

PROVISIONAL ANSWER KEY

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Note:

- 1). All Suggestions are to be sent with reference to website published Question paper with Provisional Answer Key Only.
- 2). All Suggestions are to be sent in the given format only.
- 3). Candidate must ensure the above compliance.

101. Types of the phyllotaxy, when opposite leaves of two successive nodes lie in the same plane
(A) Whorled and verticillate (B) Opposite and dicussate
(C) Opposite and superimposed (D) Spiral
102. A flower is said to be zygomorphic, if
(A) Any vertical section passing through its center divides in to two equal halves
(B) Only one vertical section divides in to two equal vertical halves
(C) Cannot be divided in to equal halves by any vertical section
(D) Only one transverse section divides in to two equal vertical halves
103. Petiole is modified into tendril in
(A) *Gloriosa* (B) *Passiflora*
(C) *Pisum* (D) *Clematis*
104. Phyllode is present in
(A) Australian Acacia (B) *Opuntia*
(C) *Asparagus* (D) *Euphorbia*
105. Casparian strip is made up of
(A) Subarin only (B) Lignin only
(C) Suberin and lignin (D) Cellulose only
106. Which one of the following has chlorophyll b
(A) *Pinularia* (B) *Ectocarpus*
(C) *Ulothrix* (D) *Polysiphonia*
107. Which of the following statements is not true for Pteridophytes
(A) They are seedless vascular plants
(B) Depending upon development they are eusporangiate or leptosporangiate
(C) Sex organs are multicellular and naked and gametophyte is large
(D) An embryo stage is present, germination may be endosporic or exosporic

108. Opium is got from latex of unripe fruits of
(A) *Erythroxylon coca* (B) *Camellia chinensis*
(C) *Papaver somniferum* (D) *Cannabis saliva*
109. Binomials become trinomials when
(A) The name of the species is changed
(B) The name of the genus is changed
(C) When the sub specific category is also indicated
(D) The name of the family is also included
110. Which of the following categories of proteases are involved in apoptosis?
(A) Isomerases (B) Transferases
(C) Capsases D. Apotases
111. A toptotype is
(A) A specimen selected to serve as a substitute for the holotype
(B) A specimen other than the holotype referred to in the original publication
(C) A specimen used by a second author
(D) A specimen collected at the type locality
112. Pteridophytes developed well to live on land but were left behind by gymnosperms and angiosperms because they failed to develop a crucial character needed for success on land.
This crucial character is
(A) Large plant bodies with secondary growth
(B) Protection of megasporangia by integumentary envelopes
(C) Enclosure of such megasporangia by carpellary envelops
(D) Freedom from water for fertilization
113. Abnormal secondary growth is seen in
(A) *Triticum* (B) *Curcubita*
(C) *Dracaena* (D) *Helianthus*
114. Thorn of *Bougainvillea* and tendril of *Cucurbita* are examples of
(A) Analogous organs (B) Vestigial organs
(C) Homologous organs (D) Retrogressive evolution

115. Which of the following is not a heterosporous pteridophyte
(A) Selaginella (B) Marselia
(C) Lycopodium (D) Salvinia
116. Rafflesia which produces the largest flower in the plant kingdom is a
(A) Stem parasite (B) Total root parasite
(C) Partial root parasite (D) Not a parasite
117. cDNA lacks
(A) Axons (B) nothing
(C) introns (D) a twist of 36° bp
118. An enzyme that links together 3' end of one DNA fragment with 5' end of another is
(A) DNA gyrase (B) DNA primase
(C) DNA ligase (D) Topoisomerase
119. A measure of the degree of disorder or randomness in a system is known as
(A) Entropy (B) Enthalpy
(C) Syntropy (D) Ectropy
120. Species which occupy a similar ecological niche in similar communities occupying different geographical regions are
(A) Ecotones (B) Biomes
(C) Ecological equivalents (D) Ecads
121. To determine the organisms niche, all of the following must be determined, except
(A) How it is classified
(B) What it eats
(C) Where it lives
(D) What relationship it has with other organisms

