

Botany

Section A

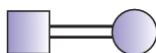
101. Which of the following statements is incorrect?
- Joseph Priestley discovered oxygen in 1774.
 - Jan Ingenhousz showed through an elegant experiment on the aquatic plant *Cladophora* that it is only the green part of the plants that could release oxygen.
 - First action spectrum of photosynthesis was described after the experiment of T.W Engelmann.
 - Cornelius van Niel demonstrated that photosynthesis is essentially a light-dependent reaction.
102. The chemiosmotic mechanism mediates.
- ATP synthesis.
 - Splitting of water.
 - Reduction of NADP⁺.
 - Flow of electrons from PS - II to PS – I
103. Consider the following two statements.
- Statement 1:** Apart from transferring the energy to the reaction center xanthophylls and carotenoids protect chlorophyll a and b from photo-oxidation.
- Statement 2:** The photochemical phase includes the formation of high-energy chemical intermediates, ATP, and NADH.
- Considering the above statements, choose the correct answer from the options given below:
- Both Statement I and Statement II are false.
 - Statement I is correct, but Statement II is false.
 - Statement I is incorrect, but Statement II is true.
 - Both Statement I and Statement II are true.
104. **Assertion (A):** In glycolysis, there is a net gain of four molecules of ATP.
- Reason (R):** Glycolysis is the first step of respiration in which glucose completely breaks into CO₂ and H₂O and energy.
- In the light of the above statements, select the correct answer from the options given below:
- If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
 - If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
 - If Assertion is true but Reason is false.
 - If both Assertion and Reason are false.
105. In which of the following processes, does the cell lose its protoplasm to form a tracheary element?
- Dedifferentiation
 - Redifferentiation
 - Differentiation
 - Plasticity

106. According to IUCN 2004, the total number of plant and animal species described so far is slightly more than:
- 5 million
 - 7 million
 - 1.5 million
 - 0.5 million
107. The highest concentration of ethylene is found in:
- Area of continuous growth and meristematic region.
 - Meristematic region only.
 - Mature leaves.
 - Ripened fruit.
108. The F₂ generation of a cross produced an identical phenotypic and genotypic ratio. It is not an expected Mendelian result and can be attributed to:
- Independent assortment
 - Linkage
 - Incomplete dominance
 - None of the above
109. ABO blood group system is due to:
- Multifactor inheritance
 - Incomplete dominance
 - Co-dominance
 - Pleiotropy
110. The 'X' body of Henking was observed in:
- All sperm during spermatogenesis.
 - All eggs during oogenesis.
 - Half of the sperm during spermatogenesis.
 - Half of the eggs during oogenesis.
111. Which of the following statements are correct?
- Haemophilia is a sex-linked recessive disease.
 - Down's syndrome is due to aneuploidy.
 - Phenylketonuria is an autosomal dominant gene disorder.
 - Phenylketonuria is an autosomal recessive gene disorder.
 - Sickle-cell anemia is an X-linked recessive gene disorder.

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

- (i), (iii), and (v) only.
 - (i) and (iii) only.
 - (ii) and (v) only.
 - (i), (ii), and (iv) only.
112. Which one of the following symbols and its representation, used in human pedigree analysis is correct?

