46. A foreign DNA and plasmid cut by the same restriction endonuclease can be joined to form a recombinant plasmid using
   (1) ligase
   (2) *Eco* RI
   (3) *Taq* polymerase
   (4) polymerase III
Ans. (1) Ligase

47. Which of the following is not a component of downstream processing?
   (1) Expression
   (2) Separation
   (3) Purification
   (4) Preservation
Ans. (1) Expression

48. Which of the following restriction enzymes produces blunt ends?
   (1) *Hind* III
   (2) *Sal* I
   (3) *Eco* RV
   (4) *Xho* I
Ans. (3) Eco RV

49. Which kind of therapy was given in 1990 to a four-year-old girl with adenosine deaminase (ADA) deficiency?
   (1) Radiation therapy
   (2) Gene therapy
   (3) Chemotherapy
   (4) Immunotherapy
Ans. (2) Gene therapy

50. How many hot spots of biodiversity in the world have been identified till date by Norman Myers?
   (1) 43
   (2) 17
   (3) 25
   (4) 34
Ans. (4) 34

51. The primary producers of the deep-sea hydrothermal vent ecosystem are
   (1) coral reefs
   (2) green algae
   (3) chemosynthetic bacteria
   (4) blue-green algae
Ans. (3) chemosynthetic bacteria
52. Which of the following is correct for r-selected species?
(1) Small number of progeny with large size
(2) Large number of progeny with small size
(3) Large number of progeny with large size
(4) Small number of progeny with small size
Ans. (2) Large number of progeny with small size

53. If ‘+’ sign is assigned to beneficial interaction, ‘−’ sign to detrimental and ‘0’ sign to neutral interaction, then the population interaction represented by ‘+’ refers to
(1) parasitism
(2) mutualism
(3) amensalism
(4) commensalism
Ans. (1) parasitism

54. Which of the following is correctly matched?
(1) Stratification—Population
(2) Aerenchyma—Opuntia
(3) Age pyramid—Biome
(4) Parthenium hysterophorus—Threat to biodiversity
Ans. (4) Parthenium hysterophorus—Threat to biodiversity

55. Red List contains data or information on
(1) marine vertebrates only
(2) all economically important plant
(3) plants whose products are in international trade
(4) threatened species
Ans. (4) threatened species

56. Which one of the following is wrong for fungi?
(1) They are both unicellular and multicellular.
(2) They are eukaryotic.
(3) All fungi possess a purely cellulosic cell wall.
(4) They are heterotrophic
Ans. (3) All fungi possess a purely cellulosic cell wall

57. Methanogens belong to
(1) Slime moulds
(2) Eubacteria
(3) Archaeabacteria
(4) Dinoflagellates
Ans. (3) Archaeabacteria

58. Select the wrong statement.
(1) Diatoms are microscopic and float passively in water.
(2) The walls of diatoms are easily destructible.
(3) ‘Diatomaceous earth’ is formed by the cell walls of diatoms.
(4) Diatoms are chief producers in the oceans.
Ans. (2) The walls of diatoms are easily destructible.
59. The label of a herbarium sheet does not carry information on
(1) height of the plant
(2) date of collections
(3) name of collector
(4) local names
Ans. (1) height of the plant [NCERT class 11, page 12]

60. Conifers are adapted to tolerate extreme environmental conditions because of
(1) presence of vessels
(2) broad hardy leaves
(3) superficial stomata
(4) thick cuticle
Ans. (4) thick cuticle [NCERT class 11, page 38]

61. which one of the following statements is wrong?
(1) Laminaria and Sargassum are used as food.
(2) Algae increase the level of dissolved oxygen in the immediate environment.
(3) Algin is obtained from red algae, and carrageenan from brown algae.
(4) Agar-agar is obtained from Gelidium and Gracilaria.
Ans. (3) Algin is obtained from red algae, and carrageenan from brown algae [NCERT class 11, page 32]

62. The term 'polyadelphous' is related to
(1) calyx
(2) gynoecium
(3) androecium
(4) corolla
Ans. (3) androecium [NCERT class 11, page 75]

