NEET UG 2024 S2 Question Paper

Time Allowed :3 Hours 20 mins	**Maximum Marks :**720	**Total Questions :**200

General Instructions

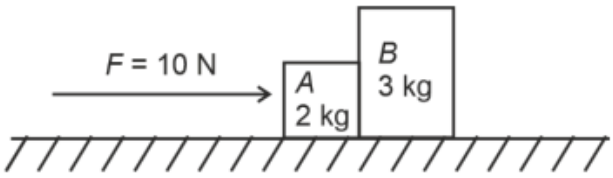
Read the following instructions very carefully and strictly follow them:

1. The test is of 3 hours 20 minutes duration and the Test Booklet contains 200 multiple-choice questions (four options with a single correct answer) from Physics, Chemistry and Biology (Botany and Zoology). 50 questions in each subject are divided into two Sections (A and B) as per details given below:
    - Section-A shall consist of 35 (Thirty-five) questions in each subject (Question Nos-1 to 35, 51 to 85, 101 to 135 and 151 to 185). All questions are compulsory.
    - Section-B shall consist of 15 (Fifteen) questions in each subject (Question Nos- 36 to 50, 86 to 100, 136 to 150 and 186 to 200). In Section B, a candidate needs to attempt only 10 (Ten) questions out of 15 (Fifteen).
2. Candidates are advised to read all 15 questions in each subject of Section B before they start attempting the question paper. In the event of a candidate attempting more than ten questions, the first ten questions attempted by the candidate shall be evaluated.
3. Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total scores. The maximum marks are 720.
4. Use Blue / Black Ball Point Pen only for writing particulars on this page / marking responses on Answer Sheet. Rough work is to be done in the space provided for this purpose in the Test Booklet only.

PHYSICS

SECTION-A

1. A horizontal force 10 N is applied to a block A as shown in the figure. The mass of blocks A and B are 2 kg and 3 kg respectively. The blocks slide over a frictionless surface. The force exerted by block A on block B is:



(1) 10 N

(2) 0

(3) 4 N

(4) 6 N

2.

$^{29082}X \xrightarrow{\alpha} Y \xrightarrow{e^+} Z \xrightarrow{\beta^-} P \xrightarrow{e^-} Q$

In the nuclear emission stated below, the mass number and atomic number of the product Q respectively, are:

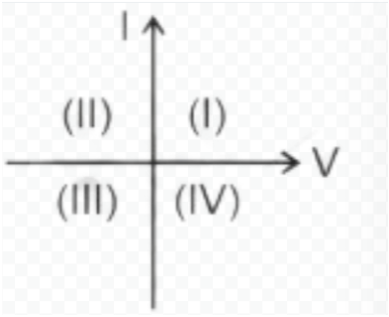
(1) $286, 81$

(2) $280, 81$

(3) $286, 80$

(4) $288, 82$

3. Consider the following statements A and B and identify the correct answer:



A. For a solar-cell, the I-V characteristics lie in the IV quadrant of the given graph.

B. In a reverse biased pn junction diode, the current measured in (μA), is due to majority

charge carriers.

(1) Both A and B are incorrect

(2) A is correct but B is incorrect

(3) A is incorrect but B is correct

(4) Both A and B are correct

---

4. At any instant of time t, the displacement of any particle is given by $2t - 1$ (SI unit) under the influence of a force of 5 N. The value of instantaneous power is (in SI unit):

(1) 6

(2) 10

(3) 5

(4) 7

---

5. A wire of length l and resistance $100\,\Omega$ is divided into 10 equal parts. The first 5 parts are connected in series while the next 5 parts are connected in parallel. The two combinations are again connected in series. The resistance of this final combination is:

(1) $60\,\Omega$

(2) $26\,\Omega$

(3) $52\,\Omega$

(4) $55\,\Omega$

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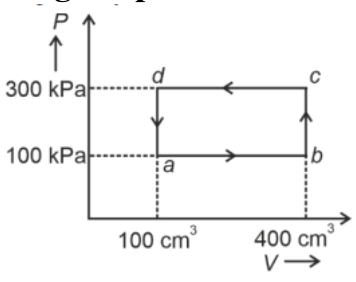
6. A thermodynamic system is taken through the cycle $abcd$. The work done by the gas along the path bc is:



(1) -60 J

(2) Zero

(3) 30 J

(4) -90 J

---

7. A tightly wound 100-turns coil of radius 10 cm carries a current of 7 A. The magnitude of the magnetic field at the centre of the coil is (Take permeability of free space as $4\pi \times 10^{-7}$ SI units):

(1) 44 T

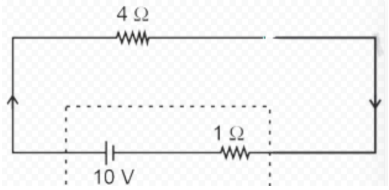
(2) 44 mT

(3) 4.4 T

(4) 4.4 mT

---

8. The terminal voltage of the battery, whose emf is 10 V and internal resistance $1\,\Omega$, when connected through an external resistance of $4\,\Omega$ as shown in the figure is:



(1) 10 V

(2) 4 V

(3) 6 V

(4) 8 V

---

9. A particle moving with uniform speed in a circular path maintains:

(1) Varying velocity and varying acceleration

(2) Constant velocity

(3) Constant acceleration

(4) Constant velocity but varying acceleration

---

10. A thin flat circular disc of radius 4.5 cm is placed gently over the surface of water. If the surface tension of water is 0.07 N m^{-1}, then the excess force required to take it away from the surface is:

(1) 99 N

(2) 19.8 mN

(3) 198 N

(4) 1.98 mN

---

11. The quantities which have the same dimensions as those of solid angle are:

(1) Angular speed and stress

(2) Strain and angle

(3) Stress and angle

(4) Strain and arc

---

12. A logic circuit provides the output Y as per the following truth table:

A	B	Y
0	0	1
0	1	0
1	0	1
1	1	0

The expression for the output Y is:

(1) B

(2) $A.B + \overline{A}$

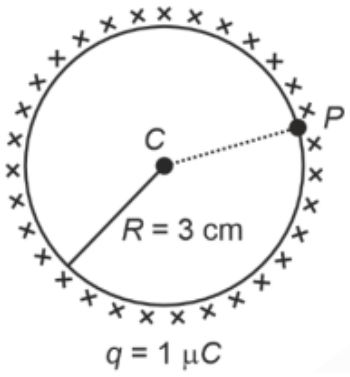
(3) $A.\overline{B} + \overline{A}$

(4) $\overline{B}$

---

13. A thin spherical shell is charged by some source. The potential difference between the two points C and P (in V) shown in the figure is:

(Take $\frac{1}{4\pi\varepsilon_0 = 9\times10^9 \text{ SI units}}$)



(1) Zero

(2) 3×10^5

(3) 1×10^5

(4) 0.5×10^5

---

14. Match List I with List II.

List I (Spectral Lines of Hydrogen for transitions from)	**List II** (Wavelengths (nm))
$A.$ $n_2 = 3$ to $n_1 = 2$	$I.$ 410.2
$B.$ $n_2 = 4$ to $n_1 = 2$	$II.$ 434.1
$C.$ $n_2 = 5$ to $n_1 = 2$	$III.$ 656.3
$D.$ $n_2 = 6$ to $n_1 = 2$	$IV.$ 486.1

