of these are examples of man-made ecosystem?  
 (A) Crop field  
 (B) Aquarium  
 (C) Wetland  
 (D) Both (A) and (B)
- 102.** The functional aspect of ecosystem can be explained in terms of  
 (A) Productivity  
 (B) Decomposition and energy flow  
 (C) Nutrient cycle  
 (D) All of these
- 103.** The unit of primary production is  
 (A)  $g/m^2$  (B)  $kcal/m^2$   
 (C) Both (A) and (B) (D) None of these
- 104.** NPP is equal to  
 (A)  $GPP + R$  (B)  $GPP - R$   
 (C)  $GPP \times R$  (D)  $GPP \div R$
- 105.** The productivity of ocean is less because  
 (A) It occupies 70 per cent of earth's surface.  
 (B) Light is a major limiting factor which decreases with increase in water depth.  
 (C) It contains algae as a chief producer.  
 (D) All the above
- 106.** Earthworms help in  
 (A) Breakdown of complex organic matter  
 (B) Loosening of soil  
 (C) Both (A) and (B)  
 (D) None of these
- 107.** Match the columns:
- | Column-I         | Column-II   |
|------------------|---|
| 1. Fragmentation | A. Break down of detritus into smaller particles                |
| 2. Leaching      | B. Precipitation of water soluble nutrients as unavailable salt |
| 3. Catabolism    | C. Degradation of detritus by bacterial and fungal enzymes      |
- (A) 1-A, 2-B, 3-C (B) 1-B, 2-C, 3-A  
 (C) 1-C, 2-B, 3-A (D) 1-C, 2-A, 3-B
- 108.** Humus is degraded by some microbes and release of inorganic nutrients occur by the process known as \_\_\_\_\_.  
 (A) Fragmentation (B) Leaching  
 (C) Humidification (D) Mineralization
- 109.** Primary producers in aquatic ecosystem are  
 (A) Phytoplankton (B) Algae  
 (C) Higher plant (D) All of these
- 110.** Which of these is a common herbivores in aquatic ecosystem?  
 (A) Insect (B) Birds  
 (C) Mammals (D) Mollusc
- 111.** Which of the following represent simple GFC (Grazing Food Chain)?  
 (A) Grass → Goat → Man  
 (B) Goat → Grass → Man  
 (C) Detritus → Fungi → Man  
 (D) Fungi → Detritus → Grass
- 111.** DFC (Detritus Food Chain) begins with  
 (A) Dead organic matter (B) Fungi  
 (C) Bacteria (D) Plant
- 112.** Each trophic level has a certain mass of living material at a particular time called  
 (A) Standing state (B) Stranding crop  
 (C) Ecological pyramid (D) GPP
- 112.** Transfer of energy in trophic level follows  
 (A) 20% law (B) 10% law  
 (C) 5% law (D) 15% law
- 113.** Which of the following pyramid is always upright?  
 (A) Energy (B) Biomass  
 (C) Number (D) All of these
- 114.** Find out the correct statement:  
 (A) Trophic level represents a functional level, not a species as such.  
 (B) A given species never occupies more than one trophic level in the same ecosystem at the same time.  
 (C) In most of the ecosystems, producers are less in number and biomass than the herbivores.  
 (D) Pyramid of energy can never be upright.
- 115.** Which of the following are limitations of ecological pyramids?  
 (A) It does not take into account the same species belonging to two or more trophic levels.  
 (B) It assumes a simple food chain that almost does not exist in nature.  
 (C) Saprophytes are not given at any place.  
 (D) All the above