- a. Consanguineous Mating



- b. Mating between relatives



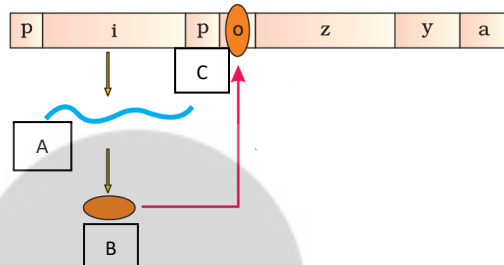
c. Unaffected male



d. Unaffected male



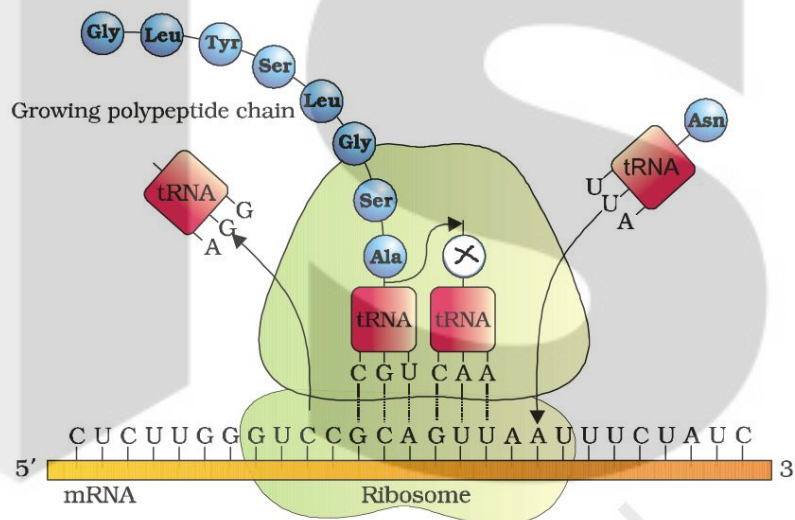
113. Look at the picture and answer accordingly:



Select the most appropriate option:

- a. A- Repressor Protein, B- Repressor, C- Promoter
- b. A- Repressor hnRNA, B- Repressor, C- Primer
- c. A- Repressor gene, B- Inducer, C- Promoter
- d. A- Repressor mRNA, B- Repressor, C- Promoter

114. The below image shows the process of translation. Answer the name of the missing amino acid represented as X.



- a. Ser
- b. Gly
- c. Val
- d. Tyr

115. Find the correct statements about Satellite DNA:

- a. Classified into many categories such as microsatellites, minisatellites, etc. based on base composition length of segments and number of repetitive units.
- b. Sometimes they code for specific proteins related to the end replication of chromosomes.
- c. Does not Show polymorphism.
- d. Both a and b

116. Select the incorrect statement(s).
- i. Six codons do not code for any amino acid.
 - ii. Codon is read in mRNA in a contiguous fashion.
 - iii. Three codons function as stop codons.
 - iv. The initiation codon AUG codes for methionine.

Select the most appropriate option from the code below.

- a. (i) only
 - b. (ii) only
 - c. (i), (ii), and (iv)
 - d. (i), (ii) and (iii)
117. **Assertion(A):** The genetic code is degenerate.
Reason(R): Most amino acids are coded by more than one codon.
- a. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
 - b. If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
 - c. If Assertion is true but Reason is false.
 - d. If both Assertion and Reason are false.
118. The end products of the Krebs cycle from one molecule of glucose are:
- a. 2ATP, 6NADH, 2FADH₂, CO₂, and H₂O
 - b. 4ATP, 10NADH, 2FADH₂, CO₂, and H₂O
 - c. 4ATP, 6NADH, 2FADH₂, CO₂, and H₂O
 - d. 1GTP, 3NADH, 1FADH₂, CO₂, and H₂O
119. During the elongation of the polypeptide chain, the sigma factor is:
- a. Functionless.
 - b. Retained for specific functions.
 - c. Released for re-use.
 - d. Required during the closing of the chain.
120. A reduced form of ubiquinone is:
- a. Ubiquinone
 - b. Ubiquinol
 - c. Ubiquitin
 - d. All the above
121. Why C4 plants are special? Because
- i. They have a special type of leaf anatomy.
 - ii. They tolerate higher temperatures.
 - iii. They show a response to high light intensities.
 - iv. They lack a process called photorespiration.
 - v. They have greater productivity of biomass.

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

- a. (i) and (ii)
- b. (i), (iii) and (iv)
- c. (i), (ii), (iii) and (v)
- d. All of these

