

- 94.** Which of the following statements is wrong for viroids?
- (1) They lack a protein coat
 - (2) They are smaller than viruses
 - (3) They cause infections
 - (4) Their RNA is of high molecular weight
- 95.** Which of the following features is not present in the Phylum-Arthropoda?
- (1) Chitinous exoskeleton
 - (2) Metameric segmentation
 - (3) Parapodia
 - (4) Jointed appendages
- 96.** Which of the following most appropriately describes haemophilia?
- (1) Recessive gene disorder
 - (2) X-linked recessive gene disorder
 - (3) Chromosomal disorder
 - (4) Dominant gene disorder
- 97.** Emerson's enhancement effect and Red drop have been instrumental in the discovery of:
- (1) Photophosphorylation and non-cyclic electron transport
 - (2) Two photosystems operating simultaneously
 - (3) Photophosphorylation and cyclic electron transport
 - (4) Oxidative phosphorylation
- 98.** In which of the following, all three are macronutrients?
- (1) Boron, zinc, manganese
 - (2) Iron, copper, molybdenum
 - (3) Molybdenum, magnesium, manganese
 - (4) Nitrogen, nickel, phosphorus
- 99.** Name the chronic respiratory disorder caused mainly by cigarette smoking:
- (1) Emphysema
 - (2) Asthma
 - (3) Respiratory acidosis
 - (4) Respiratory alkalosis
- 100.** A system of rotating crops with legume or grass pasture to improve soil structure and fertility is called:
- (1) Ley farming
 - (2) Contour farming
 - (3) Strip farming
 - (4) Shifting agriculture

- 101.** Mitochondria and chloroplast are:
- semi-autonomous organelles.
 - formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery.
- Which one of the following options is correct?
- Both (a) and (b) are correct.
 - (b) is true but (a) is false.
 - (a) is true but (b) is false.
 - Both (a) and (b) are false.
- 102.** In context of Amniocentesis, which of the following statement is incorrect?
- It is usually done when a woman is between 14 - 16 weeks pregnant.
 - It is used for prenatal sex determination.
 - It can be used for detection of Down syndrome.
 - It can be used for detection of Cleft palate.
- 103.** In a chloroplast the highest number of protons are found in 2
- Stroma
 - Lumen of thylakoids
 - Inter membrane space
 - Antennae complex
- 104.** Photosensitive compound in human eye is made up of :
- Guanosine and Retinol
 - Opsin and Retinal
 - Opsin and Retinol
 - Transducin and Retinene
- 105.** Spindle fibres attach on to:
- Telomere of the chromosome
 - Kinetochores of the chromosome
 - Centromere of the chromosome
 - Kinetosome of the chromosome
- 106.** Which is the National Aquatic Animal of India?
- Gangetic shark
 - River dolphin
 - Blue whale
 - Sea - horse

- 107.** Which of the following is required as inducer(s) for the expression of Lac operon?
- (1) glucose
 - (2) galactose
 - (3) lactose
 - (4) lactose and galactose
- 108.** Which of the following pairs of hormones are not antagonistic (having opposite effects) to each other?
- (1) Parathormone - Calcitonin
 - (2) Insulin - Glucagon
 - (3) Aldosterone - Atrial Natriuretic Factor
 - (4) Relaxin - Inhibin
- 109.** Microtubules are the constituents of:
- (1) Cilia, Flagella and Peroxisomes
 - (2) Spindle fibres, Centrioles and Cilia
 - (3) Centrioles, Spindle fibres and Chromatin
 - (4) Centrosome, Nucleosome and Centrioles
- 110.** A complex of ribosomes attached to a single strand of RNA is known as:
- (1) Polysome
 - (2) Polymer
 - (3) Polypeptide
 - (4) Okazaki fragment
- 111.** Fertilization in humans is practically feasible only if:
- (1) the sperms are transported into vagina just after the release of ovum in fallopian tube.
 - (2) the ovum and sperms are transported simultaneously to ampullary - isthmic junction of the fallopian tube.
 - (3) the ovum and sperms are transported simultaneously to ampullary - isthmic junction of the cervix.
 - (4) the sperms are transported into cervix within 48 hrs of release of ovum in uterus.
- 112.** Asthma may be attributed to:
- (1) bacterial infection of the lungs
 - (2) allergic reaction of the mast cells in the lungs
 - (3) inflammation of the trachea
 - (4) accumulation of fluid in the lungs