122. The cross between the Asian rice (*Oryza sativa*) and African rice (*Oryza glaberrima*) is an example of
(A) Intraspecific cross (B) Interspecific cross
(C) Intrageneric cross (D) Intergeneric cross
123. Leaf sheath, colouration, height, aroma of rice, grain colour are examples of
(A) Biological markers (B) Morphological markers
(C) Cytological markers (D) Biochemical markers
124. Who is the father of plant tissue culture
(A) Bonner (B) Haberlandt
(C) Laibach (D) Calvin
125. Synthetic seed is produced by encapsulating
(A) Sodium chloride (B) Sodium alginate
(C) Sodium acetate (D) Sodium nitrate
126. The sedimentation coefficient of ribosomes is generally 70S. It breaks up in to two sub units whose sedimentation constants are
(A) 50S and 20S (B) 40S and 30S
(C) 60S and 10S (D) 50S and 30S
127. Which type of ovule is considered to be primitive among the following in angiosperms
(A) Campylotropous (B) Amphitropous
(C) Anatropous (D) Orthotropous
128. In Clematis which part is modified in to tendril
(A) Stipule (B) Petiole
(C) Leaflet (D) Terminal leaflet
129. Micorrhizal fungi mobilize nutrients from soil to roots of plants. The nutrients in question is
(A) Organic acids (B) Phosphorus
(C) Manganese (D) Potassium

130. The level of taxonomic study concerned with the biological aspects of taxa, including intraspecific populations, speciation, evolutionary rates and trends is known as
- (A) Alpha taxonomy (B) Beta taxonomy
(C) Gamma taxonomy (D) Generic taxonomy
131. Which of these ecosystems has the lowest primary productivity per square meter
- (A) A deciduous forest (B) A grassland
(C) An open ocean (D) A tropical rain forest
132. Commensalism is a relationship between two organisms where
- (A) Both partners benefit
(B) One partner benefits and causes harm to the other
(C) One partner benefits but the other receives no harm
(D) Both partners are disadvantaged
133. According to the concept of competition exclusion
- (A) Two species cannot coexist in the same habitat
(B) Extinction or emigration are the only possible results of competitive interaction
(C) Intraspecific competition results in the success of the best adapted individuals
(D) Two species cannot share the same niche in a habitat
134. Biomagnifications refers to
- (A) Absorption of a chemical from the media to concentrations in the organisms tissue that are greater than in surrounding environment
(B) Tendency to some chemicals to become increasingly concentrated at successively higher trophic levels in the food chain
(C) The tendency of a compound to accumulate in an organisms tissue
(D) All statements are correct

135. Of the following ecological relationships, which one is the most different from the other three
- (A) Algae embedded in coral tissue
 - (B) Salmonella in human gastric tract**
 - (C) Cellulolytic bacteria in a termite gut
 - (D) Pollen-collecting bees visiting flowers
136. How does an oil immersion lens enhances the power of resolution of a microscope
- (A) Increasing the numerical aperture of the objective**
 - (B) Reducing the spherical aberrations of lens system
 - (C) Decreasing the chromatic aberration of lens system
 - (D) Preventing direct light rays from reaching the eyepiece
137. A microscopic technique which uses laser light to illuminate one plane of a specimen at a time
- (A) Phase contrast
 - (C) Confocal**
 - (B) Differential interference contrast
 - (D) Fluorescence
138. Which of the following isotopes used in biological research has the lowest half life
- (A) ^3H
 - (C) ^{32}P**
 - (B) ^{14}C
 - (D) ^{35}S
139. A circle divided in to sectors proportional to the frequency of items shown is called
- (A) Bar chart
 - (B) Pie chart**
 - (C) Histogram
 - (D) Frequency polygon
140. For a set of variables X and Y the correlation coefficient is 1.7, then there is
- (A) Strong relationship between X and Y
 - (B) Weak relationship between X and Y
 - (C) Moderate relationship between X and Y
 - (D) Wrong calculation**

141. Which of the following processes require energy?
(A) Ligation (B) Transformation
(C) Restriction digestion (D) Hybridization
142. Many scientists think RNA rather than DNA, may have been the original genetic material?
(A) Most organisms on Earth use RNA as their genetic material
(B) The simplest life forms, viruses use RNA
(C) RNA is more stable than DNA
(D) RNA has the ability to catalyze a few simple chemical reactions
143. The gynoecium in Cucurbita plant is
(A) Tricarpillary, superior (B) Bicarpellary, inferior
(C) Pentacarpellary. Mullilocular (D) Tricarpellary, inferior
144. Which family have verticillaster type of inflorescence
(A) Cucurbitaceae (B) Malvaceae
(C) Labiateae (D) Cruciferae
145. Sodium dodecyl sulphate is used while separating proteins by polyacrylamide gel electrophoresis because
(A) It helps in solubilizing the protein thereby making easy to separate
(B) It binds to proteins and makes them linear and negatively charged
(C) Decreases the surface tension of the buffer used
(D) Stabilizes the protein
146. A triple covalent bond would
(A) Involve the bonding of three atoms
(B) Involve the bonding of six atoms
(C) Produces a triangularly shaped molecule
(D) Involve the sharing of six electrons