122. **Statement 1.** The transcription and translation can be coupled in bacteria.
Statement 2. In bacteria, mRNA does not require any processing to become active.
Which of the above statements is incorrect?
- Only 1
 - Only 2
 - Both 1 and 2
 - None of these
123. **Assertion(A):** The final stage of meiotic prophase 1 is diplotene.
Reason(R): Diplotene is marked by terminalisation of chiasmata.
Select the most appropriate option:
- If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
 - If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
 - If Assertion is true but Reason is false.
 - If both Assertion and Reason are false.
124. Thorn of Bougainvillea and tendril of Cucurbita are examples of:
- Retrogressive evolution.
 - Analogous organs.
 - Homologous organs.
 - Vestigial organs.
125. The Tasmanian Wolf is a marsupial while the Wolf is a placental mammal. This shows.
- Convergent evolution
 - Divergent evolution
 - Inheritance of acquired characters.
 - None of these
126. The Amazon rain forest, called the 'Lungs of the Planet', contributes the following percentage of oxygen by photosynthesis, to the earth's atmosphere:
- 20%
 - 35%
 - 42%
 - 50%
127. Which of the following is the most serious threat to biodiversity?
- Competition from exotic species
 - Commercial harvesting
 - Habitat loss
 - Overexploitation
128. Bast fibers are made up of which type of cells.
- Sclerenchymatous
 - Chlorenchymatous
 - Parenchymatous
 - Aerenchymatous
129. **Statement 1.** Of the incident solar radiation less than 50 percent of it is photosynthetically active radiation (PAR).
Statement 2. Plants capture only 2-10 percent of the PAR.

Statement 3. Ecosystems are exempt from the Second Law of Thermodynamics.

Choose the incorrect statement from the options given below:

- a. Only 1
- b. Only 2 and 3
- c. Only 3
- d. Only 1 and 3

130. **Statement 1.** In an aquatic ecosystem, GFC is the major conduit for energy flow.

Statement 2. In a natural ecosystem, some animals like cockroaches, are omnivores.

Statement 3. In a terrestrial ecosystem, DFC is the major conduit for energy flow.

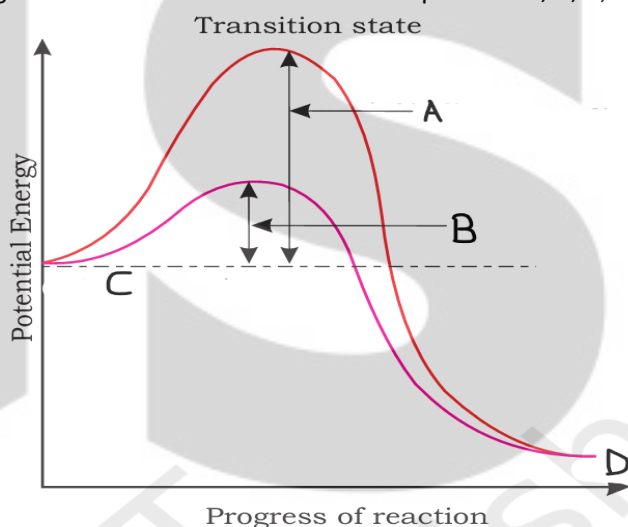
Choose the incorrect statement from the options given below:

- a. Only 2
- b. Only 1 and 3
- c. All are incorrect.
- d. None of these

131. The largest cell in an embryo sac is:

- a. Egg
- b. Central cell
- c. Synergid
- d. Antipodal cell

132. Look at the image given below and answer what the alphabets A, B, C, and D represents.



- a. A- Activation energy with enzyme, B- Activation energy without enzyme, C- Substrate (S), D- Product
- b. A- Activation energy without enzyme, B- Activation energy with enzyme, C- Level of Enzyme, D- Product
- c. A- Activation energy without enzyme, B- Activation energy with enzyme, C- Substrate (S), D- Product (P)
- d. A- Activation energy with enzyme, B- Activation energy without enzyme, C- Level of Enzyme, D- Product

133. The integral form of the exponential growth equation is:

- a. $N_t = N_0 e^{-rt}$
- b. $N_0 = N_t e^{rt}$
- c. $N_t = N_0 e^{rt}$
- d. $rN = N_t e^{rt}$

134. Inulin is a polymer of:

- a. Glucose
- b. Galactose
- c. Fructose
- d. Arabinose

135. Synapsis occurs between:

- a. Spindle fibers and centromeres.
- b. Two non-homologous chromosomes.
- c. Two homologous chromosomes.
- d. mRNA and ribosomes.