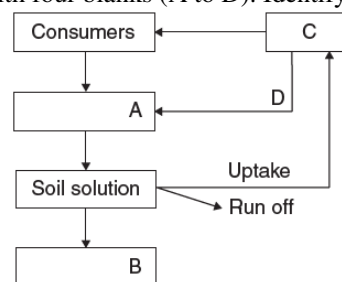
116. Which of the following may occupy more than one trophic level in the same ecosystem at the same time?  
 (A) Lion (B) Sparrow  
 (C) Snake (D) Frog
117. How is primary succession different from secondary succession?  
 (A) There is change in type of animals and plants during primary succession only.  
 (B) Anthropogenic disturbance can change seral stages in primary succession only.  
 (C) Primary succession occurs at slower rate.  
 (D) All the above
118. Find out the total number of true statements from the following.  
 (A) Primary succession is a very slow process, taking thousands of years for the climax to be reached.  
 (B) All succession whether taking place in water or land, proceeds to a similar climax community, the mesic.  
 (C) As succession proceeds, the number and types of animals and decomposers also change.  
 (D) Saprophytes are not given at any place in the ecological pyramids even though they play a vital role in the ecosystem.
119. The following elements shows gaseous type of nutrient cycles except  
 (A) Carbon (B) Nitrogen  
 (C) Oxygen (D) Phosphorus
120. Out of the total cost of various ecosystem services, the soil account for \_\_\_\_\_ %, recreation and nutrient cycling are less than \_\_\_\_\_ % and climate regulation and habitat for wildlife is about \_\_\_\_\_ % each.  
 (A) 50, 6, 10 (B) 50, 10, 6  
 (C) 50, 30, 20 (D) 20, 30, 50
121. Driving force for an ecosystem is  
 (A) Primary producers  
 (B) Secondary producers  
 (C) Solar radiation  
 (D) Food chain
122. In a terrestrial ecosystems such as forests, maximum energy is found in which trophic level?  
 (A) T1 (B) T2 (C) T3 (D) T4
123. Trophic levels are formed by  
 (A) Only plants  
 (B) Only animals  
 (C) Only carnivores  
 (D) Organisms linked in food chains
124. If 20 kJ energy is available at producer level, then how much energy will be transferred to the lion in the food chain: producer → deer → lion?  
 (A) 0.2 J (B) 0.02 J (C) 0.002 J (D) 2 J
125. **Assertion:** Secondary productivity is defined as the rate of formation of new organic matter by producers.  
**Reason:** Secondary productivity = GPP – R.  
 (A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.  
 (B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.  
 (C) If the assertion is true but the reason is false.  
 (D) If both the assertion and reason are false.
126. **Assertion:** The energy pyramid is always upright.  
**Reason:** Some energy is always lost as heat at each step when energy flows from a particular trophic level to the next trophic level.  
 (A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.  
 (B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.  
 (C) If the assertion is true but the reason is false.  
 (D) If both the assertion and reason are false.
127. **Assertion:** Amount of nutrient present in the soil at any given time, in a given ecosystem is referred as the standing state.  
**Reason:** Each trophic level has a certain mass of living material at particular time is known as the standing crop.  
 (A) If both the assertion and the reason are true and the reason is a correct explanation of the assertion.  
 (B) If both the assertion and reason are true but the reason is not a correct explanation of the assertion.  
 (C) If the assertion is true but the reason is false.  
 (D) If both the assertion and reason are false.
128. The biomass available for consumption by the herbivores and the decomposers is called  
 (A) Net primary productivity  
 (B) Secondary productivity  
 (C) Standing crop  
 (D) Gross primary productivity

129. Which one of the following animals may occupy more than one trophic levels in the same ecosystem at the same time?  
 (A) Sparrow (B) Lion  
 (C) Goat (D) Frog
130. The breakdown of detritus into smaller particles by earthworm is a process called  
 (A) Humification (B) Fragmentation  
 (C) Mineralization (D) Catabolism
131. Which of the following statements is correct for secondary succession?  
 (A) It occurs on a deforested site  
 (B) It follows primary succession  
 (C) It is similar to primary succession except that it has a relatively fast pace  
 (D) It begins on a bare rock
132. Which one of the following statements for pyramid of energy is incorrect, whereas the remaining three are correct?  
 (A) It shows energy content of different trophic level organisms  
 (B) It is inverted in shape  
 (C) It is upright in shape  
 (D) Its base is broad
133. Mass of living matter at a trophic level in an area at any time is called  
 (A) Detritus (B) Humus  
 (C) Standing state (D) Standing crop
134. Of the total incident solar radiation the proportion of PAR is  
 (A) About 60% (B) Less than 50%  
 (C) More than 80% (D) About 70%
135. The second stage of hydrosere is occupied by plants like  
 (A) Typha (B) Salix  
 (C) Vallisneria (D) Azoll

**(SECTION-B)**

136. Which one of the following processes during decomposition is correctly described?  
 (A) Fragmentation – Carried out by organisms such as earthworm.  
 (B) Humification – Leads to the accumulation of a dark coloured substance humus which undergoes microbial action at a very fast rate.  
 (C) Catabolism – Last step in the decomposition under fully anaerobic condition.  
 (D) Leaching – Water soluble inorganic nutrients rise to the top layers of soil.