Choose the correct answer from the options given below:

(1) A-I, B-II, C-III, D-IV

(2) A-II, B-I, C-IV, D-III

(3) A-III, B-IV, C-II, D-I

(4) A-IV, B-III, C-I, D-II

---

15. Match List-I with List-II.

List-I (Material)		**List-II** (Susceptibility χ)	
A. Diamagnetic		I. $\chi = 0$	
B. Ferromagnetic		II. $0 > \chi \geq -1$	
C. Paramagnetic		III. $\chi \gg 1$	
D. Non-magnetic		IV. $0 < \chi < \varepsilon$ (a small positive number)	

Choose the correct answer from the options given below:

(1) A-IV, B-III, C-II, D-I

(2) A-II, B-III, C-IV, D-I

(3) A-II, B-I, C-III, D-IV

(4) A-III, B-II, C-I, D-IV

---

16. Two bodies A and B of same mass undergo completely inelastic one-dimensional collision. The body A moves with velocity v_1 while body B is at rest before collision. The velocity of the system after collision is v_2. The ratio $v_1 : v_2$ is:

(1) $1 : 4$

(2) $1 : 2$

(3) $2 : 1$

(4) $4 : 1$

---

17. Given below are two statements:

Statement I: Atoms are electrically neutral as they contain equal number of positive and negative charges.

Statement II: Atoms of each element are stable and emit their characteristic spectrum.

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

(1) Statement I is incorrect but Statement II is correct

(2) Both Statement I and Statement II are correct

(3) Both Statement I and Statement II are incorrect

(4) Statement I is correct but Statement II is incorrect

---

18. If

$$x = 5\sin\left(\pi t + \frac{\pi}{3}\right)\ \text{m}$$

represents the motion of a particle executing simple harmonic motion, the amplitude and time period of motion, respectively, are:

(1) 5 m, 1 s

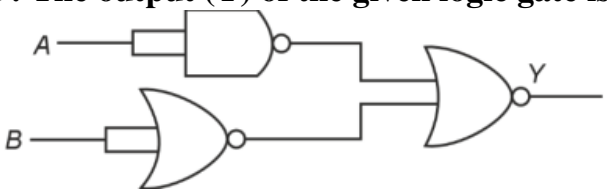
(2) 5 cm, 2 s

(3) 5 m, 2 s

(4) 5 cm, 1 s

---

19. The output (Y) of the given logic gate is similar to the output of an/a



(1) AND gate

(2) NAND gate

(3) NOR gate

(4) OR gate

---

20. In a vernier callipers, $(N+1)$ divisions of the vernier scale coincide with N divisions of the main scale. If 1 MSD represents 0.1 mm, the vernier constant (in cm) is:

(1) $10(N+1)$

(2) $\frac{1}{10N}$

(3) $\frac{1}{100(N+1)}$

(4) $100N$

---

21. A bob is whirled in a horizontal plane by means of a string with an initial speed of ω rpm. The tension in the string is T. If speed becomes 2ω while keeping the same radius, the tension in the string becomes:

(1) $\sqrt{2}T$

(2) T

(3) $4T$

(4) $\frac{T}{4}$

---

22. If c is the velocity of light in free space, the correct statements about photon among the following are:

A. The energy of a photon is $E = h\nu$.

B. The velocity of a photon is c.

C. The momentum of a photon, $p = \frac{h\nu}{c}$.

D. In a photon-electron collision, both total energy and total momentum are conserved.

E. Photon possesses positive charge.

Choose the correct answer from the options given below:

(1) A, B, D and E only

(2) A and B only

(3) A, B, C and D only

(4) A, C and D only

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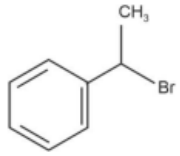
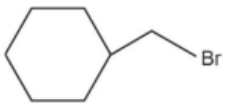
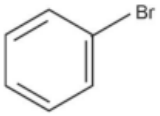
79. The compound that will undergo S_N1 reaction with the fastest rate is:

(1) 

(2) 

(3) 

(4) 

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80. Given below are two statements:

Statement I: Aniline does not undergo Friedel-Crafts alkylation reaction.

Statement II: Aniline cannot be prepared through Gabriel synthesis.

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81. 1 gram of sodium hydroxide was treated with 25 mL of 0.75 M HCl solution, the mass of sodium hydroxide left unreacted is equal to:

(A) 200 mg

(B) 750 mg

(C) 250 mg

(D) Zero mg

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82. The E° value for the Mn^{3+}/Mn^{2+} couple is more positive than that of Cr^{3+}/Cr^{2+} or Fe^{3+}/Fe^{2+} due to change of:

(A) d^3 to d^5 configuration

(B) d^5 to d^4 configuration

(C) d^5 to d^2 configuration

(D) d^4 to d^5 configuration

---

83. The reagents with which glucose does not react to give the corresponding tests/products are:

(A) Tollen's reagent

(B) Schiff's reagent

(C) HCN

(D) NH_2OH

(E) $NaHSO_3$

Choose the correct options from the given below:

(1) E and D

(2) B and C

(3) A and D

(4) B and E

---

84. Match List I with List II.

List I (Molecule)		**List II (Number and types of bonds between two carbon atoms)**	
A.	Ethane	I.	One σ-bond and two π-bonds
B.	Ethene	II.	Two π-bonds
C.	Carbon molecule, C_2	III.	One σ-bond
D.	Ethyne	IV.	One σ-bond and one π-bond

Choose the correct answer from the options given below:

(1) A-III, B-IV, C-I, D-II

(2) A-I, B-IV, C-II, D-III

(3) A-IV, B-III, C-II, D-I

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

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85. Fehling's solution 'A' is

(1) Aqueous sodium citrate

(2) **Aqueous copper sulphate**

(3) Alkaline copper sulphate

(4) Alkaline solution of sodium potassium tartrate (Rochelle's salt)

---

86. Given below are certain cations. Using inorganic qualitative analysis, arrange them in increasing group number from 0 to VI.

- A. Al^{3+}
- B. Cu^{2+}
- C. Ba^{2+}
- D. Co^{2+}
- E. Mg^{2+}

Choose the correct answer from the options given below

1. E, A, B, C, D
2. B, A, D, C, E
3. B, C, A, D, E
4. E, C, D, B, A

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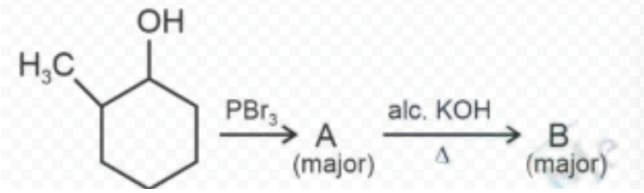
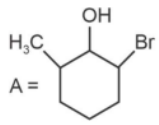
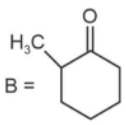
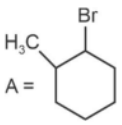
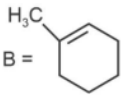
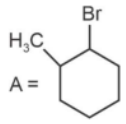
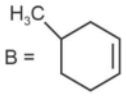
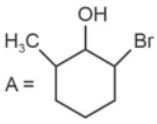
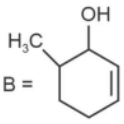
87. Major products A and B formed in the following reaction sequence are:



(1) A =  ; B = 

(2) A =  ; B = 

(3) A =  ; B = 

(4) A =  ; B = 

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88. The rate of a reaction quadruples when temperature changes from $27°C$ to $57°C$. Calculate the energy of activation.