63. How many plants among, indigophora, Sesbania, Salvia, Allium, Aloe, Mustard, Groundnut, Radish, Gram, and Turnip have stamens with different lengths in their flowers?
(1) six
(2) Three
(3) Four
(4) Five
Ans. (3) Four (Salvia, Mustard, Radish, Turnip) [NCERT class 11, page 75]

64. Radial symmetry is found in the flowers of
(1) Cassia
(2) Brassica
(3) Trifolium
(4) Pisum
Ans. (2) Brassica [NCERT class 11, page 72,79]

65. Free-central placentation is found in
(1) Citrus
(2) Dianthus
(3) Argemone
(4) Brassica
Ans. (2) Dianthus [NCERT class 11, page 75]
66. Cortex is the region found between
(1) endodermis and vascular bundle
(2) epidermis and stele
(3) pericycle and endodermis
(4) endodermis and pith
Ans. (2) epidermis and stele [NCERT class 11, page 91]

67. The balloon-shaped structures called tyloses
(1) are linked to the ascent of sap through xylem vessels
(2) originate in the lumen of vessels
(3) Characterize the sapwood
(4) are extensions of xylem parenchyma cells into vessels
Ans. (4) are extensions of xylem parenchyma cells into vessels

68. A non-proteinaceous enzyme is
(1) deoxyribonuclease
(2) lysozyme
(3) ribozyme
(4) ligase
Ans. (3) ribozyme [NCERT class 11, page 154]

69. Select the mismatch.
(1) Methanogens—Prokaryote
(2) Gas vacuoles—Green bacteria
(3) Large central vacuoles—Animal cells
(4) Protists—Eukaryotes
Ans. (3) Large central vacuoles—Animal cells [NCERT class 11, page 129]

70. Select the wrong statement.
(1) Mycoplasma is a wall-less microorganism.
(2) Bacterial cell wall is made up of peptidoglycan.
(3) Pili and fimbriae are mainly involved in motility of bacterial cells.
(4) Cyanobacteria lack flagellated cells.
Ans. (3) Pili and fimbriae are mainly involved in motility of bacterial cells [NCERT class 11, page 129]

71. A cell organelle containing hydrolytic enzymes is
(1) mesosome
(2) lysosome
(3) microsome
(4) ribosome
Ans. (2) lysosomes [NCERT class 11, page 134]

72. During cell growth, DNA synthesis takes place in
(1) M phase
(2) S phase
(3) G₁ phase
(4) G₂ phase
Ans. (2) S phase [NCERT class 11, page 163]
73. Which of the following biomolecules is common to respiration-mediated breakdown of fats, carbohydrates and proteins?
   (1) Acetyl CoA
   (2) Glucose-6-phosphate
   (3) Fructose 1,6-bisphosphate
   (4) Pyruvic acid

   Ans. (1) Acetyl CoA [NCERT class 11, page 236]

74. A few drops of sap were collected by cutting across a plant stem by a suitable method. The sap was tested chemically. Which one of the following test results indicates that it is phloem sap?
   (1) Absence of sugar
   (2) Acidic
   (3) Alkaline
   (4) Low refractive index

   Ans. (3) Alkaline

75. You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots?
   (1) Gibberellin and abscisic acid
   (2) IAA and gibberellins
   (3) Auxin and cytokinin
   (4) Auxin and abscisic acid

   Ans. (3) Auxin and cytokinin [NCERT class 12, page 177]

76. Phytochrome is a
   (1) Chromoprotein
   (2) Flavoprotein
   (3) Glycoprotein
   (4) Lipoprotein

   Ans. (1) Chromoprotein

77. Which is essential for the growth of root tip?
   (1) Mn
   (2) Zn
   (3) Fe
   (4) Ca

   Ans. (2) Zn [NCERT class 11, page 198,248]

78. The process which makes major difference between C₃ and C₄ plants is
   (1) respiration
   (2) glycolysis
   (3) Calvin cycle
   (4) Photorespiration

