

Previous Paper Questions

1. Q.Id: 166055
Match the following columns and choose the correct option.

List1

- A. Chargaff
- B. replicon
- C. Permease
- D. Split gene
- E. x-ray diffraction studies

List2

- 1. Wilkins and Franklin
- 2. Uptake of lactose
- 3. hnRNA
- 4. Length of DNA
- 5. $(A + G) = (C + T)$

A) A-> 5, B-> 4, C-> 2, D-> 3, E-> 1

B) A-> 5, B-> 4, C-> 1, D-> 3, E-> 1

C) A-> 5, B-> 4, C-> 2, D-> 1, E-> 1

D) A-> 5, B-> 1, C-> 2, D-> 3, E-> 1



2. Q.Id: 159541
Match the following lists :

- | List1 | List2 |
|--|-------------------------------|
| A. Branches of limited growth modified for photosynthesis | I. Cashew
II. Asparagus |
| B. The peduncle is branched with one branch each time | III. Hamelia
IV. Colocasia |
| C. Multicarpellary, syncarpous unilocular ovary, stony pericarp | V. Lemon |
| D. Placenta is axial and ovules are attached to multilocular ovary | |
| E. . | |

A) A-> I, B-> III, C-> V, D-> IV

B) A-> III, B-> II, C-> IV, D-> V

C) A-> II, B-> III, C-> V, D-> IV

D) A-> II, B-> III, C-> I, D-> V

3. Q.Id: 159540
Match the following lists :

- | List1 | List2 |
|-----------------------|--|
| A. Protonema | I. Useful in spore dispersal |
| B. Circinate venation | II. Coiling of young leaves in Pteridophytes |
| C. Elaters | III. Storage food in Rhodophyceae |
| D. Floridean starch | IV. Juvenile stage of Bryophytes |
| E. . | V. Naked ovules |

A) A-> IV, B-> II, C-> I, D-> III

B) A-> IV, B-> II, C-> III, D-> V

C) A-> I, B-> II, C-> IV, D-> III

D) A-> II, B-> IV, C-> V, D-> I

4. Q.Id: 159539
Match the following lists :

List1	List2
A. Theophrastus	I. By hybridization and genetic engineering
B. C.G.K. Ramanujam	II. Electron Microscope
C. Progress in floriculture and forestry	III. Described the internal and external characters of plants
D. Knoll and Ruska	IV. Developed the science of pollen

- A)** A-> II, B-> IV, C-> I, D-> III **B)** A-> III, B-> IV, C-> I, D-> II
C) A-> III, B-> I, C-> II, D-> IV **D)** A-> I, B-> II, C-> III, D-> IV

5. Q.Id: 159056
Study the following and pick up the correct combinations :

S.No.	List -1	List -2	List -3
I.	Anagenesis	Divergent evolution	One species diverges into two or more species
II.	Cladogenesis	Phyletic evolution	Evolution of a new species in single lineage
III.	Gradualism	Charles Lyell	Earth has changed slowly through ages
IV.	Biogenesis	Louis Pasteur	Living organisms originate from preexisting forms

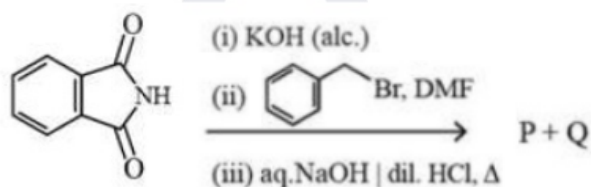
- A)** I, II **B)** II, III
C) III, IV **D)** I, IV

6. Q.Id: 158949
Match the following lists :

List1	List2
A. No sex organs, dikaryotic exogenous spores	I. Gonyaulax II. Trichodesmium
B. Infectious agents without nucleic acids	III. Slime molds IV. Basidiomycetes
C. Differentiated cytoplasm bloom in polluted water bodies	V. Prions
D. Fruiting bodies bearing spores, survive many years	
E. .	

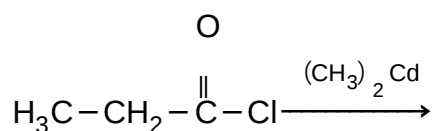
- A)** A-> IV, B-> V, C-> II, D-> III **B)** A-> IV, B-> I, C-> III, D-> II
C) A-> V, B-> II, C-> I, D-> III **D)** A-> I, B-> III, C-> IV, D-> V

7. Q.Id: 158737
What are P and Q in the following reactions ?



- A)** P - Benzylamine, Q - Phthalimide **B)** P - Aniline, Q - Phthalic anhydride
C) P - N, N-Dibenzyl amine, Q - Phthalic acid **D)** P - Benzylamine, Q - Phthalic acid

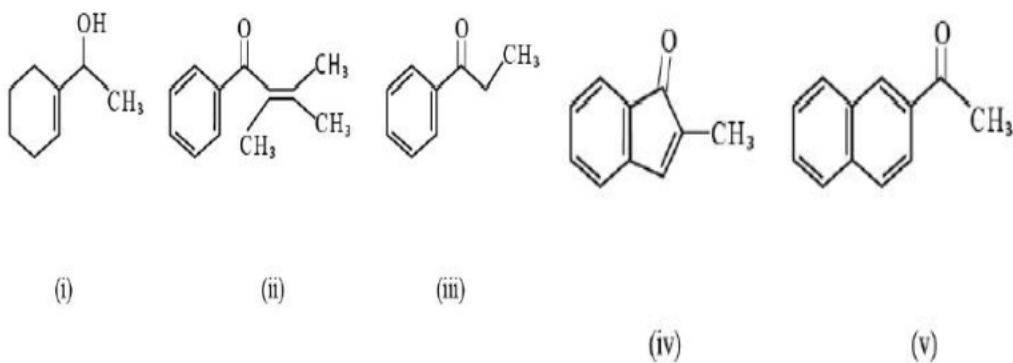
8. Q.Id: 158736
The major product of the following reaction sequence is



- A)** $\text{CH}_3\text{CH}_2\text{CdCH}_3$ **B)** $\text{CH}_3\text{CH}_2\text{CHOH}(\text{CH}_3)_2$
C) $\text{CH}_3\text{CH}_2\text{COCH}_3$ **D)** $\text{CH}_3\text{CH}_2\text{COOCH}_3$

9. Q.Id: 158735

Which of the following would iodoform test ?



A) (i) and (ii)

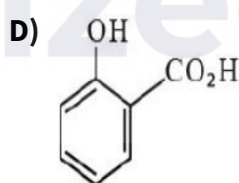
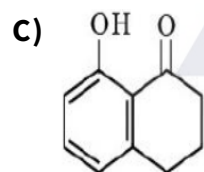
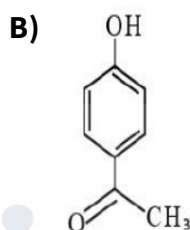
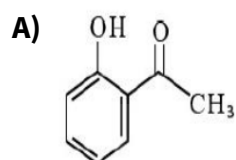
B) (iii) and (iv)

C) (i) and (v)

D) (iv) and (v)

10. Q.Id: 158734

Which of the following does not form intra-molecular hydrogen bonding ?



11. Q.Id: 158733

Iodoform is obtained on heating the reaction of I_2 and NaOH with

A) Methanol

B) n-Propanol

C) Benzyl alcohol

D) Ethanol

12. Q.Id: 158732
Match the following

List1

- A. Morphine
- B. Saacharin
- C. Ranitidine
- D. .