- $R = 8.314$ J K^{-1} mol^{-1}
- $\log 4 = 0.6021$

(1) 3804 kJ/mol

(2) **38.04** kJ/mol

(3) 380.4 kJ/mol

(4) 3.80 kJ/mol

---

89. Mass in grams of copper deposited by passing 9.6487 A current through a voltmeter containing copper sulphate solution for 100 seconds is (Given: Molar mass of Cu = 63 g mol^{-1}, 1 F = 96487 C).

(1) 0.0315 g

(2) 3.15 g

(3) **0.315** g

(4) 31.5 g

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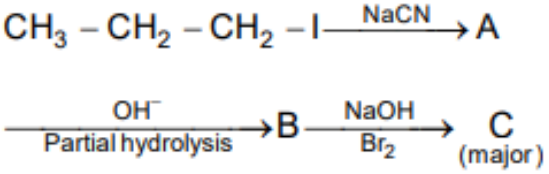
90. Identify the major product C formed in the following reaction sequence:



(1) α-bromobutanoic acid

(2) **propylamine**

(3) butylamine

(4) butanamide

---

91. The work done during reversible isothermal expansion of one mole of hydrogen gas at $25^{\circ}C$ from pressure of 20 atmosphere to 10 atmosphere is

Given:

- $R = 2.0$ cal K^{-1} mol^{-1}

(1) 100 calories

(2) 0 calorie

(3) $\mathbf{-413.14}$ calories

(4) 413.14 calories

---

92. Consider the following reaction in a sealed vessel at equilibrium with concentrations of

$N_2 = 3.0 \times 10^{-3} M, \quad O_2 = 4.2 \times 10^{-3} M, \quad NO = 2.8 \times 10^{-3} M.$

$2NO_{(g)} \rightleftharpoons N_2(g) + O_2(g)$

If 0.1 mol L^{-1} of $NO_{(g)}$ is taken in a closed vessel, what will be the degree of dissociation (α) of $NO_{(g)}$ at equilibrium?

(1) 0.717

(2) 0.00889

(3) 0.0889

(4) 0.8889

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93. Given below are two statements:

Statement I: $[Co(NH_3)_6]^{3+}$ is a homoleptic complex whereas $[Co(NH_3)_4Cl_2]^{+}$ is a heteroleptic complex.

Statement II: Complex $[Co(NH_3)_6]^{3+}$ has only one kind of ligand but $[Co(NH_3)_4Cl_2]^{+}$ has more than one kind of ligand.

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

(1) Statement I is false but Statement II is true.

(2) Both Statement I and Statement II are true.

(3) Both Statement I and Statement II are false.

(4) Statement I is true but Statement II is false.

---

94. The pair of lanthanoid ions which are diamagnetic is:

(1) Pm^{3+} and Sm^{3+}

(2) Ce^{4+} and Yb^{2+}

(3) Ce^{3+} and Eu^{2+}

(4) Gd^{3+} and Eu^{3+}

---

95. During the preparation of Mohr's salt solution (Ferrous ammonium sulphate), which of the following acids is added to prevent hydrolysis of Fe^{2+} ion?

(1) dilute sulphuric acid

(2) dilute hydrochloric acid

(3) concentrated sulphuric acid

(4) dilute nitric acid

---

96. The products A and B obtained in the following reactions, respectively, are:

$3ROH + PCl_3 \rightarrow 3RCl + A$

$ROH + PCl_5 \rightarrow RCl + HCl + B$

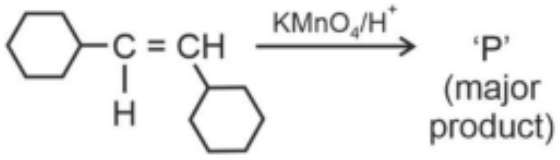
(1) H_3PO_3 and $POCl_3$

(2) $POCl_3$ and H_3PO_3

(3) $POCl_3$ and H_3PO_4

(4) H_3PO_4 and $POCl_3$

97. For the given reaction:



'P' is

99. The plot of osmotic pressure (Π) vs concentration (mol L^{-1}) for a solution gives a straight line with slope 25.73 L bar mol^{-1}. The temperature at which the osmotic pressure measurement is done is:

Given:

R = 0.083 L bar mol^{-1} K^{-1}

(1) $12.05°C$

(2) $37°C$

(3) $310°C$

(4) $25.73°C$

100. Identify the correct answer.

(1) Three canonical forms can be drawn for CO_3^{2-} ion.

(2) Three resonance structures can be drawn for ozone.

(3) BF_3 has non-zero dipole moment.

(4) Dipole moment of NF_3 is greater than that of NH_3.

101. Given below are two statements:

Statement I: Parenchyma is living but collenchyma is dead tissue.

Statement II: Gymnosperms lack xylem vessels but presence of xylem vessels is the characteristic of angiosperms.

(1) Statement I is false but Statement II is true

(2) Both Statement I and Statement II are true

(3) Both Statement I and Statement II are false

(4) Statement I is true but Statement II is false.

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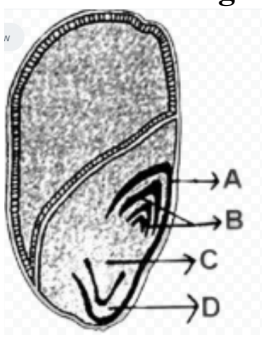
102. Identify the part of the seed from the given figure which is destined to form root when the seed germinates.



(1) D

(2) A

(3) B

(4) C

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103. Which one of the following is not a criterion for classification of fungi?

(1) Fruiting body

(2) Morphology of mycelium

(3) Mode of nutrition

(4) Mode of spore formation

---

104. Tropical regions show greatest level of species richness because

A. Tropical latitudes have remained relatively undisturbed for millions of years, hence more time was available for species diversification.

B. Tropical environments are more seasonal.

C. More solar energy is available in tropics.

D. Constant environments promote niche specialization.

E. Tropical environments are constant and predictable.

Choose the correct answer from the options given below. (1) A, B and D only

(2) A, C, D and E only

(3) A and B only

(4) A, B and E only

---

105. Which of the following is an example of actinomorphic flower?

(1) Sesbania

(2) Datura

(3) Cassia

(4) Pisum

---

106. Spindle fibers attach to kinetochores of chromosomes during

(1) Telophase

(2) Prophase

(3) Metaphase

(4) Anaphase

---

107. The type of conservation in which the threatened species are taken out from their natural habitat and placed in special setting where they can be protected and given special care is called

(1) Sustainable development

(2) in-situ conservation

(3) Biodiversity conservation

(4) Semi-conservative method

---

108. Formation of interfascicular cambium from fully developed parenchyma cells is an example for

(1) Maturation

(2) Differentiation

(3) Redifferentiation

(4) Dedifferentiation

---

109. Identify the set of correct statements:

A. The flowers of Vallisneria are colourful and produce nectar.

B. The flowers of water lily are not pollinated by water.

C. In most of water-pollinated species, the pollen grains are protected from wetting.

D. Pollen grains of some hydrophytes are long and ribbon like.

E. In some hydrophytes, the pollen grains are carried passively inside water

Choose the correct answer from the options given below.