   Ans. (4) Photorespiration [NCERT class 11, page 220]
79. Which one of the following statements is not correct?
(1) Water hyacinth, growing in the standing water, drains oxygen from water that leads to the death of fishes.
(2) Offspring produced by the asexual reproduction are called clone.
(3) Microscopic, motile asexual reproductive structures are called zoospores.
(4) In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem.
Ans. (4) In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem. [NCERT class 12, page 8]

80. Which one of the following generates new genetic combinations leading to variation?
(1) Nucellar polyembryony
(2) Vegetative reproduction
(3) Parthenogenesis
(4) Sexual reproduction
Ans. (4) Sexual reproduction [NCERT class 12, page 38]

81. Match Column—I with Column—II and select the correct option using the codes given below:

<table>
<thead>
<tr>
<th>Column—I</th>
<th>Column—II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Pistils fused together</td>
<td>(i) Gametogenesis</td>
</tr>
<tr>
<td>b. Formation of gametes</td>
<td>(ii) Pistillate</td>
</tr>
<tr>
<td>c. Hyphae of higher Ascomycetes</td>
<td>(iii) Syncarpous</td>
</tr>
<tr>
<td>d. Unisexual female flower</td>
<td>(iv) Dikaryotic</td>
</tr>
</tbody>
</table>

Codes:

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
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<tbody>
<tr>
<td>1</td>
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<td>2</td>
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<td>(iii)</td>
<td>(i)</td>
<td>(ii)</td>
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<td>(ii)</td>
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<td>(iv)</td>
<td>(iii)</td>
</tr>
<tr>
<td>4</td>
<td>(i)</td>
<td>(ii)</td>
<td>(iv)</td>
<td>(iii)</td>
</tr>
</tbody>
</table>
Ans. (1) a-(iii), b-(i), c-(iv), d-(ii) [NCERT class 11, page 23,75]

82. In majority of angiosperms
(1) a small central cell is present in the embryo sac
(2) egg has a filiform apparatus
(3) there are numerous antipodal cells
(4) reduction division occurs in the megaspore mother cells
Ans. (4) reduction division occurs in the megaspore mother cells [NCERT class 12, page 26,27]

83. Pollination in water hyacinth and water lily is brought about by the agency of
(1) Bats
(2) Water
(3) insects or wind
(4) birds
Ans. (3) insects or wind [NCERT class 12, page 29]

84. The ovule of an angiosperm is technically equivalent to
(1) megaspore
(2) megasporangium
(3) megasporophyll
(4) megaspore mother cell
Ans. (2) megasporangium [NCERT class 12, page 25]
85. Taylor conducted the experiments to prove semiconservative mode of chromosome replication on
(1) *E. coli*
(2) *Vinca rosea*
(3) *Vicia faba*
(4) *Drosophila melanogaster*
Ans. (3) *Vicia faba*  [NCERT class 12, page 106]

86. The mechanism that causes a gene to move from one linkage group to another is called
(1) crossing-over
(2) inversion
(3) duplication
(4) translocation
Ans. (4) translocation

87. The equivalent of a structural gene is
(1) recon
(2) muton
(3) cistron
(4) operon
Ans. (3) cistron  [NCERT class 12, page 109]

88. A true breeding plant is
(1) always homozygous recessive in its genetic constitution
(2) one that is able to breed on its own
(3) produced due to cross-pollination among unrelated plant
(4) near homozygous and produces offspring of its own kind
Ans. (4) near homozygous and produces offspring of its own kind  [NCERT class 12, page 70]

89. Which of the following rRNAs acts as structural RNA as well as ribozyme in bacteria?
(1) 5.8 S rRNA
(2) 5 S rRNA
(3) 18 S rRNA
(4) 23 S rRNA
Ans. (4) 23 S rRNA  [NCERT class 12, page 115]

90. Stirred-tank bioreactors have been designed for
(1) ensuring anaerobic conditions in the culture vessel
(2) purification of product
(3) addition of preservatives to the product
(4) availability of oxygen throughout the process
Ans. (4) availability of oxygen throughout the process  [NCERT class 12, page 204]