137. Given below is a simplified model of phosphorus cycling in a terrestrial ecosystem, with four blanks (A to D). Identify the blanks.



- (A) A: Rock minerals, B: Detritus, C: Litter fall, D: Producers  
 (B) A: Litter fall, B: Producers, C: Rock minerals, D: Detritus  
 (C) A: Detritus, B: Rock minerals, C: Producers, D: Litter fall  
 (D) A: Producers, B: Litter fall, C: Rock minerals, D: Detritus
138. The mass of living material at a trophic level at a particular time is called  
 (A) Gross primary productivity  
 (B) Standing state  
 (C) Net primary productivity  
 (D) Standing crop
139. What happens during ecological succession?  
 (A) The establishment of a new biotic community is very fast in its primary phase.  
 (B) The numbers and types of animals remain constant.  
 (C) The changes lead to a community that is in near equilibrium with the environment and is called pioneer community.  
 (D) The gradual and predictable change in species composition occurs in a given area.
140. Most of the animals that live in deep oceanic waters are  
 (A) Secondary consumers  
 (B) Tertiary consumers  
 (C) Detritivore  
 (D) Primary consumers

141. In which of the following both pairs have correct combination?

(A)	Gaseous nutrient cycle	Carbon and sulphur
	Sedimentary nutrient cycle	Nitrogen and phosphorus
(B)	Gaseous nutrient cycle	Nitrogen and sulphur
	Sedimentary nutrient cycle	Carbon and phosphorus
(C)	Gaseous nutrient cycle	Sulphur and phosphorus
	Sedimentary nutrient cycle	Carbon and nitrogen
(D)	Gaseous nutrient cycle	Carbon and nitrogen
	Sedimentary nutrient cycle	Sulphur and phosphorus

142. Which of the following is a characteristic feature of cropland ecosystem?  
 (A) Absence of soil organisms  
 (B) Least genetic diversity  
 (C) Absence of weeds  
 (D) Ecological succession
143. The term ecosystem was coined by:  
 (A) E. P. Odum (B) A.G. Tansley  
 (C) E. Haeckel (D) E. Warming
144. Which of the following is correctly matched?  
 (A) Age pyramid-Biome  
 (B) Parthenium hysterophorus – heart to biodiversity  
 (C) Stratification-Population  
 (D) Aerenchyma-Opuntia
145. If the carbon atoms fixed by producers already have passed through three species, then the trophic level of the last species would be  
 (A) Scavenger  
 (B) Tertiary producer  
 (C) Tertiary consumer  
 (D) Secondary consumer
146. Which of the following is an ecosystem service provided by a natural ecosystem?  
 (A) Cycling of nutrients  
 (B) Prevention of soil erosion  
 (C) Pollutant absorption and reduction of the threat of global warming  
 (D) All of the above
147. In relation to Gross primary productivity and Net primary productivity of an ecosystem, which one of the following statements is correct?  
 (A) There is no relationship between Gross primary productivity and Net primary productivity  
 (B) Gross primary productivity is always less than net primary productivity  
 (C) Gross primary productivity is always more than net primary productivity  
 (D) Gross primary productivity and Net primary productivity are one and same
148. The amount of nutrients, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time, is referred as :  
 (A) Climax  
 (B) Climax community  
 (C) Standing state  
 (D) Standing crop

149. Given below are two statements:  
 Statement I : Decomposition is a process in which the detritus is degraded into simpler substances by microbes.  
 Statement II : Decomposition is faster if the detritus is rich in lignin and chitin In the light of the above statements, choose the correct answer from the options given below:  
 (A) Both Statement I and Statement II are incorrect  
 (B) Statement I is correct but Statement II is incorrect  
 (C) Statement I is incorrect but Statement II is correct  
 (D) Both Statement I and Statement II are correct
150. Which one of the following will accelerate phosphorus cycle?  
 (A) Volcanic activity  
 (B) Weathering of rocks  
 (C) Rain fall and storms  
 (D) Burning of fossil fuels