(1) B, C, D and E only

(2) C, D and E only

(3) A, B, C and D only

(4) A, C, D and E only

---

110. A transcription unit in DNA is defined primarily by the three regions in DNA and these are with respect to upstream and downstream end;

(1) Promotor, Structural gene, Terminator

(2) Repressor, Operator gene, Structural gene

(3) Structural gene, Transposons, Operator gene

(4) Inducer, Repressor, Structural gene

---

111. Given below are two statements:

Statement I: Chromosomes become gradually visible under light microscope during leptotene stage.

Statement II: The beginning of diplotene stage is recognized by dissolution of synaptonemal complex.

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

(A) Statement I is false but Statement II is true

(B) Both Statement I and Statement II are true

(C) Both Statement I and Statement II are false

(D) Statement I is true but Statement II is false

---

112. The capacity to generate a whole plant from any cell of the plant is called:

(A) Somatic hybridization

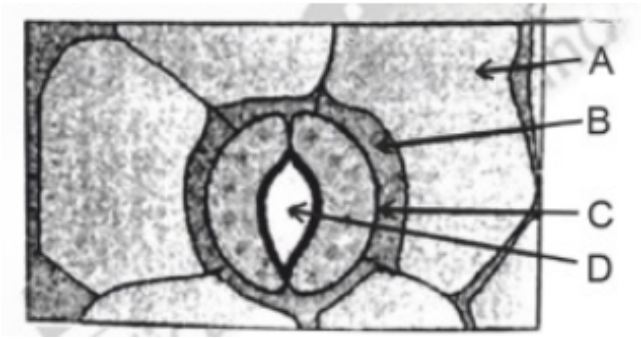
(B) Totipotency

(C) Micropropagation

(D) Differentiation

---

113. In the given figure, which component has thin outer walls and highly thickened inner walls?



(A) B

(B) C

(C) D

(D) A

---

114. Match List I with List II.

	List-I		**List-II**
A.	*Rhizopus*	I.	Mushroom
B.	*Ustilago*	II.	Smut fungus
C.	*Puccinia*	III.	Bread mould
D.	*Agaricus*	IV.	Rust fungus

Choose the correct answer from the options given below:

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

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

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

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

---

115. Match List I with List II.

	List-I		**List-II**
A.	Nucleolus	I.	Site of formation of glycolipid
B.	Centriole	II.	Organization like the cartwheel
C.	Leucoplasts	III.	Site for active ribosomal RNA synthesis
D.	Golgi apparatus	IV.	For storing nutrients

Choose the correct answer from the options given below:

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

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

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

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

---

116. List of endangered species was released by

(A) IUCN

(B) GEAC

(C) WWF

(D) FOAM

---

117. The lactose present in the growth medium of bacteria is transported to the cell by the action of

(A) Polymerase

(B) Beta-galactosidase

(C) Acetylase

(D) Permease

---

118. The cofactor of the enzyme carboxypeptidase is:

(A) Haem

(B) Zinc

(C) Niacin

(D) Flavin

---

119. Lecithin, a small molecular weight organic compound found in living tissues, is an example of:

(A) Carbohydrates

(B) Amino acids

(C) Phospholipids

(D) Glycerides

---

120. Match List I with List II

List I (Microorganism)	**List II (Product)**
A.Clostridium butylicum	I.Ethanol
B.Saccharomyces cerevisiae	II.Streptokinase
C.Trichoderma polysporum	III.Butyric acid
D.Streptococcus sp.	IV.Cyclosporin-A

Choose the correct answer from the options given below:

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

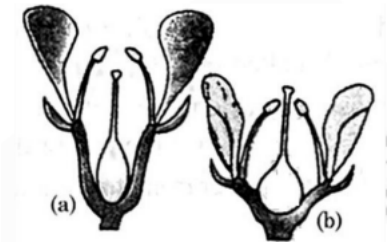
(B) A-III, B-I, C-II, D-IV

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

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

---

121. Identify the type of flowers based on the position of calyx, corolla and androecium with respect to the ovary from the given figures (a) and (b):



(A) (a) Perigynous; (b) Perigynous

(B) (a) Epigynous; (b) Hypogynous

(C) (a) Hypogynous; (b) Epigynous

(D) (a) Perigynous; (b) Epigynous

---

122. Bulliform cells are responsible for:

(A) Providing large spaces for storage of sugars.

(B) Inward curling of leaves in monocots.

(C) Protecting the plant from salt stress.

(D) Increased photosynthesis in monocots.

---

123. In a plant, black seed color (BB/Bb) is dominant over white seed color (bb). In order to find out the genotype of the black seed plant, with which of the following genotype will you cross it?

(A) BB/Bb

(B) BB

(C) bb

(D) Bb

---

124. Auxin is used by gardeners to prepare weed-free lawns. But no damage is caused to grass as auxin

(A) can help in cell division in grasses, to produce growth.

(B) promotes apical dominance.

(C) promotes abscission of mature leaves only.

(D) does not affect mature monocotyledonous plants.

---

125. Which one of the following can be explained on the basis of Mendel's Law of Dominance?

(A) Out of one pair of factors one is dominant and the other is recessive.

(B) Alleles do not show any expression and both the characters appear as such in F_2 generation.

(C) Factors occur in pairs in normal diploid plants.

(D) The discrete unit controlling a particular character is called factor.

(E) The expression of only one of the parental characters is found in a monohybrid cross.

Choose the correct answer from the options given below:

(1) A, B, C, D and E

(2) A, B and C only

(3) A, C, D and E only

(4) B, C and D only

---

126. Inhibition of Succinic dehydrogenase enzyme by malonate is a classical example of:

(1) Enzyme activation

(2) Cofactor inhibition

(3) Feedback inhibition

(4) Competitive inhibition

---

127. What is the fate of a piece of DNA carrying only gene of interest which is transferred into an alien organism?

(A) The piece of DNA would be able to multiply itself independently in the progeny cells of the organism.

(B) It may get integrated into the genome of the recipient.

(C) It may multiply and be inherited along with the host DNA.

(D) The alien piece of DNA is not an integral part of chromosome.

(E) It shows ability to replicate.

Choose the correct answer from the options given below:

(1) A and E only

(2) A and B only

(3) D and E only

(4) B and C only

---

128. A pink flowered Snapdragon plant was crossed with a red flowered Snapdragon plant. What type of phenotype/s is/are expected in the progeny?