91. A molecule that can act as a genetic material must fulfill the traits given below, except
(1) it should provide the scope for slow changes that are required for evolution
(2) it should be able to express itself in the form of 'Mendelian characters'
(3) it should be able to generate its replica
(4) it should be unstable structurally and chemically
Ans. (4) it should be unstable structurally and chemically  [NCERT class 12, page 103]
92. DNA-dependent RNA polymerase catalyzes transcription on one strand of the DNA which is called the
(1) antistrand
(2) template strand
(3) coding strand
(4) alpha strand
Ans. (2) template strand [NCERT class 12, page 108]

93. Interspecific hybridization is the mating of
(1) more closely related individuals within same breed for 4-6 generations
(2) animals within same breed without having common ancestors
(3) two different related species
(4) superior males and females of different breeds
Ans. (3) two different related species [NCERT class 12, page 168]

94. which of the following is correct regarding AIDS causative agent HIV?
(1) HIV does not escape but attacks the acquired immune response.
(2) HIV is enveloped virus containing one molecule of single-stranded RNA and one molecule of reverse
transcriptase.
(3) HIV is enveloped virus that contains two identical molecules of single-stranded RNA and two
molecules of reverse transcriptase.
(4) HIV is unenveloped retrovirus.
Ans. (3) HIV is enveloped virus that contains two identical molecules of single-stranded RNA and
two molecules of reverse transcriptase

95. Among the following edible fishes, which one is a marine fish having rich source of omega-3 fatty acids?
(1) Mackerel
(2) Mystus
(3) Mangur
(4) Mrigala
Ans. (1) Mackerel [NCERT class 12, page 169]

96. Match Column—I with Column—II and select the correct option using the codes given below:

<table>
<thead>
<tr>
<th>Column—I</th>
<th>Column—II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Citric acid</td>
<td>(i) Trichoderma</td>
</tr>
<tr>
<td>b. Cyclosporin A</td>
<td>(ii) Clostridium</td>
</tr>
<tr>
<td>c. Statins</td>
<td>(iii) Aspergillus</td>
</tr>
<tr>
<td>d. Butyric acid</td>
<td>(iv) Monascus</td>
</tr>
</tbody>
</table>

Codes :

<table>
<thead>
<tr>
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<tr>
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<td>(iii)</td>
<td>(i)</td>
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<td>(ii)</td>
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<tr>
<td>(4)</td>
<td>(i)</td>
<td>(iv)</td>
<td>(ii)</td>
<td>(iii)</td>
</tr>
</tbody>
</table>

Ans. (3) a-(iii), b-(i), c-(iv), d-(ii) [NCERT class 12, page 183]
97. Biochemical Oxygen Demand (BOD) may not be a good index for pollution for water bodies receiving effluents from.
   (1) sugar industry
   (2) domestic sewage
   (3) dairy industry
   (4) petroleum industry

   Ans. (4) petroleum industry [NCERT class 12, page 276]

98. The principle of competitive exclusion was stated by
   (1) Verhulst and Pearl
   (2) C. Darwin
   (3) G. F. Gause
   (4) MacArthur

   Ans. (3) G. F. Gause [NCERT class 12, page 234]

99. Which of the following National Parks is home to the famous musk deer or hangul?
   (1) Dachigam National Park, Jammu & Kashmir
   (2) Keibul Lamjao National Park, Manipur
   (3) Bandhavgarh National Park, Madhya Pradesh
   (4) Eaglenest Wildlife Sanctuary, Arunachal Pradesh

   Ans. (1) Dachigam National Park, Jammu & Kashmir

100. A lake which is rich in organic waste may result in
    (1) mortality of fish due to lack of oxygen
    (2) increased population of aquatic organisms due to minerals
    (3) drying of the lake due to algal bloom
    (4) increased population of fish due to lots of nutrients

   Ans. (1) mortality of fish due to lack of oxygen [NCERT class 12, page 275]

101. The highest DDT concentration in aquatic food chain shall occur in
    (1) eel
    (2) phytoplankton
    (3) seagull
    (4) crab

   Ans. (3) seagull [NCERT class 12, page 276]

102. Which-of the following sets of diseases is caused by bacteria?
    (1) Herpes and influenza
    (2) Cholera and tetanus
    (3) Typhoid and smallpox
    (4) Tetanus and mumps

