

**DR. ABHANG PRABHU'S TUTORIALS**

NEET : 2013 (SOLUTION)

Time: 90 Minutes.

Max. Marks: 360

Note:

- * Every correct answer (+4 Mark)
- * Every wrong answer (-1 Mark)

91. Which one of the following is not a correctly statement?
- 1) Botanical gardens have collection of living plants for reference
 - 2) **A museum has collection of photographs of plants and animals**
 - 3) Key is taxonomic acid for identification of specimens.
 - 4) Herbarium houses dried, pressed and preserved plant specimens.
92. Which of the following are likely to be present in deep sea water?
- 1) Eubacteria
 - 2) Blue-green algae
 - 3) Saprophytic fungi
 - 4) **Archaeobacteria**
93. Besides paddy fields cyanobacteria are also found inside vegetative part of:
- 1) **Cycas**
 - 2) Equisetum
 - 3) Psilotum
 - 4) Pinus
94. Isogamous condition with non-flagellated gametes is found in:
- 1) **Spirogyra**
 - 2) Volvox
 - 3) Fucus
 - 4) Chlamydomonas
95. Read the following statements (A-E) and answer the question which follows them.
1. In liverworts, mosses and ferns gametophytes are free-living
 2. Gymnosperms and some ferns are heterosporous
 3. Sexual reproduction in Fucus, Volvox and Albugo is oogamous
 4. The sporophyte in liverworts is more elaborate than that in mosses
 5. Both, Pinus and Marchantia are dioecious
- How many of the above statements are correct?
- 1) Two
 - 2) **Three**
 - 3) Four
 - 4) One

96. Which of the following is not correctly matched for the organism and its cell wall degrading enzyme?
- 1) Plant cells-Cellulase
 - 2) **Algae – Methylase**
 - 3) Fungi-Chitinase
 - 4) Bacteria – Lysozyme

97. Which group of animals belong to the same phylum?

- 1) Earthworm, Pinworm, Tapeworm
- 2) **Prawn, Scorpion, Locusta**
- 3) Sponge, Sea anemone, Starfish
- 4) Malarial parasite, Amoeba, Mosquito

98. Match the name of the animal (column I) with one characteristics (column II), and the phylum/ class (column III) to which it belongs.

	Column I	Column II	Column III
1)	Ichthyophis	Terrestrial	Reptilia
2)	Limulus	Body covered by chitinous exoskeleton	Pisces
3)	Adamsia	Radially symmetrical	Porifera
4)	Petromyzon	Ectoparasite	Cyclostomata

99. Which of the following are correctly matched with respect to their taxonomic classification?

- 1) Centipede, millipede, spider, scorpion-Insecta
- 2) **House fly, butterfly, tse tse fly, silverfish-Insecta**
- 3) Spiny anteater, sea urchin, sea cucumber-Echinodermata.
- 4) Flying fish, cuttlefish, silverfish- Pisces

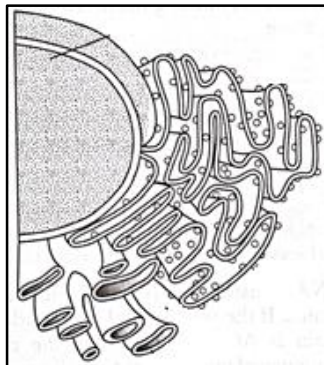
100. One of the representatives of phylum Arthropoda is:

- 1) **Silverfish**
- 2) Pufferfish
- 3) Flying fish
- 4) Cuttlefish

101. In china rose the flowers are:

- 1) Actinomorphic, epigynous with valvate aestivation
- 2) Zygomorphic, hypogynous with imbricate aestivation
- 3) Zygomorphic, epigynous with twisted aestivation
- 4) **Actinomorphic, hypogynous with twisted**