- 113.** The Avena curvature is used for bioassay of:
- (1) ABA
 - (2) GA₃
 - (3) IAA
 - (4) Ethylene
- 114.** The standard petal of a papilionaceous corolla is also called:
- (1) Carina
 - (2) Pappus
 - (3) Vexillum
 - (4) Corona
- 115.** Tricarpellary, syncarpous gynoecium is found in flowers of:
- (1) Liliaceae
 - (2) Solanaceae
 - (3) Fabaceae
 - (4) Poaceae
- 116.** One of the major components of cell wall of most fungi is :
- (1) Chitin
 - (2) Peptidoglycan
 - (3) Cellulose
 - (4) Hemicellulose
- 117.** Select the incorrect statement :
- (1) FSH stimulates the sertoli cells which help in spermiogenesis.
 - (2) LH triggers ovulation in ovary.
 - (3) LH and FSH decrease gradually during the follicular phase.
 - (4) LH triggers secretion of androgens from the Leydig cells.
- 118.** In meiosis crossing over is initiated at:
- (1) Pachytene
 - (2) Leptotene
 - (3) Zygotene
 - (4) Diplotene
- 119.** A tall true breeding garden pea plant is crossed with a dwarf true breeding garden pea plant. When the F₁ plants were selfed the resulting genotypes were in the ratio of:
- (1) 1 : 2 : 1 :: Tall homozygous : Tall heterozygous : Dwarf
 - (2) 1 : 2 : 1 :: Tall heterozygous : Tall homozygous : Dwarf
 - (3) 3 : 1 :: Tall : Dwarf
 - (4) 3 : 1 :: Dwarf : Tall

- 120.** Which of the following is the most important cause of animals and plants being driven to extinction?
- (1) Over - exploitation
 - (2) Alien species invasion
 - (3) Habitat loss and fragmentation
 - (4) Co-extinctions
- 121.** Which one of the following is a characteristic feature of cropland ecosystem?
- (1) Absence of soil organisms
 - (2) Least genetic diversity
 - (3) Absence of weeds
 - (4) Ecological succession
- 122.** Changes in GnRH pulse frequency in females is controlled by circulating levels of:
- (1) estrogen and progesterone
 - (2) estrogen and inhibin
 - (3) progesterone only
 - (4) progesterone and inhibin
- 123.** Which of the following is not a feature of the plasmids?
- (1) Independent replication
 - (2) Circular structure
 - (3) Transferable
 - (4) Single-stranded
- 124.** Which of the following features is not present in *Periplaneta americana*?
- (1) Schizocoelom as body cavity
 - (2) Indeterminate and radial cleavage during embryonic development
 - (3) Exoskeleton composed of N-acetylglucosamine
 - (4) Metamerically segmented body
- 125.** In higher vertebrates, the immune system can distinguish self-cells and non-self. If this property is lost due to genetic abnormality and it attacks self-cells, then it leads to:
- (1) Allergic response
 - (2) Graft rejection
 - (3) Auto-immune disease
 - (4) Active immunity

126. Match the terms in Column 1 with their description in Column II and choose the correct option:

Column I	Column II
(a) Dominance	(i) Many genes govern a single character
(b) Codominance	(ii) In a heterozygous organism only one allele expresses itself
(c) Pleiotropy	(iii) In a heterozygous organism both alleles express themselves fully
(d) Polygenic inheritance	(iv) A single gene influences many characters
(a) (b) (c) (d)	
(1)(ii) (i) (iv) (iii)	
(2)(ii) (iii) (iv) (i)	
(3)(iv) (i) (ii) (iii)	
(4)(iv) (iii) (i) (ii)	

127. Joint Forest Management Concept was introduced in India during:

- (1) 1960s
- (2) 1970s
- (3) 1980s
- (4) 1990s

128. Pick out the correct statements:

- (a) Haemophilia is a sex-linked recessive disease.
- (b) Down's syndrome is due to aneuploidy.
- (c) Phenylketonuria is an autosomal recessive gene disorder.
- (d) Sickle cell anaemia is an X-linked recessive gene disorder.