#### ZOOLOGY (SECTION-A)

151. The study of the relationship of living organisms with the abiotic and biotic components of their environment is called  
 (A) Ecology (B) Anatomy  
 (C) Phylogeny (D) Ontogeny
152. Ecological niche of an organism includes all, except  
 (A) Range of conditions it can tolerate  
 (B) Resources it utilizes  
 (C) Body organization which it has  
 (D) Function it performs in an ecological system
153. Tropical rainforest is not characterized by  
 (A) Woody climbers and epiphytes  
 (B) Maximum biodiversity  
 (C) Maximum leaching  
 (D) Permafrost and birches
154. Niche overlap indicates  
 (A) Mutualism between two species  
 (B) Acute cooperation between two species  
 (C) Two different parasites on the same host  
 (D) Sharing of one or more resources between the two species
155. Organisms that are found in tropical zone and are adapted to high temperatures throughout the year are referred to as  
 (A) Mesotherms (B) Megatherms  
 (C) Hekistotherms (D) Microtherms

156. The mean annual temperature in Arctic and alpine tundra is

- (A) 5°C to 15°C (B) 10°C to 25°C  
(C) Below 5°C (D) -15°C to -25°C

157. We sweat profusely when outside temperature is more than our body temperature which is

- (A) 29°C (B) 37°C  
(C) 33°C (D) 27°C

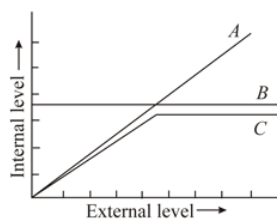
158. Through which one of the following ways, our body at higher altitudes compensates low oxygen availability?

- (A) By increasing RBC production  
(B) By decreasing breathing rate  
(C) By decreasing the binding affinity of hemoglobin  
(D) By increasing the synthesis of ATP

159. Most ecologically relevant environment factor is

- (A) Light (B) Temperature  
(C) Water (D) Soil

160. Select the correct one with respect to the given diagram.



- (A) A—Nearly all plants  
(B) B—Majority of animals  
(C) A—Very few lower vertebrates and invertebrates  
(D) C—Birds and mammals

161. All of the following are adaptations of majority of desert plants, except

- (A) Presence of thick cuticle on their leaf surface  
(B) Presence of waxy coating  
(C) Lack of crassulacean acid metabolism  
(D) Arrangement of stomata in deep pits

162. Thick layer of fat below the skin, called blubber, that helps in reduction in loss of body heat is a characteristic feature of

- (A) Kangaroo (B) Antarctic fish  
(C) Seal (D) Desert lizard

163. Small animals lose their body heat very fast as compared to big animals because

- (A) The intake of energy by small animals in the form of food is very less  
(B) The surface area of small animals is less than the big animals  
(C) The metabolic rate of small animals is very low as compared to big animals  
(D) The surface area of small animals is larger relative to their volume

164. Which of the following decreases the freezing point of body fluid of cold-region fish?

- (A) Proline  
(B) Betaine  
(C) Glycerol  
(D) Both (A) and (C)

165. In a bond, the number of lotus plants increases from 20 to 25 in one year. Then, the birth rate is \_\_\_\_\_ offspring per lotus per year.

- (A) 0.2 (B) 0.25  
(C) 0.8 (D) 1.25

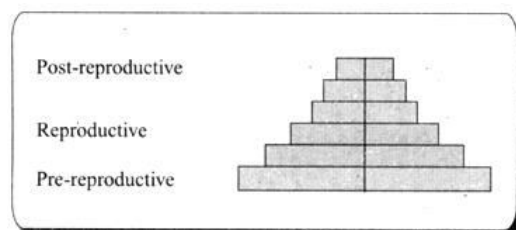
166. Which of the following is not a population attribute?

- (A) Birth rate (B) Natality  
(C) Age ratio (D) Sex ratio

167. Population density will increase if

- (A) Number of births and number of immigrants is high  
(B) Number of births and number of deaths increase  
(C) Number of births and number of immigrants is low  
(D) Number of immigrants and number of deaths is high

168. The age pyramid for human population is shown below.



Which of the following conclusion can be drawn from the given age pyramid?

- (A) It represents that the population is young and growing.  
(B) It is a pyramid of declining population.  
(C) It shows that the population is stable.  
(D) It shows that the population size is fluctuating.

**169.** Graphical representation of a young and growing population

- (A) Is an urn-shaped age pyramid
- (B) Shows zero growth rate
- (C) Shows larger number of individuals in pre-reproductive age
- (D) Both (A) and (C)

**170.** In a population of an area, the difference in the number of births and deaths was zero in a particular year, but the population density was increased. Which of the following may be the reason for that increase?