   Ans. (2) Cholera and tetanus [NCERT class 11, page 26]
103. Match Column—I with Column—II for housefly classification and select the correct option using the codes given below:

<table>
<thead>
<tr>
<th>Column—I</th>
<th>Column—II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Family</td>
<td>(i) Diptera</td>
</tr>
<tr>
<td>b. Order</td>
<td>(ii) Arthropoda</td>
</tr>
<tr>
<td>c. Class</td>
<td>(iii) Muscidae</td>
</tr>
<tr>
<td>d. Phylum</td>
<td>(iv) Insecta</td>
</tr>
</tbody>
</table>

Codes:

<table>
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<td>(iii)</td>
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<td>(i)</td>
</tr>
</tbody>
</table>

Ans. (2) a-(iii), b-(i), c-(iv), d-(iii).  
[NCERT class 11, page 11]

104. Choose the correct statement.

1. All Pisces have gills covered by an operculum.
2. All mammals are viviparous.
3. All cyclostomes do not possess jaws and paired fins.
4. All reptiles have a three-chambered heart.

Ans. (3) All cyclostomes do not possess jaws and paired fins  
[NCERT class 11, page 56-59]

105. Study the four statements (A-D) given below and select the two correct ones out of them:

A. Definition of biological species was given by Ernst Mayr.
B. Photoperiod does not affect reproduction in plants.
C. Binomial nomenclature system was given by R. H. Whittaker.
D. In unicellular organisms, reproduction is synonymous with growth.

The two correct statements are

(1) A and B  
(2) B and C  
(3) C and D  
(4) A and D

Ans. (4) A and D  
[NCERT class 11, page 2-7]

106. In male cockroaches, sperms are stored in which part of the reproductive system?

1. Vas deferens
2. Seminal vesicles
3. Mushroom glands
4. Testes

Ans. (2) Seminal vesicles  
[NCERT class 11, page 114]

107. Smooth muscles are

1. voluntary, spindle-shaped, uninucleate
2. involuntary, fusiform, non-striated
3. voluntary, multinucleate, cylindrical
4. involuntary, cylindrical, striated

Ans. (2) involuntary, fusiform, non-striated  
[NCERT class 11, page 105,303]
108. Oxidative phosphorylation is
   (1) formation of ATP by energy released from electrons removed during substrate oxidation
   (2) formation of ATP by transfer of phosphate group from a substrate to ADP
   (3) oxidation of phosphate group in ATP
   (4) addition of phosphate group to ATP
Ans. (1) formation of ATP by energy released from electrons removed during substrate oxidation
   [NCERT class 11, page 233]

109. Which of the following is the least likely to be involved in stabilizing the three-dimensional folding of most proteins?
   (1) Ester bonds
   (2) Hydrogen bonds
   (3) Electrostatic interaction
   (4) Hydrophobic interaction
Ans. (1) Ester bonds
   [NCERT class 11, page 150]

110. Which of the following describes the given graph correctly?

   ![Graph]

   (1) Exothermic reaction with energy A in absence of enzyme and B in presence of enzyme
   (2) Endothermic reaction with energy A in presence of enzyme and B in absence of enzyme
   (3) Exothermic reaction with energy A in presence of enzyme and B in absence of enzyme
   (4) Endothermic reaction with energy A in absence of enzyme and B in presence of enzyme
Ans. (3) Exothermic reaction with energy A in presence of enzyme and B in absence of enzyme
   [NCERT class 11, page 156]

111. When cell has stalled DNA replication fork, which checkpoint should be predominantly activated?
   (1) Both G2/M and M
   (2) G1/S
   (3) G2/M
   (4) M
Ans. (2) G1/S
   [NCERT class 11, page 164]
112. Match the stages of meiosis in Column—I to their characteristic features in Column—II and select the correct option using the codes given below:

<table>
<thead>
<tr>
<th>Column—I</th>
<th>Column—II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Pachytene</td>
<td>(i) Pairing of homologous chromosomes</td>
</tr>
<tr>
<td>b. Metaphase-I</td>
<td>(ii) Terminalization of chiasmata</td>
</tr>
<tr>
<td>c. Diakinesis</td>
<td>(iii) Crossing-over takes place</td>
</tr>
<tr>
<td>d. Zygotene</td>
<td>(iv) Chromosomes align at equatorial plate</td>
</tr>
</tbody>
</table>

a b c d
(1) (iv) (iii) (ii) (i)
(2) (iii) (iv) (ii) (i)
(3) (i) (iv) (ii) (iii)
(4) (ii) (iv) (iii) (i)

Ans. (2) a-(iii), b-(iv), c-(ii), d-(i)  [NCERT class 11, page 168]

113. Which hormones do stimulate the production of pancreatic juice and bicarbonate?
(1) Insulin and glucagon
(2) Angiotensin and epinephrine
(3) Gastrin and insulin
(4) Cholecystokinin and secretin

Ans. (4) Cholecystokinin and secretin  [NCERT class 11, page 338]

114. The partial pressure of oxygen in the alveoli of the lungs is
(1) less than that of carbon dioxide
(2) equal to that in the blood
(3) more than that in the blood
(4) less than that in the blood

Ans. (3) more than that in the blood  [NCERT class 11, page 272]

115. Choose the correct statement.
(1) Receptors do not produce graded potentials.
(2) Nociceptors respond to changes in pressure.
(3) Meissner's corpuscles are thermoreceptors.
(4) Photoreceptors in the human eye are depolarized during darkness and become hyperpolarized in response to the light stimulus.

Ans. (4) Photoreceptors in the human eye are depolarized during darkness and become hyperpolarized in response to the light stimulus.

116. Graves' disease is caused due to
(1) hypersecretion of adrenal gland
(2) hyposecretion of thyroid gland
(3) hypersecretion of thyroid gland
(4) hyposecretion of adrenal gland

Ans. (3) hypersecretion of thyroid gland
117. Name the ion responsible for unmasking of active sites for myosin for cross-bridge activity during muscle contraction.
   (1) Potassium
   (2) Calcium
   (3) Magnesium
   (4) Sodium

   Ans. (2) Calcium

   [NCERT class 11, page 307]

118. Name the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body.
   (1) Thrombocytes
   (2) Erythrocytes
   (3) Leucocytes
   (4) Neutrophils

   Ans. (1) Thrombocyte

   [NCERT class 11, page 280]

119. Name a peptide hormone which acts mainly on hepatocytes, adipocytes and enhances cellular glucose uptake and utilization.
   (1) Gastrin
   (2) Insulin
   (3) Glucagon
   (4) Secretin

   Ans. (2) Insulin

   [NCERT class 11, page 336]

120. Osteoporosis, an age-related disease of skeletal system, may occur due to
   (1) accumulation of uric acid leading to inflammation of joints
   (2) immune disorder affecting neuromuscular junction leading to fatigue
   (3) high concentration of Ca** and Na*
   (4) decreased level of estrogen

   Ans. (4) decreased level of estrogen

   [NCERT class 11, page 312]

121. Serum differs from blood in.
   (1) lacking antibodies
   (2) lacking globulins
   (3) lacking albumins
   (4) lacking clotting factors

   Ans. (4) lacking clotting factors

   [NCERT class 11, page 279]

122. Lungs do not collapse between breaths and some air always remains in the lungs which can never be expelled because
   (1) pressure in the lungs is higher than the atmospheric pressure.
   (2) there is a negative pressure in the lungs
   (3) there is a negative intrapleural pressure pulling at the lung walls
   (4) there is a positive intrapleural pressure

   Ans. (3) there is a negative intrapleural pressure pulling at the lung walls
123. The posterior pituitary gland is not a true endocrine gland because
   (1) it secretes enzymes
   (2) it is provided with a duct
   (3) only stores and releases hormones
   (4) it is under the regulation of hypothalamus

   Ans. **(3) only stores and releases hormones** [NCERT class 11, page 332]

124. The part of nephron involved in active reabsorption of sodium is
   (1) descending limb of Henle's loop
   (2) distal convoluted tubule
   (3) proximal convoluted tubule
   (4) Bowman's capsule