(A) Red, Pink as well as white flowered plants

(B) Only red flowered plants

(C) Red flowered as well as pink flowered plants

(D) Only pink flowered plants

---

129. These are regarded as major causes of biodiversity loss:

A. Over exploitation

B. Co-extinction

C. Mutation

D. Habitat loss and fragmentation

E. Migration

Choose the correct option:

(A) A, B and D only

(B) A, C and D only

(C) A, B, C and D only

(D) A, B and E only

---

130. Which of the following are required for the dark reaction of photosynthesis?

A. Light

B. Chlorophyll

C. CO_2

D. ATP

E. NADPH

Choose the correct answer from the options given below:

(A) D and E only

(B) A, B and C only

(C) B, C and D only

(D) C, D and E only

---

131. Match List I with List II

List I	List II
A. Two or more alternative forms of a gene	I. Back cross
B. Cross of F_1 progeny with homozygous recessive parent	II. Ploidy
C. Cross of F_1 progeny with any of the parents	III. Allele
D. Number of chromosome sets in plant	IV. Test cross

Choose the correct answer from the options given below:

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

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

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

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

---

132. Hind II always cuts DNA molecules at a particular point called recognition sequence and it consists of:

(A) 10 bp

(B) 8 bp

(C) 6 bp

(D) 4 bp

---

133. The equation of Verhulst-Pearl logistic growth is

$$\frac{dN}{dt} = rN\left[\frac{K-N}{K}\right].$$

From this equation, K indicates:

(A) Population density

(B) Intrinsic rate of natural increase

(C) Biotic potential

(D) Carrying capacity

---

134. How many molecules of ATP and NADPH are required for every molecule of CO_2 fixed in the Calvin cycle?

(A) 3 molecules of ATP and 2 molecules of NADPH

(B) 2 molecules of ATP and 3 molecules of NADPH

(C) 2 molecules of ATP and 2 molecules of NADPH

(D) 3 molecules of ATP and 3 molecules of NADPH

---

135. Given below are two statements:

Statement I: **Bt toxins are insect group specific and coded by a gene cry IAc.**

Statement II: **Bt toxin exists as inactive protoxin in *B. thuringiensis*. However, after ingestion by the insect the inactive protoxin gets converted into active form due to acidic pH of the insect gut.**

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

(A) Statement I is false but Statement II is true

(B) Both Statement I and Statement II are true

(C) Both Statement I and Statement II are false

(D) Statement I is true but Statement II is false

---

136. Match List-I with List-II

List-I	List-II
A.GLUT-4	I.Hormone
B.Insulin	II.Enzyme
C.Trypsin	III.Intercellular ground substance
D.Collagen	IV.Enables glucose transport into cells

Choose the correct answer from the options given below:

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

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

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

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

---

137. Match List I with List II

List-I	List-II
A.Monoadelphous	I.Citrus
B.Diadelphous	II.Pea
C.Polyadelphous	III.Lily
D.Epiphyllous	IV.China-rose

Choose the correct answer from the options given below:

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

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

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

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

---

138. Match List I with List II

List-I	List-II
A.Citric acid cycle	I.Cytoplasm
B.Glycolysis	II.Mitochondrial matrix
C.Electron transport system	III.Intermembrane space of mitochondria
D.Proton gradient	IV.Inner mitochondrial membrane

Choose the correct answer from the options given below:

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

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

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

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

---

139. Match List I with List II

List-I	List-II
A.Robert May	I.Species-Area relationship
B.Alexander von Humboldt	II.Long term ecosystem experiment using out door plots
C.Paul Ehrlich	III.Global species diversity at about 7 million
D.David Tilman	IV.Rivet popper hypothesis

Choose the correct answer from the options given below:

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

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

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

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

---

140. Given below are two statements:

Statement I: In C_3 plants, some O_2 binds to RuBisCO, hence CO_2 fixation is decreased.

Statement II: In C_4 plants, mesophyll cells show very little photorespiration while bundle sheath cells do not show photorespiration.

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

(A) Statement I is false but Statement II is true

(B) Both Statement I and Statement II are true

(C) Both Statement I and Statement II are false

(D) Statement I is true but Statement II is false

---

141. Match List I with List II

List I		List II	
A.	Frederick Griffith	I.	Genetic code
B.	Francois Jacob & Jacque Monod	II.	Semi-conservative mode of DNA replication
C.	Har Gobind Khorana	III.	Transformation
D.	Meselson & Stahl	IV.	*Lac* operon

Choose the correct answer from the options given below:

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

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

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

(D) A-II, B-III, C-I, D-I

---

142. In an ecosystem if the Net Primary Productivity (NPP) of first trophic level is $100x$ (kcal $m^{-2}\ yr^{-1}$), what would be the GPP (Gross Primary Productivity) of the third trophic level of the same ecosystem?

(A) $\frac{100x}{3}$ (kcal $m^{-2}yr^{-1}$)

(B) $\frac{x}{10}$ (kcal $m^{-2}yr^{-1}$)

(C) x (kcal $m^{-2}yr^{-1}$)

(D) $10x$ (kcal $m^{-2}yr^{-1}$)

---

143. Identify the step in tricarboxylic acid cycle, which does not involve oxidation of substrate.

(A) Isocitrate $\rightarrow$ -ketoglutaric acid

(B) Malic acid $\rightarrow$ Oxaloacetic acid

(C) Succinic acid $\rightarrow$ Malic acid

(D) Succinyl-CoA $\rightarrow$ Succinic acid

---

144. The DNA present in chloroplast is:

(A) Circular, single stranded

(B) Linear, double stranded

(C) Circular, double stranded

(D) Linear, single stranded

---

145. Read the following statements and choose the set of correct statements: In the members of Phaeophyceae,

- A. Asexual reproduction occurs usually by biflagellate zoospores.
- B. Sexual reproduction is by oogamous method only.

- C. Stored food is in the form of carbohydrates which is either mannitol or laminarin.
- D. The major pigments found are chlorophyll a, c and carotenoids and xanthophyll.
- E. Vegetative cells have a cellulosic wall, usually covered on the outside by gelatinous coating of algin.

Choose the correct answer from the options given below:

(A) A, B, C and E only

(B) A, B, C and D only

(C) B, C, D and E only

(D) A, C, D and E only

---

146. Which of the following statement is correct regarding the process of replication in E. coli?

(A) The DNA dependent DNA polymerase catalyses polymerization in 5' $\rightarrow$ 3' direction

(B) The DNA dependent DNA polymerase catalyses polymerization in one direction that is 3' $\rightarrow$ 5'

(C) The DNA dependent RNA polymerase catalyses polymerization in one direction, that is 5' $\rightarrow$ 3'

(D) The DNA dependent DNA polymerase catalyses polymerization in 5' $\rightarrow$ 3' as well as 3' $\rightarrow$ 5' direction

---

147. Match List I with List II

List I	**List II**
A.Rose	I.Twisted aestivation
B.Pea	II.Perigynous flower
C.Cotton	III.Drupe
D.Mango	IV.Marginal placentation

Choose the correct answer from the options given below:

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

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

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

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

---

148. Spraying sugarcane crop with which of the following plant growth regulators, increases the length of stem, thus, increasing the yield?