147. Which of the following ranks the molecule in the correct order by decreasing size
(A) Water -sucrose-glucose-protein (B) Protein-water-glucose-sucrose
(C) Water-protein-sucrose-glucose (D) Protein-sucrose-glucose-water
148. A solution with a pH of 2, compared to a solution with pH 4
(A) Is twice as acidic (B) Is 100 times more acidic
(C) Is 1000 times more acidic (D) Has two times more OH⁻
149. How many molecules of oxygen are used during the glycolysis of one glucose molecule
(A) 0 (B) 1
(C) 16 (D) 38
150. Which of the following vitamins are fat soluble
(A) Vitamin A and D (B) Vitamin K and D
(C) Vitamin E and A (D) Vitamin E,D,K and A
151. Buffers are mixtures of
(A) Strong acid and strong base
(B) Strong acid and a weak base
(C) Weak acid and their conjugate base
(D) Weak acid and no base
152. Which of the following statement is correct
(A) All monosaccharaides in their hemiacetal and hemiketal form are reducing sugar
(B) Sucrose is a reducing sugar
(C) All disaccharides formed from head to tail condensation are non reducing sugars
(D) Reducing sugar do not exhibit muta rotation
153. An enzyme that catalyzes the conversion of an aldose sugar to a ketose sugar would be classified as one of the
(A) Oxidoreductases (B) Transferases
(C) Hydrolases (D) Isomerases

154. Which of the following enzyme transfers a phosphate group from ATP to another molecule?
- (A) Phosphatase (B) Phosphor diesterase
(C) Kinase (D) Esterase
155. Ribozymes are
- (A) Enzyme which uses ribose as substrate
(B) Enzyme working on DNA
(C) RNAs with enzyme's activity
(D) Enzyme-RNA complex
156. The enzyme following Michaelis-Menten kinetics show a characteristic graph when substrate concentration is plotted against velocity, the nature of graph will be
- (A) Sigmoidal (B) Parabolic
(C) Hyperbolic (D) Straight line
157. Golgi complex plays a role in
- (A) Protein synthesis
(B) Glycosylation of lipid and proteins
(C) Removal of sulfate from the carbohydrate moiety of glycolipids
(D) Formation of secondary lysosomes
158. Which of the following organelles is enclosed by a single membrane
- (A) Mitochondria (B) Nucleus
(C) Chloroplast (D) Lysosome
159. Photo oxidation of chlorophyll is prevented by
- (A) Carotenoid (B) Anthocyanin
(C) Phycobilin (D) Fucoxanthin
160. Antenna pigments transfer light energy to a reaction center
- (A) By means of process known as fluorescence,
(B) By means of process known as inductive resonance
(C) By the conduction of heat
(D) By the accumulation of heat

161. Discovery of Emerson effect showed the existence of
(A) Photorespiration
(B) Light and Dark reactions in photosynthesis
(C) Photophosphorylation
(D) Two distinct pigment systems
162. Operation of the C₂ oxidative photosynthetic cycle involves the cooperative interaction among three organelles:
(A) Mitochondria and Chloroplast
(B) Mitochondria and Peroxisomes
(C) Chloroplast, Peroxisomes and Mitochondria
(D) Chloroplast, Mitochondria and Golgi complex
163. Which of the following developmental and physiological effects of ABA is not true
(A) ABA does not Promotes Desiccation Tolerance in the Embryo
(B) ABA Promotes the Accumulation of Seed Storage Protein during embryogenesis
(C) ABA Inhibits GA-Induced Enzyme Production in seeds
(D) ABA Closes Stomata in Response to Water Stress
164. Chemiosmosis refers to the view that an ion flowing down its electrochemical gradient drives ATP synthesis. The ion in question is
(A) Phosphate (B) Sodium
(C) Hydrogen (D) Iron
165. Most of the phosphorous in the developing seeds is stored as
(A) Phosphate (B) Nucleic acid
(C) ATP (D) Phytic acid
166. A plant in which sporophytic generation is represented by zygote only
(A) Pinus (B) Selaginella
(C) Chlamydomonas (D) Dryopteris
167. Phycoerythrin is found in
(A) Ulothrix (B) Ulva
(C) Fucus (D) Polysiphonia

168. Duramen is
(A) Sapwood (B) Bark
(C) Heart wood (D) Periderm
169. Which of the following plant product is the hardest
(A) Lignin (B) Suberin
(C) Sporopollenin (D) Cellulose
170. The term wood refers to
(A) Primary xylem (B) Secondary xylem
(C) Proto xylem (D) Meta xylem
171. The two cells that flanked the egg cells are called
(A) Antipodal cells (B) Synergids
(C) Secondary nucleus (D) Micropyle
172. In orthotropus ovule, micropyle and chalaza lies
(A) Parallel to each other (B) 90° to each other
(C) In same vertical plane (D) None of the above
173. Cleistogamous flowers
(A) Never open (B) Open in day
(C) Always open (D) Few open and some remain closed
174. The aleurone layer of endosperm in monocot seed is related to
(A) Growth of endosperm
(B) Digestion of reserve food of endosperm
(C) Store the food of endosperm
(D) Formation of endosperm
175. Lichens are major pollution indicators of
(A) Mercury (B) Copper
(C) Organic pollution (D) Sulphur dioxide