Section B

136. Which one is correct about bivalent?

- i. Bivalents are tetrads.
- ii. A bivalent means 4 chromatids and 2 centromeres.
- iii. One bivalent consists of 2 homologous chromosomes each and sister chromatids.
- iv. Bivalents formation occurs in zygotene.

Select the correct statement from the options given below:

- a. All of these
- b. Only (iii)
- c. Only (iii) and (iv)
- d. Only (iv)

137. The major event that occurs during the anaphase of mitosis, which brings about the equal distribution of chromosomes is:

- a. Replication of the genetic material.
- b. Splitting of the chromatids.
- c. Splitting of the centromeres.
- d. Condensation of the chromatin.

138. Which one of the following is not true for parietal placentation?

- a. Ovules are borne on a central axis.
- b. Ovary is one-chambered, but it becomes two-chambered due to the formation of false septum.
- c. Examples are mustard and Argemone.
- d. Both (b) and (c)

139. Which of the following is the result when karyokinesis is not followed by cytokinesis?

- a. Synaptonemal complex
- b. Syncytium
- c. Recombination nodules

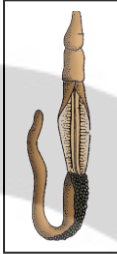
- d. Terminalization
140. Bundle sheath cells of the leaves:
- Are rich in PEP carboxylase.
 - Are rich in RuBisCO.
 - Lack RuBisCO.
 - Lack RuBisCO and PEP carboxylase both.
141. **Statement 1.** The compaction of chromosomes continues throughout leptotene.
Statement 2. The process of synapsis starts in the leptotene stage and persists till the pachytene stage.
- Choose the incorrect statement using the code below:
- Only 1
 - Only 2
 - Only 1 and 2
 - None of these
142. **Statement 1.** Identification is essential for the nomenclature of any species.
Statement 2. Classification is the process by which anything is grouped into convenient categories based on some easily observable characteristics.
- Select the correct statement using the options below.
- Only 1
 - Only 2
 - Both 1 and 2
 - None of these
143. Mango belongs to which order:
- Anacardiales
 - Sapindaceae
 - Poales
 - Sapindales
144. Which of the following belongs to basidiomycetes?
- Claviceps
 - Neurospora
 - Morels and Truffles
 - Smut fungi.
145. The heterosporous pteridophyte belonging to the class Lycopsidea is:
- Selaginella
 - Psilotum
 - Equisetum
 - Pteris
146. Which of the following groups of plants have underground stems?
- Potato, Ginger, Turmeric, Euphorbia, Zaminkand
 - Potato, Ginger, Turmeric, Zaminkand, Colocasia
 - Potato, Citrus, Opuntia, Zaminkand, Colocasia
 - Potato, Cucumber, Watermelon, Zaminkand, Colocasia
147. Lignin is an important constituent in the cell wall of:
- Phloem
 - Parenchyma

- c. Xylem
 - d. Cambium
148. Perisperm is a:
- a. Degenerate part of synergids.
 - b. Peripheral part of endosperm.
 - c. Degenerate part of the secondary nucleus.
 - d. Remnant of nucellus.
149. Which one of the following statements is incorrect?
- a. When pollen is shed at the two-celled stage, double fertilization does not take place.
 - b. Pollen's vegetative cells is larger than generative cells.
 - c. Pollen grains in some plants remain viable for months.
 - d. Intine is made up of cellulose and pectin.
150. What is the main function of the filiform apparatus present at the micropylar part of the ovule?
- a. It prevents the entry of more than one pollen tube into the embryo sac.
 - b. It helps in the entry of pollen tubes into an antipodal cell.
 - c. It helps the pollen tube to enter the ovule through the chalazal end.
 - d. It guides the entry of the pollen tube into a synergid and discharges the male gametes.