List2

- I. Sweetening agent
- II. Analgesic
- III. Disinfectant
- IV. Antacid

A) A-> II, B-> III, C-> IV

B) A-> II, B-> I, C-> IV

C) A-> IV, B-> I, C-> III

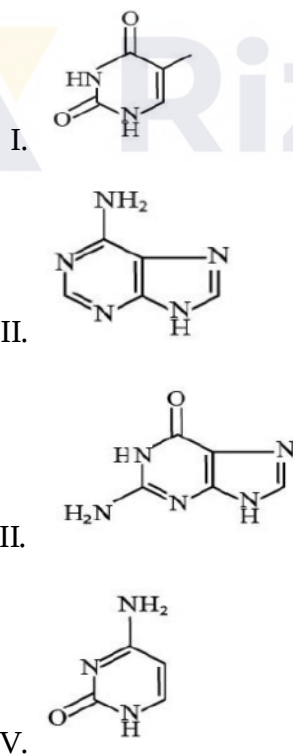
D) A-> II, B-> IV, C-> III

13. Q.Id: 158731
Match the following

List1

- A. Adenine
- B. Guanine
- C. Thymine
- D. Cytosine

List2



A) A-> I, B-> III, C-> IV, D-> II

B) A-> IV, B-> III, C-> I, D-> II

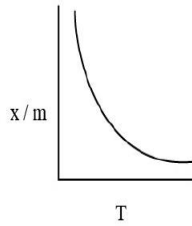
C) A-> II, B-> I, C-> III, D-> IV

D) A-> II, B-> III, C-> I, D-> IV

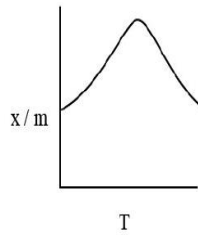
14. Q.Id: 158730
Which of the polymers is made up of using two different monomer units, in which both the monomers contains amine and carboxyl functional groups ?
- A) Nylon 6, 6 B) Nylon 6
C) Nylon 2- nylon 6 D) Melamine
15. Q.Id: 158729
How many unpaired electrons are there in a strong field octahedral complex of iron (II) ?
- A) 0 B) 1
C) 2 D) 4
16. Q.Id: 158728
In which of the following divalent transition metal ions have positive standard reduction potential at 298 K ?
- A) $\text{Mn}^{2+}(\text{aq}) + 2\text{e}^- \rightleftharpoons \text{Mn}(\text{s})$ B) $\text{Fe}^{2+}(\text{aq}) + 2\text{e}^- \rightleftharpoons \text{Fe}(\text{s})$
C) $\text{Ni}^{2+}(\text{aq}) + 2\text{e}^- \rightleftharpoons \text{Ni}(\text{s})$ D) $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^- \rightleftharpoons \text{Cu}(\text{s})$
17. Q.Id: 158727
Which of the following is not formed during the hydrolysis (partial/full) of XeF_6 ?
- A) Xenon trioxide B) Xenon tetra fluoride
C) Xenon dioxyfluoride D) Xenon oxyfluoride
18. Q.Id: 158726
Oxidising power increases from left to right in the order
- A) $\text{Cl}_2 < \text{Br}_2 < \text{I}_2 < \text{F}_2$ B) $\text{Cl}_2 < \text{I}_2 < \text{Br}_2 < \text{F}_2$
C) $\text{I}_2 < \text{F}_2 < \text{Cl}_2 < \text{Br}_2$ D) $\text{I}_2 < \text{Br}_2 < \text{Cl}_2 < \text{F}_2$
19. Q.Id: 158725
Which one in the following statements is "not correct" about refining of ores ?
- A) In poling, impurities are removed as gases B) Distillation process is used for low boiling metals
C) Liquation is employed for high melting metals D) Zirconium is refined by using vapour phase refining

20. Q.Id: 158724
Which of the following graphs is correct for chemisorption ?

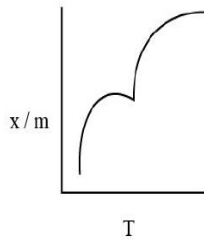
A)



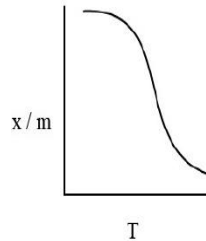
B)



C)



D)



21. Q.Id: 158723
If a catalyst drops the activation energy of a reaction at 27°C from 100 kJ/mol to 42.73 kJ/mol . The magnitude of the effect on forward and backward reaction is

- A) Both increases by 10^{10} times B) Both decreases by 10^{10} times
C) Both increases by 10^5 times D) Both decreases by 10^5 times

22. Q.Id: 158722
 0.804 A current is passed through an aqueous solution of NaCl for 10 minutes. The volume of $0.05\text{ N H}_2\text{SO}_4$ needed to neutralize the base is

- A) 25 mL B) 100 mL
C) 200 mL D) 50 mL

23. Q.Id: 158721
 18 g of glucose, $\text{C}_6\text{H}_{12}\text{O}_6$ is dissolved in 1 kg of water in a saucepan. At what temperature will the water boil (1.013 bar pressure)? K_b for water is $0.52\text{ K kg mol}^{-1}$

- A) 343.052 K B) 353.052 K
C) 363.052 K D) 373.052 K

24. Q.Id: 158719
Which of the following mixtures shows negative deviation from Raoult's law ?
- A) Acetone and carbon disulphide B) Acetone and ethyl alcohol
C) Acetone and benzene D) Acetone and chloroform
25. Q.Id: 158718
The density of a solid X is 1.5 g/cm^3 at -250°C . If the atoms are assumed sphere of radius 2.0 \AA , the percentage of solid having empty space is (Given atomic weight of X = 60 g mol^{-1})
- A) 21 B) 50
C) 14 D) 89
26. Q.Id: 158717
What are the possible final products in the following reaction ?
- $$\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2 \xrightarrow{\text{KMnO}_4/\text{H}^+}$$
- A) $\text{CH}_3\text{CH}_2\text{CHO}$ & HCHO B) $\text{CH}_3\text{CH}_2\text{COOH}$ & HCOOH
C) $\text{CH}_3\text{CH}_2\text{CHO}$ & HCOOH D) $\text{CH}_3\text{CH}_2\text{COOH}$, CO_2 & H_2O
27. Q.Id: 158715
The major product in the following reactions is
- $$\text{C}_6\text{H}_5-\text{C}\equiv\text{CH} \xrightarrow[\text{(ii) HI (1 eq)}]{\text{(i) HCl (1 eq)}}$$
- A) $\text{C}_6\text{H}_5-\text{CH}_2-\text{CHCl}$ B) $\begin{array}{c} \text{I} \\ | \\ \text{C}_6\text{H}_5-\text{C}-\text{CH}_3 \\ | \\ \text{Cl} \end{array}$
C) $\text{C}_6\text{H}_5-\text{CHI}-\text{CH}_2\text{Cl}$ D) $\text{C}_6\text{H}_5-\text{CHCl}-\text{CH}_2\text{I}$
28. Q.Id: 158714
When nitrogen and chlorine containing organic compound is reacted with sodium metal, it forms
- A) NaNH_2 and NaCl B) NaCN and NaCl
C) NaNC and NaCl D) NaCN and NaOCl

29. Q.Id: 158713
UV radiation from the sun causes a reaction in the earth's atmosphere that leads to the production of

- A) Fluorides
- B) Carbon monoxide
- C) Sulphur dioxide
- D) Ozone

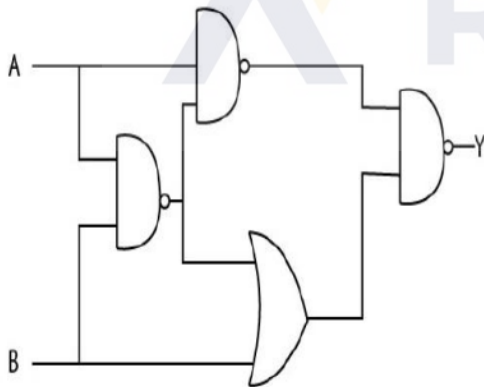
30. Q.Id: 158712
A message signal $15 \sin(100 \pi t)$ is used to modulate a carrier signal $45 \sin(3 \times 10^6 \pi t)$. The modulation index is