- (A) Number of immigrants > Number of emigrants
- (B) Number of immigrants = Number of emigrants
- (C) Number of immigrants < Number of emigrants
- (D)  $\frac{\text{Number of immigrants}}{\text{Number of emigrants}} = 0$

**171.** Select the odd feature about an r-selected species.

- (A) Requirement of extensive parental care
- (B) High fecundity
- (C) Small body size
- (D) Short generation time

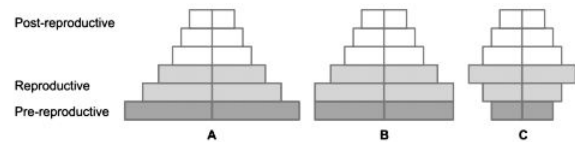
**172.** The population density in a given habitat at time  $t + 1$  is represented by the relation:

- (A)  $N_t = N_{t+1} + [(B+I) + (D+E)]$
- (B)  $N_{t+1} = N_t + [(B+1) - (D+E)]$
- (C)  $N_{t+1} = N_t + [(B+E) + (D+J)]$
- (D)  $N_t = N_t + [(B+1) - (D-E)]$

**173.** The equation that describes Verhulst-Pearl logistic growth of a population is

- (A)  $\frac{dN}{dt} = rN \left( \frac{K - N}{K} \right)$
- (B)  $\frac{dt}{dN} = rN \left[ \frac{K}{K - N} \right]$
- (C)  $\frac{dt}{dN} = rN \left[ \frac{K - N}{K} \right]$
- (D)  $\frac{dN}{dt} = rN \left[ \frac{K}{K - N} \right]$

**174.** Carefully study the given age pyramids, and identify the incorrect statement.



- (A) Pyramid A depicts rapid increase in the size of population with time
- (B) Pyramid B shows negative growth
- (C) Pyramid B is representing stable population
- (D) Pyramid C is a graphical representation of a declining population

**175.** The actual birth rate found under existing conditions is termed as

- (A) Potential natality
- (B) Biotic potential natality
- (C) Realized
- (D) Vital index

**176.** Local population of the individuals of same species which are genetically, morphologically adapted to their environment are called

- (A) Ecads
- (B) Ecotypes
- (C) Ecophene
- (D) Ecesis

**177.** Logistic growth occurs when there is

- (A) A fixed carrying capacity
- (B) Favorable condition
- (C) No inhibition from crowding
- (D) All except (A)

**178.** The organisms with very high intrinsic growth rates have

- (A) Long generation time
- (B) Short generation time
- (C) Higher carrying capacity
- (D) No courtship behavior

**179.** Read the following statements.

- A. Exponential growth produces J-shaped population growth curve.
  - B. Logistic growth occurs when resources are unlimited.
  - C. For exponential growth, the equation is  $N_t = N_0 e^{rt}$
- (A) Only (A) is correct.
  - (B) Only (A) and (B) are correct.
  - (C) Only (A) and (C) are correct.
  - (D) All (A), (B), and (C) are correct.

180.  $dN/dt$  is  
 (A) Rate of birth  
 (B) Rate of death  
 (C) Change in population size  
 (D) Carrying capacity

181. Match the columns, and select the correct option

Column I	Column II
(a) Ammensalism	(i) -, -
(b) Mutualism	(ii) +, 0
(c) Competition	(iii) +, +
(d) Commensalism	(iv) 0, -

- (A) a- ii; b- iii; c- i; d- iv  
 (B) a- iv; b- iii; c- i; d- ii  
 (C) a- iv; b- i; c- iii; d- ii  
 (D) a- ii; b- iv; c- i; d- iii

182. The interaction of two species in which both the species are benefited from each other is  
 (A) Proto cooperation or commensalism  
 (B) Commensalism or ammensalism  
 (C) Ammensalism of mutualism  
 (D) Mutualism or proto cooperation

183. Association of clownfish and sea anemone represents  
 (A) Ammensalism (B) Commensalism  
 (C) Competition (D) Predation

184. Select the correct match with respect to population interaction.

Column I	Column II
(a) An orchid-mango association	(i) Mutualism
(b) Five related species of warblers	(ii) Ectoparasites
(c) Mycorrhizae	(iii) Commensalism
(d) Fishes and copepods	(iv) Competitive co-existence

- (A) a- ii; b- iii; c- i; d- iv  
 (B) a- iv; b- ii; c- i; d- iii  
 (C) a- iii; b- iv; c- i; d- ii  
 (D) a- iii; b- iv; c- ii; d- i

185. Identify the correct statement(s) with respect to the role of predators in ecosystem.  
 A. Transfer of energy across trophic level  
 B. Keeping prey population under control  
 C. Maintain species diversity in a community  
 (A) Only (A) is correct.  
 (B) Only (B) is correct.  
 (C) Only (A) and (B) are correct.  
 (D) All (A), (B), and (C) are correct.