Zoology

Section A

151. Ejaculation of human male contains about 200 – 300 million sperms, of which for normal fertility ____ % sperms must have normal shape and size and at least ____% must show energetic motility.
- a. 40, 60
 - b. 50, 50
 - c. 60, 40
 - d. 30, 70
152. Which of the following processes induces the completion of the meiotic division of secondary oocyte?
- a. Parturition
 - b. Implantation
 - c. Fertilization
 - d. Gametogenesis
153. The diaphragm, cervical cap, and vaults are:
- a. disposable contraceptive devices
 - b. Reusable contraceptives
 - c. Non-medicated IUDs
 - d. Cu-releasing IUDs

154. The elbow joint is an example of:
a. Hinge joint.
b. Gliding joint
c. Ball and socket joint
d. Pivot joint.
155. Which of the following is a living fossil?
a. Balanoglossus
b. Echinus
c. Ancylostoma
d. Limulus
156. **Statement 1.** *Adamsia* exhibits a polyp body form.
Statement 2. Polyps produce medusae asexually in *Medusa*.
Select the correct statement using the options below.
a. Only 1
b. Only 2
c. Both 1 and 2
d. None of these
157. Identify the figure with its correct name and phylum.
a. Cucumaria – Echinodermata
b. Ascidia – Urochordata
c. Balanoglossus – Hemichordata
d. Hirudinaria – Annelida
- 
158. Functional residual capacity in humans is the amount of air:
a. That can be filled in lungs by forceful inspiration.
b. That can be breathed out after forceful expiration.
c. That remains in the lungs after normal expiration.
d. That remains in the lungs after forceful expiration.
159. Statement 1. RBCs contain a very high concentration of the enzyme, carbonic anhydrase.
statement 2. The pneumotaxic centre present in the pons region of the brain can moderate the functions of the respiratory rhythm centre.
Select the incorrect answer using the options below:
a. Only 1
b. Only 2
c. Both 1 and 2
d. None of these
160. 'P' wave of ECG occurs before the:
a. Onset of ventricular contraction.
b. End of arterial contraction.
c. Beginning of atrial contraction.
d. None of the above.
161. Consider the following statements.
Statement 1. Coronary Artery Disease, often referred to as atherosclerosis.
Statement 2. A special neural centre in the medulla oblongata can moderate cardiac function through the central nervous system (CNS).
Statement 3. Adrenal cortex hormones can also increase cardiac output.

Which of the following statements is incorrect?

- a. Only 1 and 3
- b. Only 2 and 3
- c. Only 1 and 2
- d. Only 3

162. **Statement 1.** Secretin acts on the exocrine pancreas and stimulates the secretion of water and bicarbonate ions.

Statement 2. Secretin is a peptide hormone.

Select the correct statement/s using the options below:

- a. Only 1
- b. Only 2
- c. Both 1 and 2
- d. None of these

163. Columns of Bertini in the kidneys of mammals are formed as extensions of:

- a. Cortex into medulla
- b. Cortex into pelvis
- c. Medulla into pelvis
- d. Pelvis into ureter

164. The first heart sound is:

- a. 'LUB' sound produced at the end of systole.
- b. 'DUB' sound produced at the end of systole.
- c. 'LUB' sound produced at the beginning of systole.
- d. 'DUB' sound produced at the beginning of systole.

165. Which of the following statements regarding parturition is incorrect?

- a. Prolactin induces uterine contraction.
- b. It is induced by neuroendocrine mechanisms.
- c. Uterine contraction leads to the expulsion of the baby through the birth canal.
- d. Oxytocin plays an important role in the contraction of the fallopian tube.

166. Consider the following statements and find the correct answer.

Statement 1. ADH promotes diuresis.

Statement 2. A fall in GFR can activate the JG cells to release angiotensinogen (renin).

Statement 3. ANF helps the decrease in blood pressure.

Statement 4. The hypothalamus, JGA, and the heart are involved in monitoring and regulation of kidney function.

Select the correct options:

- a. All of these
- b. Only 1 and 2
- c. Only 3 and 4
- d. Only 1, 3, and 4

167. Striations in the striated muscles are due to:

Select the most appropriate answer.

- a. Absence of myofilaments.
- b. Presence of myofilaments.
- c. Specialized arrangement of myofilaments.
- d. Projections of myosin.