- A) 3
- B) $\frac{1}{3}$
- C) 30
- D) 60

31. Q.Id: 158711
In diamond, the hybridisation of each carbon atom is

- A) sp^3d
- B) sp^2
- C) sp^3
- D) sp

32. Q.Id: 158710
What is the output of given logic circuit below if $A = 0, B = 1$ and $A = 1, B = 0$



- A) 0 and 0
- B) 1 and 0
- C) 0 and 1
- D) 1 and 1

33. Q.Id: 158709
The universal gates are

- A) OR and AND
- B) NOR and NAND
- C) OR and NOT
- D) NOT and AND

34. Q.Id: 158708
The equation $4{}^1_1\text{H}^+ \rightarrow {}^4_2\text{He}^{2+} + 2e^{+1} + 26 \text{ MeV}$ represents.
- A) β - decay
C) fusion
B) γ - decay
D) fission
35. Q.Id: 158707
Which of the following molecules does not exist as monomer in its major form ?
- A) BF_3
C) BBr_3
B) BCl_3
D) BH_3
36. Q.Id: 158706
Which of the following metal hydroxides is amphoteric ?
- A) $\text{Be}(\text{OH})_2$
C) $\text{Ca}(\text{OH})_2$
B) $\text{Mg}(\text{OH})_2$
D) $\text{Ba}(\text{OH})_2$
37. Q.Id: 158705
The series corresponding to lowest wavelength transition in H-atom.
- A) Balmer Series
C) Paschen Series
B) Lyman Series
D) Brackett Series
38. Q.Id: 158704
In the experimental study of photoelectric effect, if V_0 is the stopping potential and ν is the frequency of the incident light on the metal the slope of graph plotted for V_0 versus ν is
(where h , e and ϕ_0 are Planck's constant, charge of electron and work function of the metal respectively.)
- A) h
C) $\frac{\phi_0}{e}$
B) $\frac{h}{e}$
D) ϕ_0

39.

Q.Id: 158703

In reference to water, choose the correct statement

i. It gets oxidised to O_2 during photosynthesis

ii. It gets reduced to H_2 by highly electropositive metal.

A) (i) is correct

B) (ii) is correct

C) Both (i) and (ii) are correct

D) Both (i) and (ii) are incorrect

40.

Q.Id: 158702

A plane electromagnetic wave of frequency 30 MHz is travelling along \hat{k} -direction.

At a particular point of space and time of propagation, if the electric field is given by $\vec{E} = 30 \text{ Volts/meter } (-\hat{i})$, then the corresponding magnetic field is

A) 10^{-7} T along \hat{j} direction

B) 10^{-7} T along negative \hat{j} direction

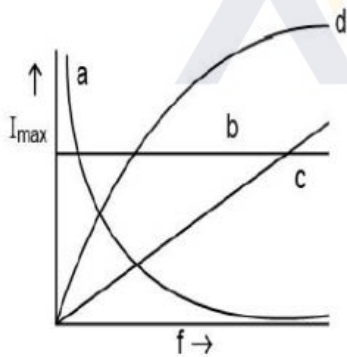
C) 10^{-7} T along \hat{i} direction

D) 10^{-7} T along negative \hat{i} direction

41.

Q.Id: 158701

Three identical emf sources are attached to a single circuit element : a resistor, a capacitor, or an inductor. The current amplitude is then measured as a function of frequency. Which one of the following curve corresponds to inductive circuit ?



A) a

B) b

C) c

D) d

42.

Q.Id: 158700

A coil of wire of area 0.2 m^2 containing 1000 turns is placed in a magnetic field of induction $\sqrt{2} \text{ T}$. At time $t = 0$, the axis of the coil and the direction of magnetic field are along z-direction. The coil is rotated by an angle 45° in 2s about y-axis. Assuming the constant angular speed, the average e.m.f induced in the coil is approximately

A) 100 V

B) 41.4 V

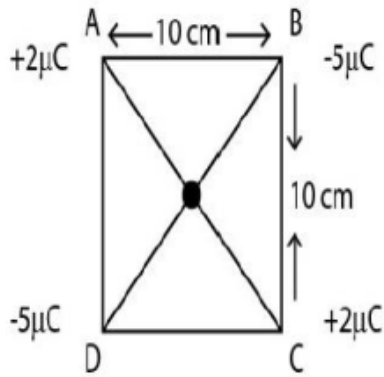
C) 58.6 V

D) 72.8 V

47. Q.Id: 158694
Resistivity of the material of a conductor having uniform area of cross - section varies along its length on x, according to the relation $\rho = \rho_0 (a + bx)$; if L is length and A is cross - section area of conductor, then resistance of the conductor given by (ρ_0 , a, b, are constants)
- A)** $\frac{\rho_0}{A} \left[L + \frac{bL^2}{2} \right]$ **B)** $\frac{\rho_0}{A} \left[aL + \frac{bL^3}{2} \right]$
- C)** $\frac{\rho_0}{A} \left[aL^2 + \frac{bL^3}{2} \right]$ **D)** $\frac{\rho_0}{A} \left[aL + \frac{bL^2}{2} \right]$
48. Q.Id: 158693
Five moles of NH_3 (g) in a sealed vessel, dissociates as NH_3 (g) \rightleftharpoons N_2 (g) + 3H_2 (g). Calculate the equilibrium constant, if at equilibrium, one mole of N_2 is found to be present.
- A)** 4 **B)** 3
- C)** 2 **D)** 1
49. Q.Id: 158692
N number of charges, +Q each, are placed maintaining equal distance on the circumference of a circle of radius R. The net electrostatic potential at the centre of the circle is
- A)** Zero only if N is odd **B)** Zero only if N is even
- C)** $\frac{1}{4\pi\epsilon_0} \frac{NQ}{R}$ only if N is even **D)** $\frac{1}{4\pi\epsilon_0} \frac{NQ}{R}$ irrespective of N is even or odd
50. Q.Id: 158691
 K_1 , K_2 and K_3 are the equilibrium constants for the following reactions (i), (ii) and (iii) respectively.
- (i)** H_2 (g) + I_2 (g) \rightleftharpoons 2HI (g)
- (ii)** 2HI (g) \rightleftharpoons H_2 (g) + I_2 (g)
- (iii)** $\frac{1}{2} \text{H}_2$ (g) + $\frac{1}{2} \text{I}_2$ (g) \rightleftharpoons HI (g)
- Choose the correct relation between K_1 , K_2 and K_3**
- A)** $K_1 = K_2 = K_3$ **B)** $K_1 = \frac{1}{K_2} = K_3$
- C)** $K_1 = \frac{1}{\sqrt{K_2}} = K_3$ **D)** $K_1 = \frac{1}{K_2} = K_3^2$

51. Q.Id: 158690

Four point charges $q_A = 2 \mu\text{C}$, $q_B = -5 \mu\text{C}$, $q_C = 2 \mu\text{C}$, $q_D = -5 \mu\text{C}$ are located at the corners of a square ABCD of side 10 cm. The force acting on a charge of $1 \mu\text{C}$ placed at centre of the square is



- A) Zero
B) 1 N
C) 2 N
D) 3 N

52. Q.Id: 158689

A thin transparent sheet of thickness 't' is placed in front of a Young's double slit.

The fringe width will be ($\mu > 1$)

- A) Increase
B) Remain same
C) Become non-uniform
D) Decrease

53. Q.Id: 158688

A convex lens is in contact with a concave lens. The magnitude of the ratio of their focal length is $\frac{5}{3}$. If their equivalent focal length is 45 cm, the individual focal lengths of concave and convex lens are respectively.