**(SECTION-B)**

186. Sexual deceit is employed by  
 (A) Ophrys to get pollinated  
 (B) Orchids on mango for shelter  
 (C) Cuckoo on crow  
 (D) Abingdon tortoise in Galapagos island

187. A: Competition occurs when resources, such as space, light, and nutrient, are in short supply.  
 B: Generally, the interspecific competition is more intense than intraspecific competition.  
 Select the correct option.  
 (A) Only (A) is correct.  
 (B) Only (B) is correct.  
 (C) Both (A) and (B) are correct.  
 (D) Both (A) and (B) are incorrect.

188. Predators in nature are prudent because  
 (A) The prey species have evolved various defenses to remove the impact of predation  
 (B) If predators overexploit their prey, then prey might become extinct and thus predators will also become extinct because of lack of food  
 (C) In course of evolution, predators have not developed any defensive adaptations  
 (D) Most of the environmental conditions always remain unfavorable to the predators

189. Which of the following interactions between species explains the conduit for energy transfer across trophic levels?  
 (A) Mutualism (B) Competition  
 (C) Predation (D) Commensalism

190. How many of the following shows “+,” “-” interaction?  
 (a) Fig and wasp  
 (b) Convolvulus and wheat  
 (c) Sparrow and seeds  
 (d) Tiger and deer  
 (e) Orchid on mango tree  
 (f) Plasmodium and human  
 (A) Four (B) Five  
 (C) Two (D) Three

191. A species whose distribution is restricted to small geographical area due to the presence of a comparatively superior species expands its distribution when the competing species is experimentally removed. This phenomenon is called  
 (A) Natural selection  
 (B) Competitive release  
 (C) Competitive arrival  
 (D) Competitive exclusion

192. Read the following statements, and select the correct option/

A. Most recent studies point out that species facing competition might evolve mechanisms that promote co-existence rather than exclusion.

B. Gause's competitive exclusion principle is effective when resources are in excess.

(A) Only (A) is correct.

(B) Only (B) is correct.

(C) Both (A) and (B) are correct.

(D) Both (A) and (B) are incorrect.

193. What percentage of all insects is known to be phytophagous?

(A) Nearly 75% (B) More than 75%

(C) Nearly 25% (D) 50%

194. A butterfly of India when resting with folded wings resembles a dead leaf. This mechanism of protection is called

(A) Hiding (B) Mimicry

(C) Congregation (D) Camouflage

195. Amensalism can be represented as :

(A) Species A (-); Species B (0)

(B) Species A (+); Species B (+)

(C) Species A (-); Species B (-)

(D) Species A (+); Species B (0)

196. In the exponential growth equation

$N_t = N_0 e^{rt}$ , e represents:

(A) The base of number logarithms

(B) The base of exponential logarithms

(C) The base of natural logarithms

(D) The base of geometric logarithms

197. Match List - I with List - II.

**List-I**

(a) Allen's Rule

(b) Physiological

(c) Behavioural

(d) Biochemical

**List-II**

(i) Kangaroo rat

(ii) Desert lizard adaptation

(iii) Marine fish at adaptation depth

(iv) Polar seal Adaptation

Choose the correct answer from the options given below.

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

(A) (iv) (ii) (iii) (i)

(B) (iv) (i) (iii) (ii)

(C) (iv) (i) (ii) (iii)

(D) (iv) (iii) (ii) (i)

198. **Assertion :** A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and heart palpitations.

**Reason :** Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

In the light of the above statements, choose the **correct** answer from the options given below.

(A) Both (A) and (R) are true and (R) is the correct explanation of (A)

(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(C) (A) is true but (R) is false

(D) (A) is false but (R) is true

199. Which one of the following statements cannot be connected to Predation?

(A) It might lead to extinction of a species

(B) Both the interacting species are negatively impacted

(C) It is necessitated by nature to maintain the ecological balance

(D) It helps in maintaining species diversity in a community

200. While explaining interspecific interaction of population, sign is assigned for beneficial interaction, sign is assigned for detrimental interaction and for neutral interaction. Which of the following interactions can be assigned for one species and for another species involved in the interaction?

(A) Amensalism (B) Commensalism

(C) Competition (D) Predation