- (1) (a) and (d) are correct.
- (2) (b) and (d) are correct.
- (3) (a), (c) and (d) are correct.
- (4) (a), (b) and (c) are correct.

129. Which one of the following statements is wrong?

- (1) Cyanobacteria are also called blue-green algae.
- (2) Golden algae are also called desmids.
- (3) Eubacteria are also called false bacteria.
- (4) Phycomycetes are also called algal fungi.

130. Proximal end of the filament of stamen is attached to the:

- (1) Anther
- (2) Connective
- (3) Placenta
- (4) Thalamus or petal

131. Which of the following approaches does not give the defined action of contraceptive?

(1)	Barrier methods	prevent fertilization
(2)	Intra uterine devices	increase phagocytosis of sperms, suppress sperm motility and fertilizing capacity of sperms
(3)	Hormonal contraceptives	Prevent/ retard entry of sperms, prevent ovulation and fertilization
(4)	Vasectomy	prevents spermatogenesis

132. The taq polymerase enzyme is obtained from:

- (1) *Thermus aquaticus*
- (2) *Thiobacillus ferrooxidans*
- (3) *Bacillus subtilis*
- (4) *Pseudomonas putida*

133. Identify the correct statement on 'inhibin':

- (1) Inhibits the secretion of LH, FSH and Prolactin.
- (2) Is produced by granulosa cells in ovary and inhibits the secretion of FSH.
- (3) Is produced by granulosa cells in ovary and inhibits the secretion of LH.
- (4) Is produced by nurse cells in testes and inhibits the secretion of LH.

134. Which part of the tobacco plant is infected by *Meloidogyne incognita*?

- (1) Flower
- (2) Leaf
- (3) Stem
- (4) Root

135. Antivenom injection contains preformed antibodies while polio drops that are administered into the body contain:

- (1) Activated pathogens
- (2) Harvested antibodies
- (3) Gamma globulin
- (4) Attenuated pathogens

136. Which one of the following cell organelles is enclosed by a single membrane?

- (1) Mitochondria
- (2) Chloroplasts
- (3) Lysosomes
- (4) Nuclei

- 137.** Lack of relaxation between successive stimuli in sustained muscle contraction is known as:
- (1) Spasm
 - (2) Fatigue
 - (3) Tetanus
 - (4) Tonus
- 138.** Which of the following is not a stem modification?
- (1) Pitcher of *Nepenthes*
 - (2) Thorns of citrus
 - (3) Tendrils of cucumber
 - (4) Flattened structures of *Opuntia*
- 139.** Water soluble pigments found in plant cell vacuoles are:
- (1) Xanthophylls
 - (2) Chlorophylls
 - (3) Carotenoids
 - (4) Anthocyanins
- 140.** Select the correct statement:
- (1) Gymnosperms are both homosporous and heterosporous
 - (2) *Salvinia*, *Ginkgo* and *Pinus* all are gymnosperms
 - (3) *Sequoia* is one of the tallest trees
 - (4) The leaves of gymnosperms are not well adapted to extremes of climate
- 141.** Which of the following is not required for any of the techniques of DNA fingerprinting available at present?
- (1) Polymerase chain reaction
 - (2) Zinc finger analysis
 - (3) Restriction enzymes
 - (4) DNA-DNA hybridization
- 142.** Which type of tissue correctly matches with its location?

Tissue	Location
(1) Smooth muscle	Wall of intestine
(2) Areolar tissue	Tendons
(3) Transitional epithelium	Tip of nose
(4) Cuboidal epithelium	Lining of stomach

- 143.** A plant in your garden avoids photorespiratory losses, has improved water use efficiency, shows high rates of photosynthesis at high temperatures and has improved efficiency of nitrogen utilisation. In which of the following physiological groups would you assign this plant?
- (1) C₃
 - (2) C₄
 - (3) CAM
 - (4) Nitrogen fixer
- 144.** Which of the following structures is homologous to the wing of a bird?
- (1) Dorsal fin of a Shark
 - (2) Wing of a Moth
 - (3) Hind limb of Rabbit
 - (4) Flipper of Whale
- 145.** Which of the following characteristic features always holds true for the corresponding group of animals?