   Ans. **(3) proximal convoluted tubule** [NCERT class 11, page 294]

125. Which of the following is hormone-releasing IUD?
   (1) Cu7
   (2) LNG-20
   (3) Multiload 375
   (4) Lippes loop

   Ans. **(2) LNG-20** [NCERT class 12, page 60]

126. Which of the following is incorrect regarding vasectomy?
   (1) Irreversible sterility
   (2) No sperm occurs in seminal fluid
   (3) No sperm occurs in epididymis
   (4) Vasa deferentia is cut and tied.

   Ans. **(3) No sperm occurs in epididymis** [NCERT class 12, page 62]

127. Embryo with more than 16 blastomeres formed due to *in vitro* fertilization is transferred into
   (1) cervix
   (2) uterus
   (3) fallopian tube
   (4) fimbriae

   Ans. **(2) Uterus** [NCERT class 12, page 64]

128. Which of the following depicts the correct pathway of transport of sperms?
   (1) Efferent ductules → Rete testis → Vas deferens → Epididymis
   (2) Rete testis → Efferent ductules → Epididymis → Vas deferens
   (3) Rete testis → Epididymis → Efferent ductules → Vas deferens
   (4) Rete testis → Vas deferens → Efferent ductules → Epididymis

   Ans. **(2) Rete testis → Efferent ductules → Epididymis → Vas deferens** [NCERT class 12, page 43]
129. Match Column—I with Column—II and select the correct option using the codes given below:

<table>
<thead>
<tr>
<th>Column—I</th>
<th>Column—II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Mons pubis</td>
<td>(i) Embryo formation</td>
</tr>
<tr>
<td>b. Antrum</td>
<td>(ii) Sperm</td>
</tr>
<tr>
<td>c. Trophectoderm</td>
<td>(iii) Female external genitalia</td>
</tr>
<tr>
<td>d. Nebenkern</td>
<td>(iv) Graafian follicle</td>
</tr>
</tbody>
</table>

Codes:

1. (i) (iv) (iii) (ii)
2. (iii) (iv) (ii) (i)
3. (iii) (iv) (i) (ii)
4. (iii) (i) (iv) (ii)

Ans. (3) a-(iii), b-(iv), c-(i), d-(ii) [NCERT class 12, page 46,48]

130. Several hormones like hCG, hPL, estrogen, progesterone are produced by

1. pituitary
2. ovary
3. placenta
4. fallopian tube

Ans. (3) placenta [NCERT class 12, page 53]

131. If a colour-blind man marries a woman who is homozygous for normal colour vision, the probability of their son being colour-blind is

1. 1
2. 0
3. 0.5
4. 0.75

Ans. (2) 0

132. Genetic drift operates in

1. slow reproductive population
2. small isolated population
3. large isolated population
4. non-reproductive population

Ans. (2) small isolated population [NCERT class 12, page 137]

133. In Hardy-Weinberg equation, the frequent of heterozygous individual is represented b>

1. $q^2$
2. $p^2$
3. $2pq$
4. $pq$

Ans. (3) $2pq$ [NCERT class 12, page 137]

134. The chronological order of human evolution / from early to the recent is

1. Australopithecus → Homo habilis → Ramapithecus → Homo erectus
2. Australopithecus → Ramapithecus → Homo habilis → Homo erectus
3. Ramapithecus → Australopithecus → Homo habilis → Homo erectus
4. Ramapithecus → Homo habilis → Australopithecus → Homo erectus

Ans. (3) Ramapithecus → Australopithecus → Homo habilis → Homo erectus [NCERT class 12, page 140]
135. Which of the following is the correct sequence of events in the origin of life?
   I. Formation of protobionts
   II. Synthesis of organic monomers
   III. Synthesis of organic polymers
   IV. Formation of DNA-based genetic system
   (1) II, III, IV, I
   (2) I, II, III, IV
   (3) I, III, II, IV
   (4) II, III, I, IV

   Ans. (4) II, III, I, IV  [NCERT class 12, page 127]