(A) Abscisic acid

(B) Auxin

(C) Gibberellin

(D) Cytokinin

---

149. Which of the following are fused in somatic hybridization involving two varieties of plants?

(A) Pollens

(B) Callus

(C) Somatic embryos

(D) Protoplasts

---

150. Identify the correct description about the given figure:

(A) Compact inflorescence showing complete autogamy

(B) Wind pollinated plant inflorescence showing flowers with well exposed stamens.

(C) Water pollinated flowers showing stamens with mucilaginous covering.

(D) Cleistogamous flowers showing autogamy.

List I	List II
A. $\alpha - I$ antitrypsin	I. Cotton bollworm
B. Cry IAb	II. ADA deficiency
C. Cry IAc	III. Emphysema
D. Enzyme replacement therapy	IV. Corn borer

151. Match List I with List II:

Choose the correct answer from the options given below:

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

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

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

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

---

152. Which of the following is not a component of Fallopian tube?

(A) Ampulla

(B) Uterine fundus

(C) Isthmus

(D) Infundibulum

---

153. The "Ti plasmid" of *Agrobacterium tumefaciens* stands for:

(A) Temperature independent plasmid

(B) Tumour inhibiting plasmid

(C) Tumor independent plasmid

(D) Tumor inducing plasmid

---

154. Which one of the following factors will not affect the Hardy-Weinberg equilibrium?

(A) Constant gene pool

(B) Genetic recombination

(C) Genetic drift

(D) Gene migration

---

155. Following are the stages of pathway for conduction of an action potential through the heart:

(A) AV bundle

(B) Purkinje fibres

(C) AV node

(D) Bundle branches

(E)SA node

Choose the correct sequence of pathway from the options given below:

1. E-A-D-B-C
2. E-C-A-D-B
3. A-E-C-B-D
4. B-D-E-C-A

---

156. Given below are two statements:

Statement I: In the nephron, the descending limb of loop of Henle is impermeable to water and permeable to electrolytes.

Statement II: The proximal convoluted tubule is lined by simple columnar brush border epithelium and increases the surface area for reabsorption.

In the light of the above statements, choose the correct answer from the option given below:

(A) Statement I is false but Statement II is true

(B) Both Statement I and Statement II are true

(C) Both Statement I and Statement II are false

(D) Statement I is true but Statement II is false

---

157. Match List I with List II:

List I	List II
A.Down's syndrome	I.11th chromosome
B.α – Thalassemia	II.X chromosome
C.β – Thalassemia	III.21st chromosome
D.Klinefelter's syndrome	IV.16th chromosome

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

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

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

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

---

158. Given below are some stages of human evolution.

Arrange them in correct sequence. (Past to Recent)

A. Homo habilis

B. Homo sapiens

C. Homo neanderthalensis

D. Homo erectus

Choose the correct sequence of human evolution from the options given below:

(A) A-D-C-B

(B) D-A-C-B

(C) B-A-D-C

(D) C-B-D-A

---

159. The flippers of the Penguins and Dolphins are the example of

(A) Divergent evolution

(B) Adaptive radiation

(C) Natural selection

(D) Convergent evolution

---

160. Match List I with List II:

List I	List II
A.Diakinesis	I.Synaptonemal complex formation
B.Pachytene	II.Completion of terminalisation of chiasmata
C.Zygotene	III.Chromosomes look like thin threads
D.Leptotene	IV.Appearance of recombination nodules

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

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

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

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

---

161. Match List I with List II:

List I	List II
A.Typhoid	I.Fungus
B.Leishmaniasis	II.Nematode
C.Ringworm	III.Protozoa
D.Filariasis	IV.Bacteria

Choose the correct answer from the options given below:

(1) A-I, B-IV, C-III, D-I

(2) A-I, B-III, C-II, D-IV

(3) A-IV, B-III, C-I, D-II

(4) A-III, B-I, C-IV, D-II

---

162. Match List I with List II:

List I		List II	
A.	Pons	I.	Provides additional space for neurons, regulates posture and balance.
B.	Hypothalamus	II.	Controls respiration and gastric secretions.
C.	Medulla	III.	Connects different regions of the brain.
D.	Cerebellum	IV.	Neuro secretory cells

Choose the correct answer from the options given below :

(1) A-II, B-I, C-III, D-IV

(2) A-II, B-III, C-I, D-IV

(3) A-III, B-IV, C-I, D-II

(4) A-I, B-III, C-II, D-IV

---

163. Which one is the correct product of DNA dependent RNA polymerase to the given template?

3'TACATGGCAAATATTCATTC5'

(1) 5'ATGTACCGTTTATAGGTAAGT3'

(2) 5'AUGUACCGUUUAUAAGUAAGU3'

(3) 5'AUGUAAGUUUAUGUAAGU3'

(4) 5'AUGUACCGUUUAGGGAAGU3'

---

164. Match List I with List II:

List I	List II
A. Pterophyllum	I. Hag fish
B. Myxine	II. Saw fish
C. Pristis	III. Angel fish
D. Exocoetus	IV. Flying fish

(1) A-III, B-II, C-I, D-IV

(2) A-II, B-I, C-III, D-IV

(3) A-III, B-I, C-II, D-IV

(4) A-IV, B-I, C-II, D-III

---

165. Consider the following statements:

A. Annelids are true coelomates.

B. Poriferans are pseudocoelomates.

C. Aschelminthes are acoelomates.

D. Platyhelminthes are pseudocoelomates.

Choose the correct answer from the options given below :

(1) D only

(2) B only

(3) A only

(4) C only

---

166. Match List I with List II:

List I	List II
A. Common cold	I. Plasmodium
B. Haemozoin	II. Typhoid
C. Widal test	III. Rhinoviruses
D. Allergy	IV. Dust mites

Choose the correct answer from the options given below :

(1) A-IV, B-II, C-III, D-I

(2) A-II, B-IV, C-I, D-I

(3) A-I, B-III, C-II, D-IV

(4) A-III, B-I, C-II, D-IV

---

167. Which of the following statements is incorrect?

(1) Bio-reactors have an agitator system, an oxygen delivery system, and foam control system

(2) A bio-reactor provides optimal growth conditions for achieving the desired product

(3) Most commonly used bio-reactors are of stirring type

(4) Bio-reactors are used to produce small scale bacterial cultures

---

168. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: FSH acts upon ovarian follicles in female and Leydig cells in male. Reason R: Growing ovarian follicles secrete estrogen in female while interstitial cells secrete androgen in male human being.

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

(1) A is false but R is true

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

(3) Both A and R are true but R is NOT the correct explanation of A

(4) A is true but R is false

---

169. Following are the stages of cell division:

A. Gap 2 phase

B. Cytokinesis

C. Synthesis phase

D. Karyokinesis phase

E. Gap 1 phase

Choose the correct sequence of stages from the options given below:

(1) E-C-A-D-B

(2) C-E-D-A-B

(3) E-B-D-A-C

(4) B-D-E-A-C

---

170. Given below are two statements:

Statement I: The presence or absence of hymen is not a reliable indicator of virginity.

Statement II: The hymen is torn during the first coitus only.