176. Lichens are
(A) Fast growing, long lived (B) Fast growing short lived
(C) Slow growing short lived (D) Slow growing long lived
177. Heterospory is main character of which group of plants
(A) Pteridophytes (B) Algae
(C) Fungi (D) Bryophytes
178. Exine of the pollen grain is made up of
(A) Pectocellulose (B) Lignocellulose
(C) Sporopollenin (D) Cellulose
179. Which of the following comparisons between gymnosperms and angiosperms is not true
(A) In gymnosperms ovule is naked, while in angiosperms ovule is covered
(B) In Gymnosperms endosperm is haploid whereas in angiosperms it is triploid
(C) There is no double fertilization in gymnosperms whereas it is characteristic of angiosperms
(D) In gymnosperms companion cells are present where as in angiosperms they are absent
180. Coralloid roots are found in
(A) Gnetum (B) Cycas
(C) Pinus (D) Selaginella
181. Mature pollen grain contains two cells, first one is the vegetative cell and the second one is
(A) Tube cell (B) Synergids
(C) Generative cell (D) Male gamete
182. The edible part in litchi is
(A) Pericarp (B) Aril
(C) Mesocarp (D) Seed coat

183. Endosperm in angiosperm results after fertilization of
(A) Zygote (B) Secondary nucleus
(C) Antipodals (D) Synergids
184. Cyathium inflorescence is found in which of the following plants
(A) *Ficus* (B) *Dorstenia*
(C) *Morus* (D) *Euphorbia*
185. All of the following plants belong to Asclepiadaceae except
(A) *Gymnema sylvestree* (B) *Cryptostegia grandiflora*
(C) *Cordia dichotoma* (D) *Tylophora indica*
186. Inflorescence consisting of unisexual sessile flowers is
(A) Spike (B) Spikelet
(C) Catkin (D) Umbel
187. Apocarpous gynoecium is found in
(A) Ranunculaceae (B) Malvaceae
(C) Solanaceae (D) Lilliacae
188. The substrate for restriction enzyme is
(A) ssRNA (B) Partially dsRNA
(C) Cell wall proteins (D) dsDNA
189. DNA of a bacterium is not cleaved by its own restriction enzymes because the recognition DNA sequences are
(A) Methylated
(B) Deleted
(C) Bound by inhibitory proteins
(D) Not accessible to restriction enzymes
190. Eukaryotic genes may not function properly when cloned in to bacteria because of
(A) Destruction by native endonucleases
(B) Inability to excise introns
(C) Failure of promoter to be recognized by bacterial RNA polymerase
(D) All of the above

191. In tissue culture DMSO is used as
(A) Gelling agent (B) Alkylating agent
(C) Chelating agent (D) Cryoprotectant
192. The most commonly used chemical for protoplast fusion as fusogen is
(A) Mannitol (B) Sorbitol
(C) Mannol (D) Polyethylene glycol
193. An analysis of chromosomal DNA, using the southern blot technique, involves the following five major steps
I. Autoradiography, II. Blotting, III. Cleavage, IV. Electrophoresis,
V. Hybridization
Which of the following sequences of steps best illustrates this technique
(A) I, III, II, IV, V (B) III, V, II, IV, I
(C) I, II, III, IV, V (D) III, IV, II, V, I
194. Which of the following methods would give you the most precise and accurate information about where and when a given gene is expressed?
(A) DNA microarray
(B) In situ hybridization
(C) Reporter genes fusion including introns
(D) Protein microarray
195. Which sequence of the following is a palindromic
(A) 5'-ACGGA TTCGC-3' (B) 5'-ATG-3'
(C) 5'-CCATT-3' (D) 5'-AGGCCT-3'
196. VNTRs are a valuable tool for
(A) Forming overlapping sections in chromosomes walking
(B) Infecting plant cells with recombinant DNA
(C) Acting as probes in Northern Blotting
(D) DNA finger printing

