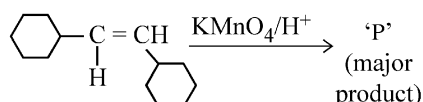


97 The pair of lanthanoid ions which are diamagnetic is

- (1) Ce^{4+} and Yb^{2+}
- (2) Ce^{3+} and Eu^{2+}
- (3) Gd^{3+} and Eu^{3+}
- (4) Pm^{3+} and Sm^{3+}

98 For the given reaction:



'P' is

- (1) C1CCCCC1C=O
- (2) C1CCCCC1C(=O)O
- (3) C1CCCCC1C(O)C(O)C2CCCCC2
- (4) C1CCCCC1C(=O)C(=O)C2CCCCC2

99 Identify the **correct** answer.

- (1) Three resonance structures can be drawn for ozone.
- (2) BF_3 has non-zero dipole moment.
- (3) Dipole moment of NF_3 is greater than that of NH_3 .
- (4) Three canonical forms can be drawn for CO_3^{2-} ion.

100 A compound X contains 32% of A, 20% of B and remaining percentage of C. Then, the empirical formula of X is :

(Given atomic masses of A = 64; B = 40; C = 32 u)

- (1) A_2BC_2
- (2) ABC_3
- (3) AB_2C_2
- (4) ABC_4

101 Match List I with List II

List I

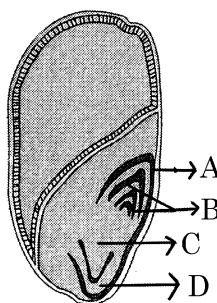
List II

- | | |
|--------------------|------------------|
| A. <i>Rhizopus</i> | I. Mushroom |
| B. <i>Ustilago</i> | II. Smut fungus |
| C. <i>Puccinia</i> | III. Bread mould |
| D. <i>Agaricus</i> | IV. Rust fungus |

Choose the correct answer from the options given below:

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

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



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

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

- (1) Amino acids
- (2) Phospholipids
- (3) Glycerides
- (4) Carbohydrates

104 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:

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

105 A transcription unit in DNA is defined primarily by the three regions in DNA and these are with respect to upstream and down stream end;

- (1) Repressor, Operator gene, Structural gene
- (2) Structural gene, Transposons, Operator gene
- (3) Inducer, Repressor, Structural gene
- (4) Promotor, Structural gene, Terminator

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

- (1) promotes apical dominance.
- (2) promotes abscission of mature leaves only.
- (3) does not affect mature monocotyledonous plants.
- (4) can help in cell division in grasses, to produce growth.

107 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:

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

108 Match List I with List II

List I	List II
A. <i>Clostridium butylicum</i>	I. Ethanol
B. <i>Saccharomyces cerevisiae</i>	II. Streptokinase
C. <i>Trichoderma polysporum</i>	III. Butyric acid
D. <i>Streptococcus</i> sp.	IV. Cyclosporin-A

Choose the correct answer from the options given below:

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

109 Spindle fibers attach to kinetochores of chromosomes during

- (1) Prophase
- (2) Metaphase
- (3) Anaphase
- (4) Telophase

110 Which of the following is an example of actinomorphic flower?

- (1) *Datura*
- (2) *Cassia*
- (3) *Pisum*
- (4) *Sesbania*

111 The cofactor of the enzyme carboxypeptidase is:

- (1) Zinc
- (2) Niacin
- (3) Flavin
- (4) Haem

112 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:

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

- 113** The capacity to generate a whole plant from any cell of the plant is called:
- (1) Totipotency
 - (2) Micropropagation
 - (3) Differentiation
 - (4) Somatic hybridization

- 114** Hind II always cuts DNA molecules at a particular point called recognition sequence and it consists of:
- (1) 8 bp (2) 6 bp
 - (3) 4 bp (4) 10 bp

- 115** Identify the set of correct statements:
- A. The flowers of *Vallisneria* are colourful and produce nectar.
 - B. The flowers of waterlily 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) C, D and E only
- (2) A, B, C and D only
- (3) A, C, D and E only
- (4) B, C, D and E only

- 116** 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.