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

(1) Statement I is false but Statement II is true

(2) Both Statement I and Statement II are true

(3) Both Statement I and Statement II are false

(4) Statement I is true but Statement II is false

---

171. Which of the following is not a natural/traditional contraceptive method?

(1) Vaults

(2) Coitus interruptus

(3) Periodic abstinence

(4) Lactational amenorrhea

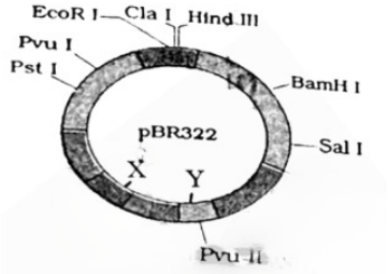
---

172. Match List I with List II :

List I	List II
A. Fibrous joints	I. Adjacent vertebrae, limited movement
B. Cartilaginous joints	II. Humerus and Pectoral girdle, rotational movement
C. Hinge joints	III. Skull, don't allow any movement
D. Ball and socket joints	IV. Knee, help in locomotion

---

173. The following diagram showing restriction sites in E. coli cloning vector pBR322. Find the role of 'X' and 'Y' genes :



(1) Gene 'X' is responsible for recognition sites and 'Y' is responsible for antibiotic resistance.

(2) The gene 'X' is responsible for resistance to antibiotics and 'Y' for protein involved in the replication of Plasmid.

(3) The gene 'X' is responsible for controlling the copy number of the linked DNA and 'Y' for protein involved in the replication of Plasmid.

(4) The gene 'X' is for protein involved in replication of Plasmid and 'Y' for resistance to antibiotics.

---

174. Which of the following factors are favourable for the formation of oxyhaemoglobin in alveoli?

(1) Low pCO_2 and High temperature

(2) High pO_2 and High pCO_2

(3) High pO_2 and Lesser H^+ concentration

(4) Low pCO_2 and High H^+ concentration

---

175. In both sexes of cockroach, a pair of jointed filamentous structures called anal cerci are present on:

(1) 11^{th} segment

(2) 5^{th} segment

(3) 10^{th} segment

(4) 8^{th} and 9^{th} segment

---

176. Match List I with List II

List I		**List II**	
A.	Non-medicated IUD	I.	Multiload 375
B.	Copper releasing IUD	II.	Progestogens
C.	Hormone releasing IUD	III.	Lippe's loop
D.	Implants	IV.	LNG-20

Choose the correct answer from the options given below:

(1) A-III, B-I, C-IV, D-II

(2) A-III, B-I, C-II, D-IV

(3) A-I, B-III, C-II, D-II

(4) A-IV, B-I, C-II, D-III

---

177. Match List I with List II :

	List I		List II
A.	Expiratory capacity	I.	Expiratory reserve volume + Tidal volume + Inspiratory reserve volume
B.	Functional residual capacity	II.	Tidal volume + Expiratory reserve volume
C.	Vital capacity	III.	Tidal volume + Inspiratory reserve volume
D.	Inspiratory capacity	IV.	Expiratory reserve volume + Residual volume

Choose the correct answer from the options given below:

(1) A-I, B-III, C-II, D-IV

(2) A-II, B-IV, C-I, D-III

(3) A-III, B-II, C-IV, D-I

(4) A-II, B-I, C-IV, D-III

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178. Match List I with List II :

List I		List II	
A.	Pleurobrachia	I.	Mollusca
B.	Radula	II.	Ctenophora
C.	Stomochord	III.	Osteichthyes
D.	Air bladder	IV.	Hemichordata

Choose the correct answer from the options given below:

(1) A-IV, B-III, C-II, D-I

(2) A-IV, B-II, C-III, D-I

(3) A-II, B-IV, C-I, D-III

(4) A-II, B-I, C-IV, D-III

---

179. Which of the following are Autoimmune disorders?

A. Myasthenia gravis

B. Rheumatoid arthritis

C. Gout

D. Muscular dystrophy

E. Systemic Lupus Erythematosus (SLE)

Choose the most appropriate answer from the options given below:

(1) C, D E only

(2) A, B D only

(3) A, B E only

(4) B, C E only

---

180. Match List I with List II :

List I		**List II**	
A.	Cocaine	I.	Effective sedative in surgery
B.	Heroin	II.	Cannabis sativa
C.	Morphine	III.	Erythroxylum
D.	Marijuana	IV.	Papaver somniferum

Choose the correct answer from the options given below:

(1) A-III, B-IV, C-I, D-II

(2) A-IV, B-III, C-I, D-II

(3) A-I, B-III, C-II, D-IV

(4) A-II, B-I, C-III, D-IV

---

181. Match List I with List II :

List I		**List II**	
A.	Axoneme	I.	Centriole
B.	Cartwheel pattern	II.	Cilia and flagella
C.	Crista	III.	Chromosome
D.	Satellite	IV.	Mitochondria

Choose the correct answer from the options given below:

(1) A-II, B-I, C-IV, D-III

(2) A-IV, B-II, C-III, D-I

(3) A-IV, B-I, C-III, D-I

(4) A-II, B-IV, C-I, D-III

---

182. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: Breast-feeding during initial period of infant growth is recommended by doctors for bringing a healthy baby.

Reason R: Colostrum contains several antibodies absolutely essential to develop resistance for the new born baby.

In light of the above statements, choose the most appropriate answer from the options given below:

(1) A is not correct but R is correct

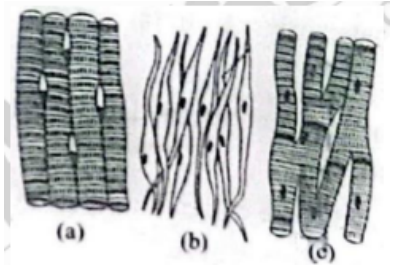
(2) Both A and R are correct and R is the correct explanation of A

(3) Both A and R are correct but R is NOT the correct explanation of A

(4) A is correct but R is not correct

---

183. Three types of muscles are given as a, b and c. Identify the correct matching pair along with their location in the human body:



Name of muscle/location:

(1) (a) Involuntary – Nose tip

(b) Skeletal – Bone

(c) Cardiac – Heart

(2) (a) Smooth – Toes

(b) Skeletal – Legs

(c) Cardiac – Heart

(3) (a) Skeletal – Triceps

(b) Smooth – Stomach

(c) Cardiac – Heart

(4) (a) Skeletal – Biceps

(b) Involuntary – Intestine

(c) Smooth – Heart

---

184. Match List I with List II :

List-I		**List-II**	
A.	Lipase	I.	Peptide bond
B.	Nuclease	II.	Ester bond
C.	Protease	III.	Glycosidic bond
D.	Amylase	IV.	Phosphodiester bond

Choose the correct answer from the options given below:

(1) A-IV, B-I, C-III, D-II

(2) A-IV, B-II, C-III, D-I

(3) A-III, B-II, C-I, D-IV

(4) A-II, B-IV, C-I, D-III

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185. Which of the following is not a steroid hormone?

(1) Glucagon

(2) Cortisol

(3) Testosterone

(4) Progesterone

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186. Regarding catalytic cycle of an enzyme action, select the correct sequential steps:

A. Substrate enzyme complex formation.

B. Free enzyme ready to bind with another substrate.

C. Release of products.

D. Chemical bonds of the substrate broken.

E. Substrate binding to active site.

Choose the correct answer from the options given below:

(1) E, D, C, B, A

(2) E, A, D, C, B

(3) A, E, B, D, C

(4) B, A, C, D, E

---

187. Given below are two statements:

Statement I: Bone marrow is the main lymphoid organ where all blood cells including lymphocytes are produced.