197. Growth hormone producing apical dominance is
(A) Auxin (B) Ethylene
(C) Cytokinin (D) Gibberellin
198. Cyclic photophosphorylation produces
(A) NADPH (B) A TP and NADPH
(C) ATP, NADPH and O_2 (D) ATP
199. All of the following occurs in mitochondria except
(A) Citric acid cycle (B) Glycogenolysis
(C) Fatty acid oxidation (D) Electron transport chain
200. The primitive atmosphere of Earth may have favoured the synthesis of organic molecules because
(A) It was highly oxidative
(B) It was reducing and had energy sources in the form of lightning and UV radiation
(C) It had great deal of methane and organic fuel
(D) It had plenty of water vapour, carbon and nitrogen
201. During fossilization, the soft parts disintegrate and the gaps created in this manner are filled by mineral deposits such as silica, calcium carbonate etc, such fossils are called
(A) Petrifications (B) Embedding
(C) Cementing (D) Moulding
202. A small isolated population is more likely to undergo speciation than a large population because a small population
(A) Is more effected by genetic drift and natural selection
(B) Contains relatively more genetic diversity
(C) Is more susceptible to gene flow
(D) Has a higher mutation rate
203. Phenotypic ratio of dihybrid test cross is
(A) 15:1 (B) 3:1
(C) 9:3:3:1 (D) 1:1:1:1

204. Some alleles of characteristic may create multiple phenotypic effects, is an example of
(A) Pleiotropy (B) Anisotropy
(C) Isotropy (D) Karyotropy
205. *Datura* plants have been regenerated from anther culture, endosperm culture and embryo culture, their respective ploidy levels will be
(A) n , $2n$ and $2n$ (B) n , $3n$ and $2n$
(C) n , $2n$ and $3n$ (D) $2n$, $2n$ and $2n$
206. Mutation which do not cause any functional change in the protein are known as
(A) Non-sence mutation (B) Mis-sence mutation
(C) Backward mutation (D) Silent mutation
207. Botanical name of foxtail millet is
(A) *Pennisetum typhoides* (B) *Eleusine coracana*
(C) *Setaria italica* (D) *Panicum miliaceum*
208. Abaca (Manila hemp) fibres are obtained
(A) *Crotolaria juncea* (B) *Boehmaria nivea*
(C) *Musa textilis* (D) *Cannabis sativa*
209. An organism or a cell in which a part of the chromosome is duplicated or deficient would be considered to be:
(A) Euploid (B) Aneuploid
(C) Nulliploid (D) Mixoploid
210. Centimorgan, a unit, provides measure of
(A) Crossing over (B) Asynapsis
(C) Disjunction (D) Terminalization
211. Granular body at the base of a flagellum or cilia is named as
(A) Mesosome (B) Sphaerosome
(C) Metasome (D) Centrosome

212. Dolipore septa are found in
(A) Ascomycetes (B) Basidiomycetes
(C) Zygomycetes (D) Oomycetes
213. Which one of the following is equivalent/synonym of abaxial?
(A) Dorsal (B) Ventral
(C) Dorsi-ventral (D) Radial
214. A recessive mutation is one which
(A) Is not expressed
(B) Is expressed only when heterozygous
(C) Is expressed only when homozygous or hemizygous
(D) Is eliminated by natural selection
215. The Ames test is mass screening approach used for the detection of
(A) Toxins (B) Mutagenic carcinogens
(C) Lactose intolerance (D) Phenylketonuria
216. Space between cell wall and plasma membrane in a plasmolysed cell is occupied by
(A) Pure water (B) Air
(C) Cell sap (D) Plasmolysing solution
217. Which hormone has anti-ageing effects
(A) Gibberellins (B) Cytokinins
(C) Auxins (D) Ethylene
218. Bioassay for gibberellins is
(A) Avena coleoptiles test
(B) Alpha amylase induction in cereal endosperm
(C) Callus formation in tobacco from pith tissue
(D) Formation of abscission layer in cotton
219. Late blight of potato is caused by
(A) *Alternaria solani* (B) *Xanthomonas campestris*
(C) *Phytophthora infestans* (D) *Synchytrium endobioticum*

220. Loose smut of wheat is a disease known as
(A) Internally seed born (B) Externally seed born
(C) Soil born (D) Airborn
221. Plant overgrowth is due to the increase in size of cell of the tissue
(A) Hypoplasia (B) Hypertrophy
(C) Hyperplasia (D) All of the above
222. Which part of a plant cell is thought to aid plants in sensing gravity in their roots
(A) Amyloplasts (B) Chloroplasts
(C) Nucleus (D) Mitochondria
223. On the basis of the opening and closing of the stomata Loftfield classified in to different categories, according to his classification if the stomata remain open throughout the day and closed all night which of the following type it is
(A) Potato type (B) Alfa alfa type
(C) Barley type (D) Equisetum type
224. Which of the following is an incorrect match of essential element and function
(A) Manganese-structural component of chlorophyll
(B) Calcium- component of the middle lamella
(C) Zinc- enzyme activator
(D) Iron-component of ferredoxin
225. Legume root nodules contain leghemoglobin. Its function is to regulate
(A) Expression of nif genes
(B) Dinitrogenase activity
(C) Oxygen supply
(D) Nodule growth
226. How many ATP are required for the conversion of one N_2 to $2NH_4^+$ during biological nitrogen fixation
(A) 8ATP (B) 10 ATP
(C) 12 ATP (D) 16ATP