- A) -10 cm, 15 cm
B) -25 cm, 10 cm
C) -5 cm, 10 cm
D) -30 cm, 18 cm

54. Q.Id: 158687

In which colour have maximum dispersion

- A) Violet colour
B) Red colour
C) Yellow colour
D) Blue colour

55. Q.Id: 158686
How much heat will be absorbed by 1 mole of an ideal gas, if it is expanded reversibly from 5 L to 25 L at 27°C ?
($\log 3 = 0.5$, $\log 4 = 0.6$, $\log 5 = 0.7$)

- A) 50 L atm
- B) 29 L atm
- C) 40 L atm
- D) 60 L atm

56. Q.Id: 158685
A standing wave can be produced by combining

- A) Two longitudinal travelling waves
- B) Two transverse travelling waves
- C) Two sinusoidal travelling waves of identical frequency travelling in opposite directions
- D) Two sinusoidal travelling waves of identical frequency travelling in same direction

57. Q.Id: 158684
Pressure versus temperature graph of an ideal gas at constant volume V is shown by the straight - line A. Now mass of the gas is doubled and the volume is halved then the corresponding pressure versus temperature graph will be shown by the line



- A) A
- B) B
- C) C
- D) D

58. Q.Id: 158683
One mole of dioxygen gas at STP is equal to :

- A) 6.022×10^{23} atoms of oxygen
- B) 32 g of dioxygen
- C) 16 g of dioxygen
- D) 1.2×10^{24} molecules of dioxygen

64. Q.Id: 158677
A cylindrical block of wood of mass 10 kg and radius 10 cm is floating in water with its axis vertical. When it is depressed a little and then released, it starts executing simple harmonic motion (SHM). The frequency of the SHM, executed by the block is : (Assume $g = 10 \text{ m/s}^2$ and let ρ is the density of the water))

A) $\frac{1}{20} \sqrt{\frac{\rho}{\pi}} \text{ Hz}$	B) $\frac{1}{2\pi} \sqrt{\frac{\rho}{10}} \text{ Hz}$
C) $\frac{1}{\pi} \sqrt{\frac{\rho}{10}} \text{ Hz}$	D) $\frac{1}{10} \sqrt{\frac{\rho}{2\pi}} \text{ Hz}$

65. Q.Id: 158676
The van der Waals constant 'a' is the measure of intermolecular force of attraction in a gas. the correct decreasing order of 'a' for the given set of molecules is

A) $\text{N}_2 > \text{H}_2 > \text{NH}_3 > \text{CO}_2$	B) $\text{H}_2 > \text{N}_2 > \text{CO}_2 > \text{NH}_3$
C) $\text{NH}_3 > \text{CO}_2 > \text{N}_2 > \text{H}_2$	D) $\text{CO}_2 > \text{NH}_3 > \text{N}_2 > \text{H}_2$

66. Q.Id: 158675
Consider a metallic wire of length 10 m. An external force applied results in an elongation of 5 mm. What is the potential energy stored per unit volume [Young's modulus of wire $Y = 16 \times 10^{10} \text{ N/m}^2$]

A) $2.00 \times 10^4 \text{ J/m}^3$	B) $2.58 \times 10^3 \text{ J/m}^3$
C) $2.12 \times 10^3 \text{ J/m}^3$	D) $2.72 \times 10^4 \text{ J/m}^3$

67. Q.Id: 158674
In an earth satellite moving in a circular orbit, a piece of metal (weighing 0.016 kg on the earth) is weighted by a spring balance while the metal is suspended in water. If the density of metal is 8 times of water density, then the recorded weight will be (g is acceleration due to gravity)

A) 14 g	B) -2 g
C) Zero	D) 2g

68. Q.Id: 158673
Which of the following molecules doesn't exist according to valency bond theory ?

A) H_2	B) H_2^+
C) CH_4	D) H_2O

69. Q.Id: 158672
The function $(\sin \omega t - \cos \omega t)$ represents the S.H.M having a time period T

A) $\frac{\pi}{\omega}$

B) $\frac{2\pi}{\omega}$

C) π

D) 2π

70. Q.Id: 158671

A uniform wire of length 'L' with centre of mass at the origin is lying along the x-axis. The wire is bent in the form of a circle such that its lowest point is at the origin. Then the shift of centre of mass is

A) $\frac{L}{\pi}$

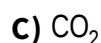
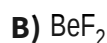
B) $\frac{2L}{\pi}$

C) $\frac{L}{2\pi}$

D) $\frac{L}{3\pi}$

71. Q.Id: 158670

Which of the following molecules has permanent dipole moment ?



72. Q.Id: 158669

A solid body rotates with angular velocity $\omega = at \hat{i} + bt^2 \hat{j}$ where $a = 1 \text{ rad/s}^2$ and $b = 0.5 \text{ rad/s}^3$ and t is in seconds. Calculate the angle between the vectors of the angular velocity and the angular acceleration at $t = 1 \text{ sec}$.

A) $\cos^{-1}\left(\frac{5}{\sqrt{10}}\right)$

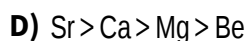
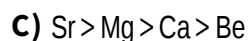
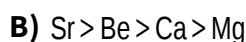
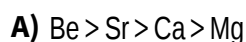
B) $\cos^{-1}\left(\frac{4}{\sqrt{10}}\right)$

C) $\cos^{-1}\left(\frac{2}{\sqrt{10}}\right)$

D) $\cos^{-1}\left(\frac{3}{\sqrt{10}}\right)$

73. Q.Id: 158668

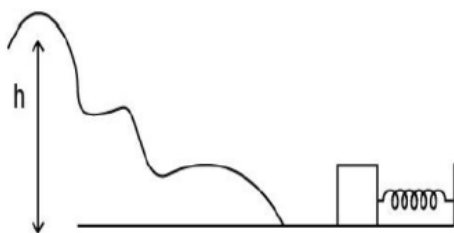
What is the correct order of atomic radii of the following atoms ?



74. Q.Id: 158667
 To masses of 1 g and 4 g are moving with equal kinetic energy. The ratio of the magnitudes of their linear momentum is

- A) 4 : 1 B) 1 : 2
 C) $\sqrt{2} : 1$ D) 1 : 16

75. Q.Id: 158666
 In the diagram below the spring has a face constant of K, the block has a mass of m, and the height of hill is h. Determine the compression of the spring x such that the block reaches to the top of the hill.
 (Assume that there are no non-conservative forces involved.)



- A) $x = \sqrt{\frac{2 mgh}{K}}$ B) $x = \sqrt{\frac{2 m}{Kg}}$
 C) $x = \sqrt{\frac{K}{2 mg}}$ D) $x = \sqrt{\frac{mgh}{2K}}$

76. Q.Id: 158665
 A simple pendulum is suspended from the ceiling of a car taking a turn of radius 10 m at a speed of 10 m/s. Find the angle made by the string of the pendulum with the vertical if this angle does not change during the turn.
 (Assume $g = 10 \text{ m/s}^2$)

- A) 30° B) 45°
 C) 60° D) 75°

77. Q.Id: 158664
 Identify the correct order of electronegativity for Mg, B, Si and S

- A) $B > Si > S > Mg$ B) $S > B > Si > Mg$
 C) $B > S > Mg > Si$ D) $Mg > Si > B > S$

78. Q.Id: 158663
Two balls A and B of masses 50 kg and 20 kg are moving in a straight line in the same direction at speed of 9 km/h and 18 km/h respectively. Ball B hits A and reverses its direction at a speed of 27 km/h. The speed of the ball A after the collision is

- A) 27 km/h B) 18 km/h
C) 22.5 km/h D) 15 km/h

79. Q.Id: 158662
For which of the following species, the electronic transition from $n = 5$ state to $n = 2$ state will produce the shortest wavelength in nm?