Statement II: Both bone marrow and thymus provide micro environments for the development and maturation of T-lymphocytes.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

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188. Match List I with List II :

List I		List II	
A.	Exophthalmic goiter	I.	Excess secretion of cortisol, moon face & hyperglycemia.
B.	Acromegaly	II.	Hypo-secretion of thyroid hormone and stunted growth.
C.	Cushing's syndrome	III.	Hyper secretion of thyroid hormone & protruding eye balls.
D.	Cretinism	IV.	Excessive secretion of growth hormone.

Choose the correct answer from the options given below:

(1) A-III, B-IV, C-I, D-II

(2) A-I, B-III, C-II, D-IV

(3) A-IV, B-II, C-I, D-III

(4) A-III, B-IV, C-II, D-I

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189. Match List I with List II:

List I		List II	
A.	RNA polymerase III	I.	snRNPs
B.	Termination of transcription	II.	Promotor
C.	Splicing of Exons	III.	Rho factor
D.	TATA box	IV.	snRNAs, tRNA

Choose the correct answer from the options given below:

(1) A-IV, B-III, C-I, D-II

(2) A-II, B-IV, C-I, D-III

(3) A-III, B-II, C-IV, D-I

(4) A-III, B-IV, C-I, D-II

---

190. Given below are two statements:

Statement I: The cerebral hemispheres are connected by nerve tract known as corpus callosum.

Statement II: The brain stem consists of the medulla oblongata, pons, and cerebrum.

In light of the above statements, choose the most appropriate answer from the options given below:

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

---

191. Match List I with List II:

List I		**List II**	
A.	Unicellular glandular epithelium	I.	Salivary glands
B.	Compound epithelium	II.	Pancreas
C.	Multicellular glandular epithelium	III.	Goblet cells of alimentary canal
D.	Endocrine glandular epithelium	IV.	Moist surface of buccal cavity

Choose the correct answer from the options given below:

(1) A-II, B-I, C-IV, D-III

(2) A-II, B-I, C-IV, D-III

(3) A-IV, B-III, C-I, D-II

(4) A-III, B-IV, C-I, D-II

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192. Match List I with List II:

List I		**List II**	
A.	Mesozoic Era	I.	Lower invertebrates
B.	Proterozoic Era	II.	Fish & Amphibia
C.	Cenozoic Era	III.	Birds & Reptiles
D.	Paleozoic Era	IV.	Mammals

Choose the correct answer from the options given below:

(1) A-III, B-I, C-IV, D-II

(2) A-II, B-I, C-III, D-IV

(3) A-III, B-I, C-II, D-IV

(4) A-I, B-II, C-IV, D-III

---

193. Given below are two statements:

Statement I: Mitochondria and chloroplasts both are double membrane bound organelles.

Statement II: Inner membrane of mitochondria is relatively less permeable, as compared to chloroplast.

In light of the above statements, choose the most appropriate answer from the options given below:

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

---

194. Match List I with List II related to the digestive system of cockroach:

	List I		List II
A.	The structures used for storing of food	I.	Gizzard
B.	Ring of 6-8 blind tubules at junction of foregut and midgut.	II.	Gastric Caeca
C.	Ring of 100-150 yellow coloured thin filaments at junction of midgut and hindgut.	III.	Malpighian tubules
D.	The structures used for grinding the food.	IV.	Crop

Choose the correct answer from the options given below:

(1) A-III, B-II, C-IV, D-I

(2) A-IV, B-II, C-III, D-I

(3) A-I, B-II, C-III, D-IV

(4) A-IV, B-III, C-II, D-I

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195. Given below are two statements:

Statement I: Gause's competitive exclusion principle states that two closely related species competing for different resources cannot exist indefinitely.

Statement II: According to Gause's principle, during competition, the inferior will be eliminated. This may be true if resources are limiting.

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

(1) Statement I is false but Statement II is true.
(2) Both Statement I and Statement II are true.
(3) Both Statement I and Statement II are false.
(4) Statement I is true but Statement II is false.

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196. The following are the statements about non-chordates:

A. Pharynx is perforated by gill slits.
B. Notochord is absent.
C. Central nervous system is dorsal.
D. Heart is dorsal if present.
E. Post anal tail is absent.

Choose the most appropriate answer from the options given below:

(1) B, C & D only
(2) A & C only
(3) A, B & D only
(4) B, D & E only

---

197. As per the ABO blood grouping system, the blood group of the father is B^+, the mother is A^+, and the child is O^+. Their respective genotype can be:

A. $I^Bi/I^Ai/ii$
B. $I^BI^B/I^Ai/ii$

C. I^AI^B/I^AI^B

D. $I^Ai/I^Bi/I^Ai$

E. $ii/I^Bi/I^AI^B$

Choose the most appropriate answer from the options given below:

(1) D & E only

(2) A only

(3) B only

(4) C & B only

---

198. Choose the correct statement given below regarding juxta medullary nephron.

(1) Juxta medullary nephrons outnumber the cortical nephrons.

(2) Juxta medullary nephrons are located in the columns of Bertini.

(3) Renal corpuscle of juxta medullary nephron lies in the outer portion of the renal medulla.

(4) Loop of Henle of juxta medullary nephron runs deep into medulla.

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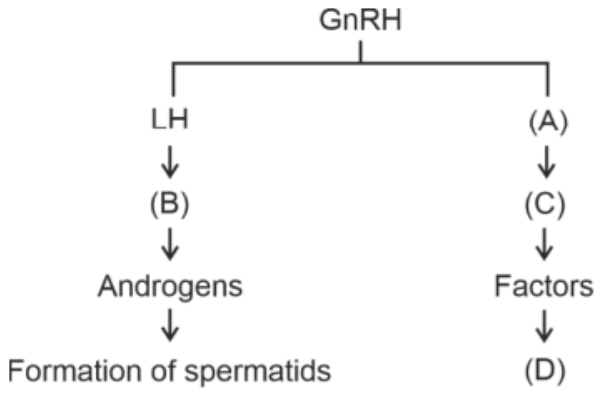
199. Identify the correct option (A), (B), (C), (D) with respect to spermatogenesis.



(1) ICSH, Leydig cells, Sertoli cells, spermatogenesis.

(2) FSH, Leydig cells, Sertoli cells, spermiogenesis.

(3) ICSH, Interstitial cells, Leydig cells, spermiogenesis.

(4) FSH, Sertoli cells, Leydig cells, spermatogenesis.

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200. Match List I with List II:

List I	Description	List II	Description
A.	P wave	I.	Heart muscles are electrically silent.
B.	QRS complex	II.	Depolarisation of ventricles.
C.	T wave	III.	Depolarisation of atria.
D.	T-P gap	IV.	Repolarisation of ventricles.

(1) A-IV, B-II, C-I, D-III

(2) A-I, B-III, C-IV, D-II

(3) A-III, B-II, C-IV, D-I

(4) A-II, B-III, C-I, D-IV