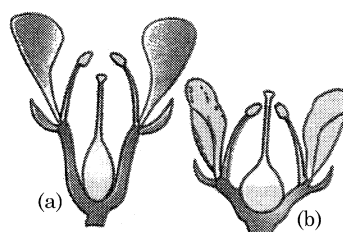
In the light of the above statements, choose the correct answer from the options given below:

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

- 117** Formation of interfascicular cambium from fully developed parenchyma cells is an example for
- (1) Differentiation
 - (2) Redifferentiation
 - (3) Dedifferentiation
 - (4) Maturation

- 118** Inhibition of Succinic dehydrogenase enzyme by malonate is a classical example of:
- (1) Cofactor inhibition
 - (2) Feedback inhibition
 - (3) Competitive inhibition
 - (4) Enzyme activation

- 119** 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)



- (1) (a) Epigynous; (b) Hypogynous
 - (2) (a) Hypogynous; (b) Epigynous
 - (3) (a) Perigynous; (b) Epigynous
 - (4) (a) Perigynous; (b) Perigynous
- 120** 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?
- (1) BB (2) bb
 - (3) Bb (4) BB/Bb

- 121** Tropical regions show greatest level of species richness because
- Tropical latitudes have remained relatively undisturbed for millions of years, hence more time was available for species diversification.
 - Tropical environments are more seasonal.
 - More solar energy is available in tropics.
 - Constant environments promote niche specialization.
 - Tropical environments are constant and predictable.

Choose the correct answer from the options given below:

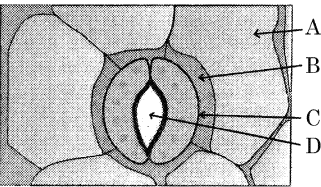
- (1) A, C, D and E only
- (2) A and B only
- (3) A, B and E only
- (4) A, B and D only

- 122** The equation of Verhulst-Pearl logistic growth is

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

From this equation, *K* indicates:

- (1) Intrinsic rate of natural increase
 - (2) Biotic potential
 - (3) Carrying capacity
 - (4) Population density
- 123** In the given figure, which component has thin outer walls and highly thickened inner walls?



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

- 124** Given below are two statements:

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

Statement II : The begining 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:

- (1) Both Statement I and Statement II are true
 - (2) Both Statement I and Statement II are false
 - (3) Statement I is true but Statement II is false
 - (4) Statement I is false but Statement II is true
- 125** List of endangered species was released by-
- (1) GEAC
 - (2) WWF
 - (3) FOAM
 - (4) IUCN

- 126** Which of the following are required for the dark reaction of photosynthesis?

- Light
- Chlorophyll
- CO₂
- ATP
- NADPH

Choose the correct answer from the options given below:

- (1) A, B and C only
 - (2) B, C and D only
 - (3) C, D and E only
 - (4) D and E only
- 127** 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) *in-situ* conservation
 - (2) Biodiversity conservation
 - (3) Semi-conservative method
 - (4) Sustainable development

- 128** What is the fate of a piece of DNA carrying only gene of interest which is transferred into an alien organism?
- The piece of DNA would be able to multiply itself independently in the progeny cells of the organism.
 - It may get integrated into the genome of the recipient.
 - It may multiply and be inherited along with the host DNA.
 - The alien piece of DNA is not an integral part of chromosome.
 - It shows ability to replicate.
- Choose the correct answer from the options given below:
- A and B only
 - D and E only
 - B and C only
 - A and E only
- 129** The lactose present in the growth medium of bacteria is transported to the cell by the action of:
- Beta-galactosidase
 - Acetylase
 - Permease
 - Polymerase
- 130** Which one of the following can be explained on the basis of Mendel's Law of Dominance?
- Out of one pair of factors one is dominant and the other is recessive.
 - Alleles do not show any expression and both the characters appear as such in F_2 generation.
 - Factors occur in pairs in normal diploid plants.
 - The discrete unit controlling a particular character is called factor.
 - The expression of only one of the parental characters is found in a monohybrid cross.
- Choose the correct answer from the options given below:
- A, B and C only
 - A, C, D and E only
 - B, C and D only
 - A, B, C, D and E
- 131** Which one of the following is not a criterion for classification of fungi?
- Morphology of mycelium
 - Mode of nutrition
 - Mode of spore formation
 - Fruiting body
- 132** 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:
- Both Statement I and Statement II are true
 - Both Statement I and Statement II are false
 - Statement I is true but Statement II is false
 - Statement I is false but Statement II is true
- 133** Bulliform cells are responsible for
- Inward curling of leaves in monocots.
 - Protecting the plant from salt stress.
 - Increased photosynthesis in monocots.
 - Providing large spaces for storage of sugars.
- 134** A pink flowered Snapdragon plant was crossed with a red flowered Snapdragon plant. What type of phenotype/s is/are expected in the progeny?
- Only red flowered plants
 - Red flowered as well as pink flowered plants
 - Only pink flowered plants
 - Red, Pink as well as white flowered plants
- 135** How many molecules of ATP and NADPH are required for every molecule of CO_2 fixed in the Calvin cycle?
- 2 molecules of ATP and 3 molecules of NADPH
 - 2 molecules of ATP and 2 molecules of NADPH
 - 3 molecules of ATP and 3 molecules of NADPH
 - 3 molecules of ATP and 2 molecules of NADPH