- A) He^+ B) H
C) Li^{+2} D) Be^{+3}

80. Q.Id: 158661
A particle aimed at a target, projected at an angle 15° with the horizontal is short of the target by 10m. If the same particle projected at an angle 45° with the horizontal then it is away from the target by 15 meters. The angle of projection to hit the target is

- A) $\frac{1}{2} \sin^{-1}\left(\frac{1}{10}\right)$ B) $\frac{1}{2} \sin^{-1}\left(\frac{3}{10}\right)$
C) $\frac{1}{2} \sin^{-1}\left(\frac{9}{10}\right)$ D) $\frac{1}{2} \sin^{-1}\left(\frac{7}{10}\right)$

81. Q.Id: 158660
The number of regions, where the probability density of electron's is reduced to zero for 3s atomic orbital is :

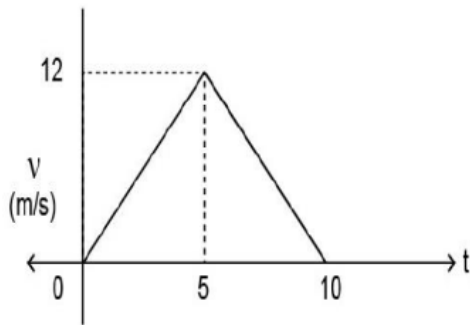
- A) 1 B) 2
C) 3 D) 0

82. Q.Id: 158658
Vector $\vec{a} = \hat{i} + 2\hat{j} + 2\hat{k}$ and $\vec{b} = \hat{i} - \hat{j} + \hat{k}$. What is the unit vector along $\vec{a} + \vec{b}$?

- A) $\frac{2\hat{i} + \hat{j} + 3\hat{k}}{\sqrt{14}}$ B) $\frac{2\hat{i} - \hat{j} + 4\hat{k}}{\sqrt{20}}$
C) $\frac{2\hat{i} + \hat{j} + 3\hat{k}}{\sqrt{13}}$ D) $\frac{2\hat{i} + \hat{j} - 3\hat{k}}{\sqrt{10}}$

83. Q.Id: 158654

The following figure shows the speed - time graph of a particle moving along a fixed direction. The distance travelled by the particle between time $t = 0$ s to $t = 10$ s is



A) 50.2 m

B) 60.8 m

C) 30.6 m

D) 40.8 m

84. Q.Id: 158653

The position of an object moving along x-axis is given as $x = a + bt^2$, where a, b are constant and t is time in seconds. The object covers a distance of 16 m in 2 secs. If the average velocity of the object between $t = 3$ s and $t = 5$ s is 28 m/s, the values of a and b are :

A) 2 m, 3.5 m/s^2

B) 4 m, 3 m/s^2

C) 6 m, 2.5 m/s^2

D) 0 m, 4 m/s^2

85. Q.Id: 158652

The dimension of light year

A) LT^{-1}

B) T

C) MT^2T^{-2}

D) L

86. Q.Id: 158651

The Nobel laureate ABDUS SALAM is known for discovery of

A) Wave nature of matter

B) Cyclotron

C) Unification of weak and electromagnetic interactions

D) Cosmic radiation

87. Q.Id: 158650
Assertion (A) : Not all tumors are malignant.
Reason (R) : p53 gene is called guardian angel of cell's genome
The correct option among the following is
- A)** Both A and R are true. R is correct explanation for A **B)** Both A and R are true. R is not correct explanation for A
C) A is true. But R is false **D)** A is false. But R is true

88. Q.Id: 158649
Match the following

List1

List2

- | | |
|-----------------------|------------------|
| A. Omega 3 fatty acid | I. Honey bees |
| B. Propolis | II. Shark liver |
| C. Vitamins A, D | III. Air bladder |
| D. Isinglass | IV. Sardines |
| E. . | V. Broilers |

- A)** A-> IV, B-> I, C-> II, D-> III **B)** A-> V, B-> II, C-> III, D-> I
C) A-> III, B-> II, C-> I, D-> IV **D)** A-> IV, B-> I, C-> II, D-> V

89. Q.Id: 158648
In worker honey bees, pollen brushes and pollen baskets are present on ___ respectively.

- A)** Tarsi of legs and tibia of mesothoracic legs **B)** Tarsi of legs and tibia of prothoracic legs
C) Tarsi of legs and tibia of metathoracic legs **D)** Femur of legs and trochanter of metathoracic legs

90. Q.Id: 158647
Statement I : The existence of deleterious genes within the populations is called genetic load.
Statement II : The changes in the frequency of a gene that occurs merely by chance in small populations is called genetic drift.
The correct option among the following is

- A)** Statement I and II are true. **B)** Statement I and II are false.
C) Statement I is true. But II are false. **D)** Statement I is false. But II are true.

91. Q.Id: 158646
Statement I : Organs which have similar structure and origin but perform different functions are called analogous organs.
Statement II : The sudden appearance of some vestigial organs in a better developed condition is called atavism
The correct option among the following is

- A)** Statement I and statement II are correct **B)** Statement I and statement II are false
C) Statement I is correct. Statement II is false **D)** Statement I is false. statement II are correct

92. Q.Id: 158645
Assertion (A) : Steroid hormones regulate gene expression by entering the target cells.
Reason (R) : Steroid hormones are water soluble
The correct option among the following is

- A)** Both A and R are true. R is correct explanation for A **B)** Both A and R are true. R is not correct explanation for A
C) A is true. But R is false **D)** A is false. But R is true

93. Q.Id: 158644
If both parents have AB group, this blood group is not expected in their children.

- A)** A **B)** B
C) O **D)** AB

94. Q.Id: 158643
Match the following

List1

List2

- | | |
|--------------|---------------|
| A. AA + XX | I. Metafemale |
| B. AA + XO | II. Female |
| C. AA + XXX | III. Intersex |
| D. AAA + XXY | IV. Metamale |
| E. . | V. Male |

- A)** A-> II, B-> IV, C-> I, D-> III **B)** A-> IV, B-> III, C-> I, D-> V
C) A-> I, B-> II, C-> III, D-> IV **D)** A-> II, B-> V, C-> I, D-> III

95. Q.Id: 158642
Statement I : All the three types of allosomal genes - X linked, Y linked and XY linked are present only in male human being.
Statement II : Only X linked and XY linked genes are present in female human being.
The correct option among the following is

- A) Both statements are correct** **B) Both statements are false**
C) Only statement I is correct **D) Only statement II is correct**

96. Q.Id: 158641
If the RBC of a blood sample are agglutinated when mixed with anti B antibodies, then the blood group of the blood sample is

- A) A** **B) B**
C) AB **D) O**

97. Q.Id: 158640
Match the following

List1

List2

- | | |
|-----------------------|-----------------------------|
| A. Coitus interruptus | I. Intra uterine device |
| B. Cervical cap | II. Oral contraceptive pill |
| C. Multi load 375 | III. Surgical contraception |
| D. Saheli | IV. Natural contraception |
| E. . | V. Barrier method |

- A) A-> IV, B-> III, C-> I, D-> II** **B) A-> IV, B-> V, C-> I, D-> II**
C) A-> II, B-> I, C-> V, D-> IV **D) A-> III, B-> V, C-> II, D-> I**

98. Q.Id: 158639
Statement I : Penetration of sperm into ovum is a chemical process
Statement II : Acrosome of sperm secretes hyaluronidase which dissolves vitelline membrane of ovum
The correct option among the following is

- A) Both statement I and statement II are correct
B) Both statement I and statement II are incorrect
C) Statement I is correct, but statement II is incorrect
D) Statement I is incorrect, but statement II is correct

99. Q.Id: 158638
Study the following :
Statement I : T_H cells are involved in humoral and cell mediated immunity.
Statement II : Natural killer cells are a type of lymphocytes.
The correct option among the following is

- A) Both statement I and II are correct
B) Statement I is correct and statement II is wrong
C) Statement I is wrong and statement II is correct
D) Both statements I and II are wrong

100. Q.Id: 158637
The function not related to thyroxine is :
- A) Thermogenesis
B) Erythropoiesis
C) Regulation of blood calcium and phosphorus
D) Regulation of basal metabolic rate

101. Q.Id: 158636
Identify the mismatched pair
- A) Olfactory nerves - Sensory nerves
B) Trochlear nerves - Motor nerves
C) Glossopharyngeal nerves - Sensory nerves
D) Spinal nerves - Mixed nerves

102. Q.Id: 158635
Neurotransmitter released at the neuromuscular junction of a voluntary muscles is :
- A) Acetyl choline
B) Epinephrine
C) Norepinephrine
D) Dopamine

103. Q.Id: 158633

Renin is secreted when blood pressure in

- A)** Afferent arteriole decreases **B)** Efferent arteriole increases
C) Afferent arteriole increases **D)** Efferent arteriole decreases

104. Q.Id: 158631

Correct course of blood circulation in human heart.