168. The glenoid cavity is found in:
- Pelvic girdle
 - Skull
 - Pectoral girdle
 - Sternum
169. The pacemaker of the human heart is:
- AV node
 - SV node
 - Tricuspid valve
 - SA node
170. According to the sliding filament theory of muscle contraction:
- Actin binds ATP and breaks it apart as actin pulls against myosin.
 - Calcium ions are released from myosin as the filaments slide by.
 - The thick and thin filaments do not change length during this process.
 - All the above
171. Select the correct statement regarding the specific disorder of the muscular or skeletal system.
- Myasthenia gravis** – Autoimmune disorder which inhibits sliding of myosin filaments.
 - Gout** – Inflammation of joints due to extra deposition of calcium.
 - Muscular dystrophy** – Age-related shortening of muscles.
 - Osteoporosis** – Decrease in bone mass and higher chances of fractures with advancing age.
172. "X" is a large triangular flat bone situated in the dorsal part of the thorax between the "Y" and the seventh ribs. Identify "X" and "Y".
- X - Patella; Y - Third
 - X - Clavicle; Y - Third
 - X - Scapula; Y - Sixth
 - X - Scapula; Y – Second
173. The cerebral cortex is:
- The outer layer of the cerebrum is called white matter.
 - Inner layer of the cerebrum, called white matter.
 - The outer layer of the cerebrum is called grey matter.
 - Inner layer of the cerebrum, called grey matter.
174. The secretion of gastric juice is controlled by:
- Cerebellum
 - Autonomic Nervous System (ANS)
 - Cerebrum
 - Medulla
175. Consider the following statements.
- Corpora quadrigemina is part of midbrain.
 - The limbic system along with the hypothalamus is involved in the regulation of sexual behavior.
 - Cerebellar hemispheres are connected by a tract of nerve fibers called corpus callosum.

Choose the correct statement/s and answer using the given options:

- a. Only I
 - b. Only I and II
 - c. Only II and III
 - d. All of these
176. **Statement 1.** Exophthalmic goiter is characterized by enlargement of the thyroid gland and is called Graves' disease.
- Statement 2.** It is the case of hyperthyroidism.
- Select the incorrect statement/s using the options below:
- a. Only 1
 - b. Only 2
 - c. Both 1 and 2
 - d. None of these
177. During muscle contraction in humans the:
- a. Actin filaments shorten.
 - b. Sarcomere does not shorten.
 - c. A-band remains the same.
 - d. A, H, and I band shorten.
178. Which hormone is related to mineral metabolism but is not a peptide/protein in nature?
- a. PTH
 - b. ANF
 - c. Aldosterone
 - d. All the above
179. The part of the nephron that helps in active reabsorption of sodium is:
- a. Bowman's capsule
 - b. Distal convoluted tubules
 - c. Ascending limb of Henle's loop
 - d. Proximal convoluted tubules
180. MTPs are considered relatively safe during the _____ weeks of pregnancy.
- a. 12
 - b. 15
 - c. 18
 - d. 20
181. Identify the incorrect statement regarding ZIFT.
- a. ZIFT is zygote intra fallopian transfer.
 - b. It is one of the techniques known as assisted reproductive technologies.
 - c. Through this process embryo is formed by injecting the ovum into the sperm.
 - d. Zygote or embryo up to 8 blastomeres is collected and transferred into the fallopian tube.
182. Which of the following is a steroid hormone?
- a. Cortisol
 - b. Epinephrine
 - c. Pituitary hormones
 - d. Thyroid hormones

183. Cyclosporin is used as is:
- Allergic eczema
 - Immunosuppressant
 - Prophylactic for viruses
 - Prophylactic for marasmus
184. Which of the following types of cell junction is not found in animal tissues?
- Adhering junction
 - Tight junction
 - Gap junction
 - Plasmodesmata
185. The extinct human ancestor who ate only fruits and hunted with stone weapons was:
- Ramapithecus
 - Australopithecus
 - Dryopithecus
 - Homo habilis