(1)	Cartilaginous endoskeleton	Chondrichthyes
(2)	Viviparous	Mammalia
(3)	Possess a mouth with an upper and a lower jaw	Chordata
(4)	3-chambered heart with one incompletely divided ventricle	Reptilia

- 146.** Which of the following statements is not true for cancer cells in relation to mutations?
- (1) Mutations in proto-oncogenes accelerate the cell cycle.
 - (2) Mutations destroy telomerase inhibitor.
 - (3) Mutations inactivate the cell control.
 - (4) Mutations inhibit production of telomerase.
- 147.** The amino acid Tryptophan is the precursor for the synthesis of :
- (1) Melatonin and Serotonin
 - (2) Thyroxine and Triiodothyronine
 - (3) Estrogen and Progesterone
 - (4) Cortisol and Cortisone

- 148.** Following are the two statements regarding the origin of life :
- The earliest organisms that appeared on the earth were non-green and presumably anaerobes.
 - The first autotrophic organisms were the chemoautotrophs that never released oxygen.
- Of the above statements which one of the following options is correct?
- (a) is correct but (b) is false.
 - (b) is correct but (a) is false.
 - Both (a) and (b) are correct.
 - Both (a) and (b) are false.
- 149.** Reduction in pH of blood will:
- reduce the rate of heart beat.
 - reduce the blood supply to the brain.
 - decrease the affinity of hemoglobin with oxygen.
 - release bicarbonate ions by the liver.
- 150.** Analogous structures are a result of:
- Divergent evolution
 - Convergent evolution
 - Shared ancestry
 - Stabilizing selection
- 151.** Which of the following is a restriction endonuclease?
- Hind II
 - Protease
 - DNase I
 - RNase
- 152.** The term ecosystem was coined by:
- E.P'. Odum
 - A.G. Tansley
 - E. Haeckel
 - E. Warming
- 153.** Which one of the following statements is wrong?
- Sucrose is a disaccharide.
 - Cellulose is a polysaccharide.
 - Uracil is a pyrimidine.
 - Glycine is a sulphur containing amino acid.
- 154.** In bryophytes and pteridophytes, transport of male gametes requires:
- Wind
 - Insects
 - Birds

(4) Water

155. When does the growth rate of a population following the logistic model equal zero? The logistic model is given as $dN/dt = rN(1-N/K)$:

- (1) when N/K is exactly one.
- (2) when N nears the carrying capacity of the habitat.
- (3) when N/K equals zero.
- (4) when death rate is greater than birth rate.

156. Which one of the following statements is not true?

- (1) Tapetum helps in the dehiscence of anther
- (2) Exine of pollen grains is made up of sporopollenin
- (3) Pollen grains of many species cause severe allergies
- (4) Stored pollen in liquid nitrogen can be used in the crop breeding programmes

157. Which of the following would appear as the pioneer organisms on bare rocks?

- (1) Lichens
- (2) Liverworts
- (3) Mosses
- (4) Green algae

158. Which one of the following is the starter codon?

- (1) AUG
- (2) UGA
- (3) UAA
- (4) UAG

159. Which one of the following characteristics is not shared by birds and mammals?

- (1) Ossified endoskeleton
- (2) Breathing using lungs
- (3) Viviparity
- (4) Warm blooded nature

160. Nomenclature is governed by certain universal rules.

Which one of the following is contrary to the rules of nomenclature?

- (1) Biological names can be written in any language
- (2) The first word in a biological name represents the genus name, and the second is a specific epithet
- (3) The names are written in Latin and are italicised
- (4) When written by hand, the names are to be underlined

- 161.** Blood pressure in the pulmonary artery is:
- (1) same as that in the aorta.
 - (2) more than that in the carotid.
 - (3) more than that in the pulmonary vein.
 - (4) less than that in the venae cavae.
- 162.** Cotyledon of maize grain is called:
- (1) plumule
 - (2) coleorhiza
 - (3) coleoptile
 - (4) scutellum
- 163.** In the stomach, gastric acid is secreted by the :
- (1) gastrin secreting cells
 - (2) parietal cells
 - (3) peptic cells
 - (4) acidic cells
- 164.** Depletion of which gas in the atmosphere can lead to an increased incidence of skin cancers:
- (1) Nitrous oxide
 - (2) Ozone
 - (3) Ammonia
 - (4) Methane
- 165.** Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom:
- (1) Monera
 - (2) Protista
 - (3) Fungi
 - (4) Animalia
- 166.** Water vapour comes out from the plant leaf through the stomatal opening. Through the same stomatal opening carbon dioxide diffuses into the plant during photosynthesis. Reason out the above statements using one of following options:
- (1) Both processes cannot happen simultaneously.
 - (2) Both processes can happen together because the diffusion coefficient of water and CO_2 is different.
 - (3) The above processes happen only during night time.
 - (4) One process occurs during day time, and the other at night.
- 167.** In mammals, which blood vessel would normally carry largest amount of urea?
- (1) Renal Vein