227. Carnivorous adaptations of plants mainly compensate for soil that has relatively low content of
- (A) Potassium (B) Nitrogen
(C) Phosphate (D) Calcium
228. Which of the following is not related to cytokinin
- (A) Promotes apical dominance
(B) Promotes chloroplast maturation
(C) Promote nutrient mobilization
(D) Cause Richmond-Land effect
229. Which of the following statements are true for smooth endoplasmic reticulum
- (A) It is made up of single lipid layer membrane structure
(B) It is involved in protein synthesis
(C) It is involved in lipid biosynthesis
(D) Both Band C
230. Evidence that mitochondria and chloroplast originated from an endosymbiotic relationship between aerobic bacteria and eukaryotic cell is supported by the following except
- (A) Mitochondria and chloroplast now do not depend on their host to synthesize most of their components
(B) Antibiotics such as streptomycin block the synthesis of proteins in eubacteria, mitochondria and chloroplast but not cytoplasmic protein synthesis in eukaryotes
(C) DNA is not packaged with histones
(D) Chemically distinct membrane systems as compared to other organelles
231. Plants have a unique pathway to convert fatty acids to sugars which is lacking in animals
- (A) Glycolate cycle (B) Glycolic acid cycle
(C) Glyoxylate cycle (D) HMP pathway

232. Choose the mismatch of organelle and their marker enzymes
(A) Lysosomes - acid phosphatase
(B) Peroxisomes - catalase
(C) Mitochondria - cytochrome oxidase
(D) SER - amino acid permease
233. Any DNA molecule that has the ability to replicate autonomously is called
(A) Plasmid (B) Chromosome
(C) Genome (D) Replicon
234. Satellite DNA refers to
(A) Extra chromosomal DNA fragments that are found close to full length chromosomes
(B) Mitochondrial DNA, which is circular in nature
(C) Long tandem repeats of simple DNA sequences
(D) Mobile DNA elements such as transposons and insertion sequences
235. Alternate splicing means that
(A) The same gene can code for several different proteins
(B) Several different genes can code for the same protein
(C) Gene expression can be regulated at the level of transcription
(D) Pieces of DNA can move around within the genome
236. Which of the following amino acids has the greatest number of codons
(A) Proline (B) Leucine
(C) Tryptophan (D) Aspartic acid
237. What is the most common approach for the determination of precise 3-D structure of globular proteins
(A) Circular dichroism (B) Mass spectrometry
(C) Infrared spectroscopy (D) X-ray diffraction
238. Cleistogamy is commonly seen in
(A) Ficus (B) Commelina
(C) Anthocephalus (D) Vallisnaria

239. If the pollen tube enters the ovule through the micropyle it is known as
(A) Mesogamy (B) Porogamy
(C) Chalazogamy (D) Cleistogamy
240. Which of the following type of endosperm is common in monocot?
(A) Helobial (B) Cellular
(C) Nuclear (D) Multinucleated
241. Fungi without mycelium is
(A) Puccinia (B) Phytophthora
(C) Rhizopus (D) Saccharomyces
242. Which algal group is mismatched with its descriptions
(A) Dinoflagellates - glassy, two part shells
(B) Green algae - closest relative to land plants
(C) Red algae - no flagellated stage in life cycle
(D) Brown algae - include the largest seaweeds
243. What would be the number of chromosomes in the aleurone cells of a plant with 42 chromosomes in the root tip cells?
(A) 21 (B) 42
(C) 63 (D) 84
244. What percentage of the incident solar energy do plants typically harvest during photosynthesis
(A) 1-2% (B) 5-10%
(C) 10-20% (D) 20-25%
245. The transfer of energy through a terrestrial ecosystem is often depicted by energy pyramids. Which one of the following statement is true.
(A) Ecological efficiency is highest for top consumers
(B) About 10% of the energy from one trophic level is incorporated into the biomass of the next level
(C) The energy lost as the heat in respiration is 10% of the available energy of each trophic level.
(D) Only 25% of energy in one trophic level is passed on to the next level.