Botany : Section-B (Q. No. 136 to 150)

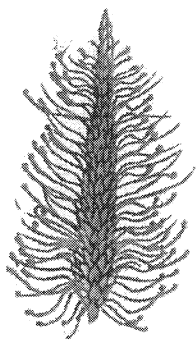
136 Match List I with List II

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:

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

137 Identify the correct description about the given figure:



- (1) Wind pollinated plant inflorescence showing flowers with well exposed stamens.
- (2) Water pollinated flowers showing stamens with mucilaginous covering.
- (3) Cleistogamous flowers showing autogamy.
- (4) Compact inflorescence showing complete autogamy.

138 Match List I with List II

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

Choose the correct answer from the options given below:

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

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

- (1) Auxin
- (2) Gibberellin
- (3) Cytokinin
- (4) Absciscic acid

140 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:

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

141 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:

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

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

- (1) Malic acid $\rightarrow$ Oxaloacetic acid
- (2) Succinic acid $\rightarrow$ Malic acid
- (3) Succinyl-CoA $\rightarrow$ Succinic acid
- (4) Isocitrate $\rightarrow$ α -ketoglutaric acid

143 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:

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

144 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:

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

145 Match List I with List II

List I (Types of Stamens)	List II (Example)
A. Monadelphous	I. Citrus
B. Diadelphous	II. Pea
C. Polyadelphous	III. Lily
D. Epiphyllous	IV. China-rose

Choose the correct answer from the options given below:

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

146 The DNA present in chloroplast is:

- (1) Linear, double stranded
- (2) Circular, double stranded
- (3) Linear, single stranded
- (4) Circular, single stranded

147 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?

- (1) $\frac{x}{10} (kcal\ m^{-2})\ yr^{-1}$
- (2) $x (kcal\ m^{-2})\ yr^{-1}$
- (3) $10x (kcal\ m^{-2})\ yr^{-1}$
- (4) $\frac{100x}{3x} (kcal\ m^{-2})\ yr^{-1}$

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

- (1) Callus
- (2) Somatic embryos
- (3) Protoplasts
- (4) Pollens

149 Match List I with List II

List I

- A. Citric acid cycle
- B. Glycolysis
- C. Electron transport system
- D. Proton gradient

List II

- I. Cytoplasm
- II. Mitochondrial matrix
- III. Intermembrane space of mitochondria
- IV. Inner mitochondrial membrane

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

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

- (1) The DNA dependent DNA polymerase catalyses polymerization in one direction that is $3' \rightarrow 5'$.
- (2) The DNA dependent RNA polymerase catalyses polymerization in one direction, that is $5' \rightarrow 3'$.
- (3) The DNA dependent DNA polymerase catalyses polymerization in $5' \rightarrow 3'$ as well as $3' \rightarrow 5'$ direction.
- (4) The DNA dependent DNA polymerase catalyses polymerization in $5' \rightarrow 3'$ direction.

151 Which of the following is not a steroid hormone?

- (1) Cortisol
- (2) Testosterone
- (3) Progesterone
- (4) Glucagon

152 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) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but Statement II is false
- (4) Statement I is false but Statement II is true

153 Which of the following statements is incorrect?

- (1) A bio-reactor provides optimal growth conditions for achieving the desired product.
- (2) Most commonly used bio-reactors are of stirring type.
- (3) Bio-reactors are used to produce small scale bacterial cultures.
- (4) Bio-reactors have an agitator system, an oxygen delivery system and foam control system.