- (2) Dorsal Aorta
- (3) Hepatic Vein
- (4) Hepatic Portal Vein

168. Seed formation without fertilization in flowering plants involves the process of:

- (1) Sporulation
- (2) Budding
- (3) Somatic hybridization
- (4) Apomixis

169. Which of the following is wrongly matched in the given table?

	Microbe	Product	Application
(1)	<i>Trichoderma polysporum</i>	Cyclosporin A	Immunosuppressive drug
(2)	<i>Monascus purpureus</i>	Statins	Lowering blood cholesterol
(3)	<i>Streptococcus</i>	Streptokinase	Removal of clot from blood vessel
(4)	<i>Clostridium butylicum</i>	Lipase	Removal of oil stains

170. In a testcross involving F_1 dihybrid flies, more parental-type offspring were produced than the recombinant-type offspring. This indicates:

- (1) The two genes are located on two different chromosomes.
- (2) Chromosomes failed to separate during meiosis.
- (3) The two genes are linked and present on the same chromosome.
- (4) Both of the characters are controlled by more than one gene.

171. It is much easier for a small animal to run uphill than for a large animal, because:

- (1) It is easier to carry a small body weight
- (2) Smaller animals have a higher metabolic rate
- (3) Small animals have a lower O_2 requirement
- (4) The efficiency of muscles in large animals is less than in the small animals.

172. Which of the following is not a characteristic feature during mitosis in somatic cells?

- (1) Spindle fibres
- (2) Disappearance of nucleolus
- (3) Chromosome movement
- (4) Synapsis

- 173.** Which of the following statements is **not** correct?
- (1) pollen grains of many species can germinate on the stigma of a flower, but only one pollen tube of the same species grows into the style.
 - (2) Insects that consume pollen or nectar without bringing about pollination are called pollen/nectar robbers.
 - (3) Pollen germination and pollen tube growth are regulated by chemical components of pollen interacting with those of the pistil.
 - (4) Some reptiles have also been reported as pollinators in some plant species.
- 174.** Specilised epidermal cells surrounding the guard cells are called:
- (1) Complementary cells
 - (2) Subsidiary cells
 - (3) Bulliform cells
 - (4) Lenticels
- 175.** Which of the following guards the opening of hepatopancreatic duct into the duodenum?
- (1) Semilunar valve
 - (2) Ileocaecal valve
 - (3) Pyloric sphincter
 - (4) Sphincter of Oddi
- 176.** Stems modified into flat green organs performing the functions of leaves are known as:
- (1) Cladodes
 - (2) Phyllodes
 - (3) Phylloclades
 - (4) Scales
- 177.** The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the:
- (1) Halophiles
 - (2) Thermoacidophiles
 - (3) Methanogens
 - (4) Eubacteria
- 178.** A river with an inflow of domestic sewage rich in organic waste may result in:
- (1) Drying of the river very soon due to algal bloom.
 - (2) Increased population of aquatic food web organisms.
 - (3) An increased production of fish due to biodegradable nutrients.
 - (4) Death of fish due to lack of oxygen.

- 179.** A cell at telophase stage is observed by a student in a plant brought from the field. He tells his teacher that this cell is not like other cells at telophase stage. There is no formation of cell plate and thus the cell is containing more number of chromosomes as compared to other dividing cells. This would result in:
- (1) Aneuploidy
 - (2) Polyploidy
 - (3) Somaclonal variation
 - (4) Polyteny
- 180.** A typical fat molecule is made up of:
- (1) Three glycerol molecules and one fatty acid molecule
 - (2) One glycerol and three fatty acid molecules
 - (3) One glycerol and one fatty acid molecule
 - (4) Three glycerol and three fatty acid molecules