Section B

186. Consider the following statements regarding cockroaches:
- Their fertilized eggs are encased in capsules called oothecae.
 - Females produce 9-10 oothecae, each containing 14-16 eggs.
 - The development of *P. americana* is autometabolous.
 - The next to last nymphal stage has wings.
- Select the incorrect statement/s using the options given below:
- Only i, and ii
 - Only iii, and iv
 - Only ii, and iv
 - Only iii
187. The fetus gets immunized after receiving antibodies from the mother through the placenta. This type of immunization is called:
- Active immunity
 - Innate immunity
 - Passive immunity
 - Humoral immunity
188. **Statement 1.** Somaclones are genetically identical.
Statement 2. Virus-free plants can also be obtained through any type of plant tissue culture.
Statement 3. Somatic hybrids can be obtained by protoplast fusion.
Select the correct statement/s using the options given below:
- Only 1 and 3
 - Only 2 and 3
 - All of these
 - Only 3
189. Consider the following statements.
- RNAi takes place in all eukaryotic organisms as a method of cellular defense.
 - RNAi involves silencing of a specific mRNA due to a complementary ssRNA.

- iii. A nematode *Meloidogyne incognita* infestation to roots of tobacco plants was controlled using RNAi.

Select the incorrect statement/s using the options given below:

- a. Only i
- b. Only ii
- c. Only iii
- d. All are correct.

190. **Statement 1.** Alexander Fleming was working on Streptococcus bacteria when he discovered the first antibiotic.

Statement 2. The first antibiotic was obtained from the fungus *Penicillium notatum*.

Statement 3. Penicillin's full potential as an effective antibiotic was established much later by Chain and Florey.

Select the incorrect statement/s using the options given below:

- a. Only 1
- b. Only 1 and 3
- c. Only 2
- d. Only 3

191. Bottled juices are clarified using:

- a. Pectinases, and proteases.
- b. Proteases, and streptokinases
- c. Pectinase and amylase
- d. Infusion of CO₂

192. Which one of the following pairs of diseases is viral as well as transmitted by mosquitoes?

- a. Elephantiasis and dengue
- b. Yellow fever and sleeping sickness.
- c. Encephalitis and sleeping sickness.
- d. Yellow fever and dengue

193. Which bacterium helps in the production of 'Swiss cheese'?

- a. *Propionibacterium sharmanii*
- b. *Trichoderma polysporum*
- c. *Saccharomyces cerevisiae*
- d. *Aspergillus niger*

194. The largest brain size was of:

- a. *Homo erectus*
- b. *Homo habilis*
- c. Neanderthal
- d. *Homo sapiens*

195. Methanogenic bacteria are present in:

- a. Anaerobic sludge
- b. The rumen of cattle
- c. Both (a) and (b)
- d. None of the above

196. Which one of the micro-organisms is used to produce citric acid in industries?

- a. *Lactobacillus bulgaricus*
- b. *Penicillium citrinum*

- c. *Aspergillus niger*
- d. *Rhizopus nigricans*

197. **Assertion(A):** The uptake of DNA during transformation is an energy-requiring process.

Reason(R): Transformation occurs in only those bacteria, which possess the enzymatic machinery involved in the active uptake and recombination.

Select the most appropriate option:

- a. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- b. If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
- c. If Assertion is true but Reason is false.
- d. If both Assertion and Reason are false.

198. Which of the following statements is incorrect?

- a. T-DNA transforms normal plant cells into a tumor.
- b. Retroviruses in animals can transform normal cells into cancerous cells.
- c. T plasmid of *Agrobacterium tumefaciens* is modified into a cloning vector which is more pathogenic to plants.
- d. Retroviruses have also been disarmed and are now used to deliver desirable genes into animal cells.

199. Which of the following statement(s) is/are correct regarding the respiratory system of cockroaches?

- i. It consists of a network of trachea, that open through 12 pairs of small holes called spiracles present on the lateral side of the body.
- ii. Thin branching tubes carry oxygen from the air to all the parts.
- iii. The opening of the spiracles is regulated by sphincters.
- iv. Exchange of gases takes place at the tracheoles by diffusion.

Select the correct statements using the options below:

- a. Only i
- b. Only i, ii, iii
- c. Only ii, iii, and iv
- d. All of these

200. **Statement 1.** Frogs have sensory papillae for taste.

Statement 2. Bidder's Canal is part of the male reproductive part.

Select the correct statement using the options given below:

- a. Only 1
- b. Only 2
- c. Both 1 and 2
- d. None of these