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

3'TACATGGCAAATATCCATTCA5'

- (1) 5'AUGUACCGUUUAUAGGUAAGU3'
- (2) 5'AUGUAAAGUUUAUAGGUAAGU3'
- (3) 5'AUGUACCGUUUAUAGGGAAGU3'
- (4) 5'ATGTACCGTTTATAGGTAAGT3'

- 155** 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) Both A and R are true and R is the correct explanation of A.
 - (2) Both A and R are true but R is NOT the correct explanation of A.
 - (3) A is true but R is false
 - (4) A is false but R is true

156 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 :

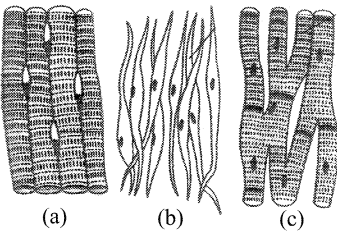
- (1) A-I, B-III, C-II, D-IV
 - (2) A-IV, B-III, C-I, D-II
 - (3) A-III, B-I, C-IV, D-II
 - (4) A-II, B-IV, C-III, D-I
- 157** Following are the stages of pathway for conduction of an action potential through the heart:
- AV bundle
 - Purkinje fibres
 - AV node
 - Bundle branches
 - SA node
- Choose the correct sequence of pathway from the options given below :
- (1) E-C-A-D-B (2) A-E-C-B-D
 - (3) B-D-E-C-A (4) E-A-D-B-C

158 Match List I with List II :

List I (Sub Phases of Prophase I)	List II (Specific characters)
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

Choose the correct answer from the options given below :

- (1) A-IV, B-II, C-III, D-I
 - (2) A-I, B-II, C-IV, D-III
 - (3) A-II, B-IV, C-I, D-III
 - (4) A-IV, B-III, C-II, D-I
- 159** Three types of muscles are given as a, b and c. Identify the correct matching pair along with their location in human body :



Name of muscle/location

- (1) (a) Smooth - Toes
(b) Skeletal - Legs
(c) Cardiac - Heart.
- (2) (a) Skeletal - Triceps
(b) Smooth - Stomach
(c) Cardiac - Heart.
- (3) (a) Skeletal - Biceps
(b) Involuntary - Intestine
(c) Smooth - Heart.
- (4) (a) Involuntary - Nose tip
(b) Skeletal - Bone
(c) Cardiac - Heart.

160 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. Lippes loop
D. Implants	IV. LNG-20

Choose the correct answer from the options given below :

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

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

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

- (1) Both A and R are correct and R is the correct explanation of A.
- (2) Both A and R are correct but R is NOT the correct explanation of A.
- (3) A is correct but R is not correct.
- (4) A is not correct but R is correct.

163 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 :

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

164 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-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

165 Match List I with List II :

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

Choose the correct answer from the options given below :

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

166 Match List I with List II :

- | List I | List II |
|-------------------------------|--------------------|
| A. α -1 antitrypsin | I. Cotton bollworm |
| B. Cry IAb | II. ADA deficiency |
| C. Cry IAc | III. Emphysema |
| D. Enzyme replacement therapy | IV. Corn borer |

Choose the correct answer from the options given below :

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

167 The “Ti plasmid” of *Agrobacterium tumefaciens* stands for

- (1) Tumour inhibiting plasmid
- (2) Tumor independent plasmid
- (3) Tumor inducing plasmid
- (4) Temperature independent plasmid

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

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

- (1) Coitus interruptus
- (2) Periodic abstinence
- (3) Lactational amenorrhea
- (4) Vaults

170 Following are the stages of cell division :

- A. Gap 2 phase
- B. Cytokinesis
- C. Synthesis phase
- D. Karyokinesis
- E. Gap 1 phase

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

- (1) C-E-D-A-B (2) E-B-D-A-C
- (3) B-D-E-A-C (4) E-C-A-D-B

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

- (1) Genetic recombination
- (2) Genetic drift
- (3) Gene migration
- (4) Constant gene pool

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

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

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

175 Which of the following is not a component of Fallopian tube?

- (1) Uterine fundus
- (2) Isthmus
- (3) Infundibulum
- (4) Ampulla

176 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

Choose the correct answer from the options given below :

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

177 The flippers of the Penguins and Dolphins are the example of the

- (1) Adaptive radiation
- (2) Natural selection
- (3) Convergent evolution
- (4) Divergent evolution

178 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 options given below :

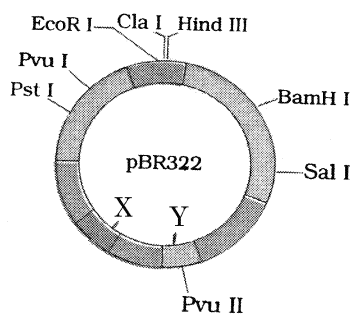
- (1) Both Statement I and Statement II are true
- (2) Both Statement I and Statement II are false
- (3) Statement I is true but Statement II is false
- (4) Statement I is false but Statement II is true

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

- (1) 5th segment
- (2) 10th segment
- (3) 8th and 9th segment
- (4) 11th segment