- A)** Left atrium → Left ventricle → Lungs → Right atrium → Right ventricle. **B)** Left atrium → Left ventricle → Body parts → Right atrium → Right ventricle.
C) Right atrium → Right ventricle → Body parts → Left atrium → Left ventricle. **D)** Right atrium → Right ventricle → Left ventricle → Left atrium.

105. Q.Id: 158630

Study the following statements and pick up the correct one :

- A)** Increase in blood pH causes right side shift of the oxygen - haemoglobin dissociation curve **B)** Decrease in blood pH causes right side shift of oxygen - haemoglobin dissociation curve
C) Decrease in temperature causes right side shift of oxygen - haemoglobin dissociation curve **D)** Increase in CO_2 level in blood causes left side shift of oxygen - haemoglobin curve

106. Q.Id: 158628

Assertion (A) : Absorption of water from undigested matter takes place in the large intestine.

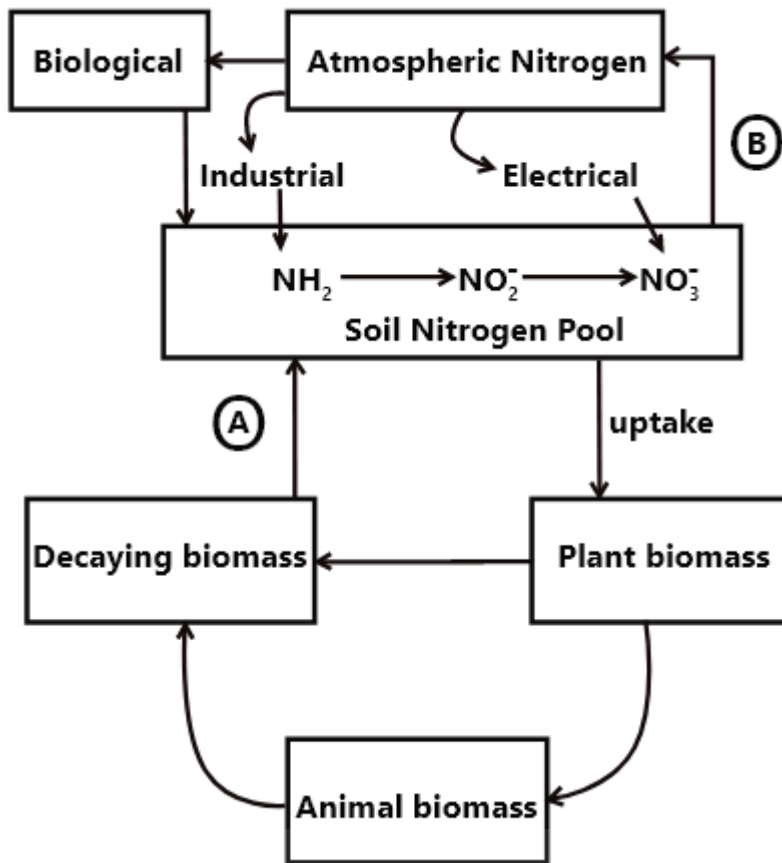
Reason (R) : Inner lining of the large intestine has villi to increase the area of absorption.

The correct option among the following is

- A)** Both A and R are true. R is correct explanation for A **B)** Both A and R are true. R is not correct explanation for A
C) A is true. But R is false **D)** A is false. But R is true

107. Q.Id: 158626

Nitrogen cycling is given below. Identify A and B in it.



- A) A - Ammonification, B - Denitrification
- C) A - Denitrification, B - Ammonification

- B) A - Nitrification, B - Weathering
- D) A - Weathering, B - Nitrification

108. Q.Id: 158624

Match the following

List1

List2

- | | |
|--------------------|---------------------|
| A. Carbon monoxide | I. Global warming |
| B. Carbon dioxide | II. UV - rays |
| C. Sulphur dioxide | III. Eutrophication |
| D. Ozone depletion | IV. Acid rain |
| E. . | V. Oxygen transport |

A) A-> V, B-> IV, C-> I, D-> II

B) A-> II, B-> I, C-> IV, D-> III

C) A-> III, B-> I, C-> IV, D-> V

D) A-> V, B-> I, C-> IV, D-> II

109. Q.Id: 158623
Pick up the organism that emits light

- A) Pyrosoma**
- B) Mytilus**
- C) Pontobdella**
- D) Aplysia**

110. Q.Id: 158621
In cockroach, ootheca around the eggs is secreted by

- A) Utricular majors**
- B) Phalic gland**
- C) Colleterial glands**
- D) Utricular breviores**

111. Q.Id: 158619
Match the following :

List1

List2

A. Trophocytes

I. Symbiotic bacteria

B. Mycetocytes

II. Store uric acid

C. Oenocytes

III. Intra cellular digestion

D. Urate cells

IV. Secrete lipids

E. .

V. Store food

- A) A-> V, B-> III, C-> IV, D-> II**
- B) A-> IV, B-> III, C-> II, D-> I**
- C) A-> V, B-> I, C-> IV, D-> II**
- D) A-> II, B-> IV, C-> I, D-> V**

112. Q.Id: 158617
Triangular joint in the leg of Periplaneta is

- A) Coxa**
- B) Trochanter**
- C) Tibia**
- D) Tarsus**

113. Q.Id: 158616
Study the following and pick up the incorrect statement :

- A) Plasmodium malariae causes quartan malaria**
- B) Precystic stage of Entamoeba histolytica is non-pathogenic**
- C) Larva of Ascaris is rhabditiform larva**
- D) Inflammation in lymph vessels of man due to Wuchereria is called lymphadenitis**

114. Q.Id: 158614
In the erythrocytic cycle of *Plasmodium vivax*, the following stages are present.

Arrange them in correct sequence.

- I) Amoeboid stage II) Trophozoite
III) Schizont IV) Signet ring stage
V) Erythrocytic merozoites

A) V, IV, II, I, III

B) V, III, I, IV, V

C) II, I, IV, III, V

D) II, IV, I, III, V

115. Q.Id: 158611
Study the following and pick up the correct combination.

A) Parasite Intermediate host
Infective stage to man
Entamoeba histolytica - Tsetse
fly - Tetranucleate cyst

B) Parasite - Intermediate host -
Infective stage to man
Plasmodium vivax - Female *Culex* -
Sporozoite

C) Parasite - Intermediate host -
Infective stage to man
Ascaris lumbricoides - Sand fly -
Rhabditiform larva

D) Parasite - Intermediate host --
Infective stage to man
Wuchereria bancrofti - Female
Culex - Third stage microfilariae

116. Q.Id: 158609
Match the following



List1

List2

A. Isogamy

I. Vorticella

B. Anisogamy

II. Plasmodium

C. Hologamy

III. Monocystis

D. Conjugation

IV. Amoeba

E. .

V. Trichonympha

A) A-> II, B-> IV, C-> I, D-> V

B) A-> III, B-> II, C-> V, D-> I

C) A-> III, B-> I, C-> II, D-> V

D) A-> III, B-> IV, C-> II, D-> I

117. Q.Id: 158608

Assertion (A) : The transverse binary fission in Euglena is called symmetrogenic division.

Reason (R) : The daughter euglenae formed by binary fission are like mirror images.