246. Clamp connections are found in
(A) Basidiomycetes (B) Ascomycetes
(C) Saccharomycetes (D) Haplomycetes
247. Which of the following does not belong to Bryopsida
(A) Spahgnum (B) Porella
(C) Funaria (D) Polytrichum
248. The key criteria for determining a hot spot are
(A) Biological augumnetation
(B) Disruption of interaction networks
(C) Number of endemic species and degree of threat
(D) Habitat destruction
249. Seedless water melon is
(A) Hexaploid (B) Tetraploid
(C) Triplod (D) Pentaploid
250. The reason why some mutations which are harmful do not get eliminated from gene pool is that
(A) They have future survival value
(B) They are recessive and carried by heterozygous individuals
(C) They are dominant and show up more frequently
(D) Genetic drift occurs because of a small population
251. Which of the following is not a part of methods of hybridization
(A) Bagging (B) Tagging
(C) Emasculation (D) PCR
252. The following are the sequence alignment tools except
(A) Chime (B) BLAST
(C) FASTA (D) ClustalW
253. If AUG codon is used as a starting codon then it codes for
(A) Valine (B) Cysteine
(C) Methionine (D) Leucine

254. The term suicide bag is applicable to a class of cell organelle called
(A) Golgi apparatus (B) Lysosomes
(C) Microsomes (D) Peroxisomes
255. The technique that counts and identifies cells and chromosomes is
(A) Electrophoresis (B) Flow cytometry
(C) X ray diffraction (D) X ray crystallography
256. A system of classification, which takes in to account all noticeable characters in nature is
(A) Phylogenetic system (B) Natural system
(C) Artificial system (D) Cytotaxonomy
257. Didynamous stamens means
(A) 10 stamens arranged in two bundles (9+ 1)
(B) 4 stamens-two large and two small
(C) 6 stamens in two bundles (4+2)
(D) 2 stamens fused together
258. Which kind of fruit is pumpkin
(A) Hesperidium (B) Pome
(C) Pepo (D) Drupe
259. 'Golden rice' is a promising crop developed by metabolic engineering, it is aimed to help in
(A) Herbicide resistance
(B) Pest resistance
(C) Alleviation of vitamin A deficiency
(D) Producing a petrol like fuel from rice
260. The fungal pathogen of rice in which gibberllins were originally identified is
(A) *Giberella stillboides* (B) *Giberella pulicaris*
(C) *Giberellafujikorai* (D) *Giberella acuminata*

261. Central drug research institute is located at
(A) Jammu (B) Hyderabad
(C) Bangalore (D) Lucknow
262. Essential element for the synthesis of auxins is
(A) Sulphur (B) Nitrogen
(C) Zinc (D) Potassium
263. All eukaryotes have three distinct classes of RNA polymerases. The polymerase which is located in the nucleolus and which is responsible for the transcription of ribosomal RNA is
(A) Polymerase I (B) Polymerase II
(C) Polymerase III (D) Polyamylase II
264. Movement of hairs in *Drosera* is
(A) Seismonastic (B) Thermonastic
(C) Photonastic (D) Thigmonastic
265. A type of transport in which a membrane protein transports two different molecules or ions across the cell membrane in opposite direction is
(A) Synport (B) Anteport
(C) Antiport (D) Biport
266. The amount of DNA in microspore mother cell (MMC) of a plant is 2C. What would be the amount of DNA in each cell of dyads and tetrads?
(A) 1C and 2C, respectively (B) 2C and 1C, respectively
(C) 1C in both (D) 2C in both
267. Stomata that are surrounded by three subsidiary cells of which one is distinctively smaller than the other two are termed as
(A) Anisocytic (B) Anomocytic
(C) Actinocytic (D) Paraecytic
268. In which of the following groups of algae motile cells are totally absent?
(A) Xanthophyceae (B) Rhodophyceae
(C) Rapidophyceae (D) Chrysophyceae

269. During DNA replication Okazaki fragments are formed
(A) in the lagging strand that is synthesized in 3' to 5' direction.
(B) in the lagging strand that is synthesized in 5' to 3' direction.
(C) in the leading strand that is synthesized in 3' to 5' direction.
(D) in the leading strand that is synthesized in 5' to 3' direction.
270. Spread of cancer cells from their site of origin and establishment of secondary growth is known as:
(A) Epistasis (B) Hypostasis
(C) Metastasis (D) Parastasis
271. According to ABC model of floral development in *Arabidopsis thaliana*
(A) sepals are expressed by the activity of A gene, petals by combination A and B activities, stamens by combination of B and C activities, and carpels by the activity of C alone.
(B) sepals are expressed by the activity of A and B genes, petals by the activity of B, stamens by combination of B and C activities, and carpels by the activity of C alone.
(C) sepals are expressed by the activity of A gene, petals by combination A and B activities, stamens and carpels by combination of B and C activities.
(D) sepals are expressed by the activity of A gene, petals by combination A and B activities, stamens by combination of B activity, and carpels by the combination of the activities of B and C.
272. The term 'Actinodromous' refers to a type of
(A) Leaf venation (B) Phyllotaxy
(C) Morphotype (D) Aestivation
273. Crozier-type of leaves are found in
(A) grasses (B) mosses
(C) leafy liverworts (D) ferns