- 180** Which of the following factors are favourable for the formation of oxyhaemoglobin in alveoli?
- (1) High pO_2 and High pCO_2
 - (2) High pO_2 and Lesser H^+ concentration
 - (3) Low pCO_2 and High H^+ concentration
 - (4) Low pCO_2 and High temperature

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



- (1) The gene 'X' is responsible for resistance to antibiotics and 'Y' for protein involved in the replication of Plasmid.
- (2) The gene 'X' is responsible for controlling the copy number of the linked DNA and 'Y' for protein involved in the replication of Plasmid.
- (3) The gene 'X' is for protein involved in replication of Plasmid and 'Y' for resistance to antibiotics.
- (4) Gene 'X' is responsible for recognition sites and 'Y' is responsible for antibiotic resistance.

- 182** Match List I with List II :

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

Choose the correct answer from the options given below :

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

- 183** 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) B only
- (2) A only
- (3) C only
- (4) D only

- 184** Match List I with List II :

List I	List II
A. Common cold	I. <i>Plasmodium</i>
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-II, B-IV, C-III, D-I
- (2) A-I, B-III, C-II, D-IV
- (3) A-III, B-I, C-II, D-IV
- (4) A-IV, B-II, C-III, D-I

- 185** Match List I with List II :

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

Choose the correct answer from the options given below :

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

Zoology : Section-B (Q. No. 186 to 200)

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

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

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

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

- (1) Both Statement I and Statement II are correct.
- (2) Both Statement I and Statement II are incorrect.
- (3) Statement I is correct but Statement II is incorrect.
- (4) Statement I is incorrect but Statement II is correct.

189 Match List I with List II related to 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-IV, B-II, C-III, D-I
- (2) A-I, B-II, C-III, D-IV
- (3) A-IV, B-III, C-II, D-I
- (4) A-III, B-II, C-IV, D-I

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

- 191** Choose the correct statement given below regarding juxta medullary nephron.
- (1) Juxta medullary nephrons are located in the columns of Bertini.
 - (2) Renal corpuscle of juxta medullary nephron lies in the outer portion of the renal medulla.
 - (3) Loop of Henle of juxta medullary nephron runs deep into medulla.
 - (4) Juxta medullary nephrons outnumber the cortical nephrons.

- 192** 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, A, D, C, B
 - (2) A, E, B, D, C
 - (3) B, A, C, D, E
 - (4) E, D, C, B, A

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

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

- 195** Given below are two statements :
- Statement I :** Mitochondria and chloroplasts are both double membrane bound organelles.
- Statement II :** Inner membrane of mitochondria is relatively less permeable, as compared to chloroplast.
- In the light of the above statements, choose the most appropriate answer from the options given below :
- (1) Both Statement I and Statement II are correct.
 - (2) Both Statement I and Statement II are incorrect.
 - (3) Statement I is correct but Statement II is incorrect.
 - (4) Statement I is incorrect but Statement II is correct.

196 Match List I with List II :

List I	List II
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.

Choose the correct answer from the options given below :

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

197 Given below are two statements :

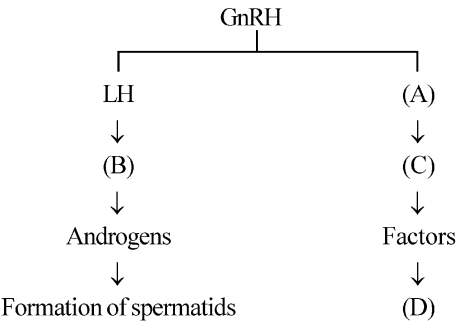
Statement I : Bone marrow is the main lymphoid organ where all blood cells including lymphocytes are produced.

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) Both Statement I and Statement II are correct.
- (2) Both Statement I and Statement II are incorrect.
- (3) Statement I is correct but Statement II is incorrect.
- (4) Statement I is incorrect but Statement II is correct.

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



- (1) FSH, Leydig cells, Sertoli cells, spermiogenesis
- (2) ICSH, Interstitial cells, Leydig cells, spermiogenesis.
- (3) FSH, Sertoli cells, Leydig cells, spermatogenesis.
- (4) ICSH, Leydig cells, Sertoli cells, spermatogenesis.

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

- A. I^Bi / I^Ai / ii
- B. I^BI^B / I^AI^A / ii
- C. I^AI^B / ii^A / I^Bi
- D. I^Ai / I^Bi / I^Ai
- E. ii^B / ii^A / I^AI^B

Choose the most appropriate answer from the options given below :

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

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