The correct option among the following is

- A)** Both A and R are true. R is correct explanation of A. **B)** Both A and R are true. R is not correct explanation of A.
C) A is true but R is false. **D)** A is false but R is true.

118. Q.Id: 158606

Statement I : Sternum appeared for the first time in amphibians.

Statement II : Snakes have 10 pairs of cranial nerves.

The correct option among the following is

- A)** Statement I and II are true. **B)** Statement I and II are false.
C) Statement I is true. But II is false. **D)** Statement I is false. But II is true.

119. Q.Id: 158605

Ammocoete is the larva of

- A)** Myxine **B)** Ascidia
C) Petromyzon **D)** Branchiostoma

120. Q.Id: 158603

Study the following and pick up the correct statements :

- I)** Aristotle's lantern is found in echinoids
II) Glochidium is the larva of cephalopods
III) Scorpions respire with book lungs
IV) Parapodia are found in oligochaetes

- A)** I, III **B)** I, II
C) III, IV **D)** II, IV

121. Q.Id: 158601
Match the following :

List1

List2

A. Neopilina

I. Terabranchiata

B. Chiton

II. Scaphopoda

C. Aplysia

III. Monoplacophora

D. Pulsellum

IV. Polyplacophora

E. .

V. Gastropoda

A) A-> II, B-> V, C-> IV, D-> I

B) A-> I, B-> IV, C-> V, D-> II

C) A-> III, B-> II, C-> V, D-> IV

D) A-> III, B-> IV, C-> V, D-> II

122. Q.Id: 158600

Statement I : Tendons attach one bone with another bone.

Statement II : Epiglottis is formed by elastic cartilage.

The correct option among the following is

A) Both statements I and II are correct

B) Both statements I and II are wrong

C) Statement I is wrong but Statement II is correct

D) Statement I is correct but Statement II is wrong

123. Q.Id: 158598

Intercellular junctions preventing leakage of the body fluids are :

A) Adhesion junctions

B) Anchoring junctions

C) Tight junctions

D) Gap junctions

124. Q.Id: 158597

Assertion (A) : Steller's sea cows are extinct in recent years.

Reason (R) :Over exploitation by human beings.

The correct option among the following is

A) Both A and R are true. R is correct explanation for A

B) Both A and R are true. R is not correct explanation of A.

C) A is true. But R is false

D) A is false. But R is true

125. Q.Id: 158595
The drug extracted from this plant is used as an anti - cancer drug.

- A)** Digitalis purpurea **B)** Vinca rosea
C) Papaver somniferum **D)** Cannabis sativa

126. Q.Id: 158561
Identify the re-emerging infectious diseases among the following.

- A)** AIDS **B)** Mad cow disease **C)** Cholera
D) SARS **E)** Dengue **F)** F - TB

- A)** A, B, F **B)** B, C, D
C) D, E, F **D)** C, E, F

127. Q.Id: 158559
Match the following lists :

List1

List2

A. Torula yeast

I. Breeding plants for public health

B. Biofortification

II. Led to high yielding resistance to water stress

C. Atlas 66

D. Hybrid breeding

III. Single cell protein

IV. High protein content

- A)** A-> III, B-> I, C-> II, D-> IV **B)** A-> II, B-> III, C-> IV, D-> I
C) A-> III, B-> I, C-> IV, D-> II **D)** A-> IV, B-> II, C-> III, D-> I

128. Q.Id: 158557
Match the following lists :

List1	List2
A. Transgenic papaya	I. Antigen - antibody interaction
B. Super weeds	II. Ring spot virus
C. Soya bean	III. Gene pollution leads to resistance to weedicides
D. ELISA	IV. Herbicide tolerant

A) A-> II, B-> III, C-> IV, D-> I

B) A-> II, B-> IV, C-> I, D-> III

C) A-> III, B-> II, C-> IV, D-> I

D) A-> II, B-> III, C-> I, D-> IV

129. Q.Id: 158554
Match the following lists :

List1	List2
A. Hind II	I. pBR 322
B. Eco RI	II. Replication of the plasmid
C. Hind III	III. First restriction endonuclease
D. rop codes	IV. E.coli Ry 13

A) A-> III, B-> IV, C-> II, D-> I

B) A-> II, B-> I, C-> IV, D-> III

C) A-> III, B-> II, C-> IV, D-> I

D) A-> III, B-> IV, C-> I, D-> II

130. Q.Id: 158552
Study the following lists

List1

- A. Eco RI
- B. Ti plasmid
- C. pBR 322
- D. Reverse transcriptase
- E. .

List2

- I. Vector for transgenic plants
- II. Restriction enzyme
- III. Probe
- IV. RNA dependent DNA synthesis
- V. Artificial plasmid

A) A-> II, B-> I, C-> V, D-> IV

B) A-> I, B-> II, C-> III, D-> IV

C) A-> II, B-> I, C-> IV, D-> V

D) A-> II, B-> I, C-> IV, D-> III

131. Q.Id: 158550
Identify the correct arrangement of different genes in Lac operon from the following.

A) p, i, z, y, a

B) i, p, z, y, a

C) p, o, p, i, y, z

D) z, y, a, o, i, p

132. Q.Id: 158548
Choose the incorrect statement from the following :

A) A nitrogen base is linked to the sugar through peptide linkage to form a nucleoside.

B) A polynucleotide chain has free phosphate moiety at 5' end of sugar.

C) In RNA nucleotide residue has additional -OH group at 2nd position of ribose sugar.

D) It is observed that in DNA, A : T ratio and C : G ratio are not constant all the time.

A) A, B only

B) B, C only

C) A, D only

D) D, C only

133. Q.Id: 158547
Match the following lists :

List1

List2

- | | |
|-------------------------------|--------------------|
| A. X-ray diffraction data | I. Chargaff |
| B. DNA double stranded | II. Meischer |
| C. DNA double helix | III. Wilkins |
| D. DNA as an acidic substance | IV. Watson & Crick |

A) A-> III, B-> IV, C-> II, D-> I

B) A-> III, B-> I, C-> IV, D-> II

C) A-> III, B-> I, C-> IV, D-> III

D) A-> II, B-> III, C-> IV, D-> I

134. Q.Id: 158545
In a dihybrid cross between genes yellow, white and miniature characters, the parental % between yellow and white and recombination is 92 and 8 respectively, and the cross between white and miniature characters, the recombination is 38% and parental is 62%. Identify the genetic map of these.

A) Y 8 W 62 M

B) Y 92 W 62 M

C) Y 8 W 38 M

D) Y 92 W 38 M

135. Q.Id: 158543
Match the following lists :

List1

List2

- | | |
|---|-----------------------------|
| A. Change in single base pair of DNA | I. Recombination |
| B. Deletions of base pairs of DNA | II. Genetic map |
| C. Generation of non-parental gene combination | III. Point mutations |
| D. The frequency of recombination between gene pairs on same chromosome | IV. Frame - shift mutations |

A) A-> III, B-> I, C-> III, D-> IV

B) A-> I, B-> III, C-> IV, D-> II

C) A-> III, B-> IV, C-> I, D-> II

D) A-> II, B-> III, C-> IV, D-> I

136. Q.Id: 158542
The proteinaceous infectious particle which can cause some serious animal diseases are called :

A) Viroid

B) Viruses

C) Virions

D) Prions

137. Q.Id: 158540
Who discovered the transfer of genetic material from one bacterium to another bacterium through pilus ?

A) Lederberg and Tatum

B) Zinder and Lederberg

C) Griffith and Ehrenberg

D) Pasteur and Koch

138. Q.Id: 158539
Identify the exponential growth expression among the following.

A) $w = w_1 e^{rt}$

B) $w_1 = w_1 - w_0 e^{rt}$

C) $w_1 = w_0 e^{rt}$

D) $w = w_1 - w_0 e^{rt}$

139. Q.Id: 158537
Choose the correct statements regarding entry of substrates into respiratory pathway.

- A) The amino acids will be formed by protease activity on proteins.
- B) Carbohydrates will be converted into glucose for entry.
- C) Amino acids will enter as pyruvate or acetyl COA.
- D) Fatty acids will be entered as PGAL.