274. The condition where sepals, petals and stamens are attached at middle of the ovary is
(A) Epigynous (B) Epihypogynous
(C) Epiperigynous (D) Hypogynous
275. The equivalent of endosperm in gymnosperms is
(A) Haploid (B) Diploid
(C) Triploid (D) Hexaploid
276. The dilute acids present in acid rains are mainly
(A) sulfuric acid and nitric acid
(B) phosphoric acid and hydrochloric acid
(C) acetic acid and phosphoric acid
(D) carboxylic acid and sulfuring acid
277. The part of environment of Earth in which living organisms exist is known as
(A) Biome (B) Biosphere
(C) Biogeosphere (D) Noosphere
278. The study of all aspects of soil is known as
(A) Pedagogy (B) Pedology
(C) Penology (D) Edaphology
279. Genetic code is said to be degenerate because
(A) same codon can code for more than one amino acid.
(B) some amino acids are coded by more than one codon.
(C) some codons do not code for any amino acid.
(D) some codons code for different amino acids in different organisms.
280. A parasite that is closely related to the host is known as
(A) Adelphoparasite (B) Adjunctoparasite
(C) Clannoparasite (D) Bromatic parasite
281. The organisms referred to as mycoplasma are
(A) Eubacteria (B) Archaeobacteria
(C) Cyanobacteria (D) Mycobacteria

282. In the embryo sue of angiosperms Filiform apparatus is present in
(A) Egg cell (B) Antipodal cells
(C) Synergids (D) Central cells
283. Symplastic movement of water in plants does not occur through
(A) Plasmodesmata (B) B- Cytoplasm
(C) Cell walls (D) Plasma membrane
284. Water potential of plant cell is its
(A) Solute potential + pressure potential + matrix potential
(B) (Solute potential + pressure potential) - matrix potential
(C) (Solute potential + matrix potential) - pressure potential
(D) (Matrix potential + pressure potential) - solute potential
285. Which of the following is not an accessory pigment for photosynthesis?
(A) Carotene (B) Xanthophyll
(C) Anthocyanin (D) Phycobilin
286. Chronobiology deals with
(A) History of Biology
(B) Biological clocks
(C) Origin and evolution of life
(D) Biological processes with time-lapse photography
287. The fungal toxin that induces acidification of plant cell walls by activating an H^+ ATPase in the plasma membrane is
(A) Aflotoxin (B) Fusicoccin
(C) Fumonisin (D) Ochratoxin
288. How many chains are there in most immunoglobulins?
(A) 2 (B) 3
(C) 4 (D) 8
289. One picomole is equivalent to
(A) $10^{-9}M$ (B) $10^{-12}M$
(C) $10^{-15}M$ (D) $10^{-23}M$

290. Coomassie blue is used for staining
(A) Nucleic acids (B) Carbohydrates
(C) Proteins (D) Lipids
291. In its external morphology appearance of *Ephedra* resembles
(A) Chara (B) Fritschiella
(C) Polysiphonia (D) Equisetum
292. Pollen of Ginkgo is shed at
(A) One-celled stage (B) Two-celled stage
(C) Three-celled stage (D) Four-celled stage
293. Haplostele is found in
(A) Rhynia (B) Lycopodium
(C) Club mosses (D) Ferns
294. Number of linkage groups in human beings is
(A) 46 (B) 44
(C) 23 (D) 22
295. Central dogma of biochemistry/ molecular biology was modified because of the discovery of
(A) Reverse transcriptase (B) Topoisomerase II
(C) C- Prions (D) Viroids
296. Oenothera-type embryo sac- is
(A) bisporic and four nucleate (B) monosporic and four nucleate
(C) bisporic and eight nucleate (D) monosporic and eight nucleate
297. The system of classification that divides dicots into two groups, lignosae and herbaceae, was proposed by
(A) Bentham and Hooker (B) Engler and Prantl
(C) Hutchinson (D) Thakhtajan

- 298.** Roots are not present in members of
(A) Psilophyta (B) Lycophyta
(C) Sphenophyta (D) Pterophyta
- 299.** Phytoalexins are produced by some plants in response to infection, chemically they are
(A) Triterpenoids (B) Isoflavonoids
(C) Alkaloids (D) Tannins
- 300.** Genetically engineered male sterile crop plants may be produced by inserting
(A) BT toxin gene (B) Barnase gene
(C) Lectin gene (D) Chitinase gene