A) B, C only

B) A, C only

C) C, D only

D) B, D only

140. Q.Id: 158536

Assertion : In stems, living cells are organized in thin layers beneath bark and facilitate good gaseous exchange.

Reason (R) : Root, stem and leaves respire at rate than animals do.

The correct option among the following is

A) (A) is true, (R) is true and (R) is the correct explanation of (A)

B) (A) is true, (R) is true but (R) is the correct explanation of (A)

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

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

141. Q.Id: 158535

Assertion (A) : Several factors interact and simultaneously affect the CO_2 fixation, the rate is dependent by the factor at suboptimal level.

Reason (R) : C_4 plants shows saturation rate of photosynthesis at $360 \mu \text{l}^{-1}$, C_3 plants response to high CO_2 concentration leading to high productivity in case of bell pepper in green house.

The correct option among the following is

A) (A) is true, (R) is true and (R) is the correct explanation of (A)

B) (A) is true, (R) is true but (R) is the correct explanation of (A)

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

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

142. Q.Id: 158533

Assertion (A) : Photolysis of H_2O and evolution of O_2 occur in the lumen of the thylakoids.

Reason (R) : Oxygen evolving complex is located towards the lumen side of the thylakoid membrane.

The correct option among the following is

A) (A) is true, (R) is true and (R) is the correct explanation of (A)

B) (A) is true, (R) is true but (R) is the correct explanation of (A)

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

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

143. Q.Id: 158532
The enzyme bearing E.C 2.7.1.2 is :

- A) Malate dehydrogenase
- B) Glucose - 6 - phosphotransferase
- C) Arginosuccinase
- D) Glutamine synthetase

144. Q.Id: 158530
Choose the correct order of statements regarding the translocation of sucrose.

- A) Loading of sugars into phloem setup a water potential gradient that facilitates mass movement in phloem.
- B) Sucrose moves into companion cell and then to phloem sieve tube cell by active transport.
- C) A hypertonic condition in phloem facilitating water from the xylem into phloem by osmosis.
- D) All sink sugars are transported out of the phloem producing high water potential with returning of water to xylem.
- E) With increase in hydrostatic pressure in phloem pressure flow begin and sap moves through phloem.

- A) B, C, D, A, E
- B) A, C, B, D, E
- C) A, C, D, B, E
- D) E, B, C, A, D

145. Q.Id: 158529
Fill up the blanks with suitable words.

Ecosystem services are i understood. The value of ecosystem is larger than ii. Many of these services are iii services and cannot be iv by anyone. The ecosystem value is nearly v the globes GNP. The ecoservices are delivered by vi.

- A. Living Stuff B. Poorly
- C. Twice D. Non Market
- E. Global Economy F. Owned

- A) i-> B, ii-> C, iii-> E, iv-> A, v-> D, vi-> F
- B) i-> F, ii-> A, iii-> D, iv-> B, v-> E, vi-> C
- C) i-> B, ii-> E, iii-> D, iv-> F, v-> C, vi-> A
- D) i-> E, ii-> B, iii-> F, iv-> D, v-> A, vi-> C

146. Q.Id: 158527
Choose the incorrect statements.
- A) Pollinators play significant role in the production of food crops.
 - B) One of the threats to pollinators is habitat destruction by land use.
 - C) The climax community remain stable as long as environment is changing with adoptions.
 - D) Secondary succession will be a slow process compared to the primary succession.

- A) C, D only
- B) A, B only
- C) A, D only
- D) B, C only

147. Q.Id: 158525
Assertion (A) : Estimation of the age of the tree by counting the number of annual rings is called "dendrochronology".
Reason (R) : Periderm is formed by the association of Phellogen, Phelloderm and Phellem.
The correct option among the following is

- A) (A) is true (R) is true and (R) is the correct explanation of (A)
- B) (A) is true (R) is true but (R) is the correct explanation of (A)
- C) (A) is true but (R) is false
- D) (A) is false but (R) is true

148. Q.Id: 158523
Which is the living mechanical tissue in plants ?

- A) Parenchyma
- B) Sclerenchyma
- C) Collenchyma
- D) Xylem

149. Q.Id: 158522
Arrange the following statements on meiosis in a correct sequence.

- A) Terminalisation of chiasmata
- B) Dissolution of synaptonemal complex
- C) Homologous chromosome separation
- D) Appearance of recombination nodules
- E) Pairing of homologous chromosomes
- F) Disappearance of nuclear envelop

- A) A, D, B, F, E, C
- B) E, D, B, A, F, C
- C) A, E, C, D, F, B
- D) A, B, D, F, C, E

150. Q.Id: 158521
Choose the correct statement from following :
- A) In a polysaccharide chain, right end is reducing end and left end is non-reducing end.
 - B) In a protein, right end is a first amino acid called N-end and left end is called C-terminal.
 - C) Concanavalin A is a drug used to cure cancer along with vinblastin and curcumin.
 - D) GLUT - 4 enables glucose transport into cells.

- A) A, B only
- B) B, C only
- C) C, D only
- D) A, D only

151. Q.Id: 158391
Fill up the blanks with suitable words.
Schleiden i observed that all plants are composed of different kind of cells.
Schwann ii studied animal cells and reported that plants have iii and all cells have iv, and Virchow explained that cells divide and form new cells from v. This constitute vi.

- A) Cell theory B) Zoologist C) Existing Cells
- D) Cell Wall E) Plasma Membranes
- F) Botanist

- A) i-> B, ii-> F, iii-> E, iv-> A, v-> D, vi-> F
- B) i-> F, ii-> A, iii-> D, iv-> B, v-> E, vi-> C
- C) i-> B, ii-> E, iii-> D, iv-> F, v-> C, vi-> A
- D) i-> E, ii-> B, iii-> F, iv-> D, v-> A, vi-> C

152. Q.Id: 158390
Assertion (A) : Using mathematic methods and computers, differences and similarities between taxa can be studied and is called as numerical taxonomy.
Reason (R) : Primitive and advanced characters are recognized as evolution which may be progressive or retrogressive.
The correct option among the following is

- A) (A) is true, (R) is true and (R) is the correct explanation of (A)
- B) (A) is true, (R) is true but (R) is the correct explanation of (A)
- C) (A) is true but (R) is false
- D) (A) is false but (R) is true

153. Q.Id: 158389
In which of the following books, characters of evolutionary importance were not considered while classifying plants ?
- A) Species Plantarum
 - B) Families of flowering plants
 - C) Genera Plantarum
 - D) Die Natürlichen plantzen familien
- The correct answer is

- A) A, D only
- B) B, C only
- C) B, D only
- D) A, C only

154. Q.Id: 158388
What is Apomixis ?

- A) Production of fruit without fertilization
- B) Production of seeds without pollination
- C) Production of fruit without pollination
- D) Production of seeds without fertilization

155. Q.Id: 157822
Choose the correct statement.

- A) Several hormonal and structural changes are initiated for the development of floral primordium.
- B) Each anther will have two sporangia at the sides.
- C) Stomium will be useful for the dehiscence of pollen sacs.
- D) Pollen grains can be stored at -196°C .
- E) Pollen viability in rice will be 2-3 days.

- A) A, B, C only
- B) A, C, D only
- C) C, D, E only
- D) B, D, E only

156. Q.Id: 157820
Assertion (A) : The vegetative propagules are capable of giving rise to new offspring.
Reason (R) : The reproduction occurs with spores produced in large numbers in fungi.
The correct option among the following is

- A) (A) is true, (R) is true and (R) is the correct explanation of (A)
- B) (A) is true, (R) is true but (R) is the correct explanation of (A)
- C) (A) is true, but (R) is false
- D) (A) is false, but (R) is true