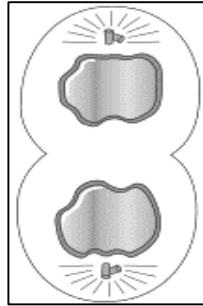
102. Among bitter gourd, mustard, brinjal, pumpkin, china rose, lupin, cucumber, sunhemp, gram, guava, bean, chilli, plum, petunia, tomato, rose, withania, potato, onion, aloe and tulip how many plants have hypogynous flower?
- 1) Ten
 - 2) **Fifteen**
 - 3) Eighteen
 - 4) Six
103. Age of a tree can be estimated by:
- 1) biomass
 - 2) **number of annual rings**
 - 3) diameter of its heartwood
 - 4) its height and girth
104. Lenticels are involved in
- 1) **Gaseous exchange**
 - 2) Food transport
 - 3) photosynthesis
 - 4) transpiration
105. Intefascicular cambium develops from the cells of:
- 1) Xylem parenchyma
 - 2) Endodermis
 - 3) Pericycle
 - 4) **Medullary rays**
106. What external changes are visible after the last moult of a cockroach nymph?
- 1) Anal cerci develop
 - 2) **Both fore wings and hind wings develop**
 - 3) Labium develops
 - 4) Mandibles become harder
107. Which one of the following organelle in the figure correctly matches with its function?



- 1) Golgi apparatus, protein synthesis.
- 2) Golgi apparatus, formation of glycolipids
- 3) **Rough endoplasmic reticulum, Protein synthesis**
- 4) Rough endoplasmic reticulum, formation of glycoproteins

108. The Golgi complex plays a major role.
- 1) In digesting proteins and carbohydrates
 - 2) as energy transferring organelles
 - 3) in post translational modification of proteins and glycosidation of lipids
 - 4) in trapping the light and transforming it into chemical energy.
109. A major site for synthesis of lipids is:
- 1) **SER**
 - 2) Symplast
 - 3) Nucleoplasm
 - 4) RER
110. A phosphoglycerate is always made up of :
- 1) only an unsaturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached
 - 2) **a saturated or unsaturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached**
 - 3) a saturated or unsaturated fatty acid esterified to a phosphate group which is also attached to a glycerol molecule
 - 4) only a saturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached
111. The essential chemical components of many coenzymes are';
- 1) Nucleic acids
 - 2) Carbohydrates
 - 3) **Vitamins**
 - 4) Proteins
112. Transition state structure of the substrate formed during an enzymatic reaction is:
- 1) permanent but unstable
 - 2) **transient and unstable**
 - 3) permanent and stable
 - 4) transient but stable
113. Macro molecule chitin is:
- 1) Phosphorus containing polysaccharide
 - 2) Sulphur containing polysaccharide
 - 3) Simple polysaccharide
 - 4) **Nitrogen containing polysaccharide**
114. The complex formed by a pair of synapsed homologous chromosomes is called:
- 1) Kinetochore
 - 2) **Bivalent**
 - 3) Axoneme
 - 4) Equatorial plate

115. A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its characteristics.

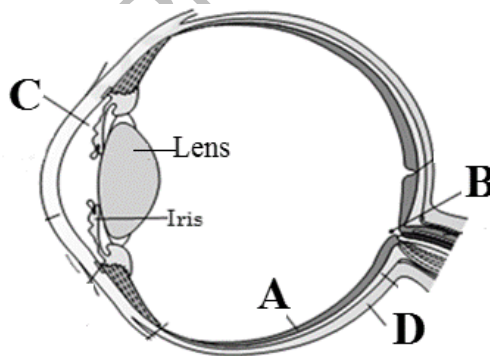


1)	Late anaphase	Chromosomes move away from equatorial plate, Golgi complex not present
2)	Cytokinesis	Cell plate formed, mitochondria distributed between two daughter cells
3)	Telophase	Endoplasmic reticulum and nucleolus not
4)	Telophase	Nuclear envelop reforms, golgi complex reforms

116. Which of the following criteria does not pertain to facilitated transport?

- 1) High selectivity
- 2) Transport saturation
- 3) **Uphill transport**
- 4) Requirement of special membrane proteins

117. Part A, B, C and D of the human eye are shown in the diagram. Select the option which gives correct identification along with its functions/ characteristics:



- 1) B- Blind spot-has only a few rods and cones
- 2) C-Aqueous chamber-reflects the light which does not pass through the lens.
- 3) D- Choroid-is anterior part forms ciliary body
- 4) **A-Retina-contains photoreceptors-rods and cones.**

118. The first stable product of fixation of atmospheric nitrogen in leguminous plants is:

- 1) **Ammonia**
- 2) NO_3^-
- 3) Glutamate
- 4) NO_2^-

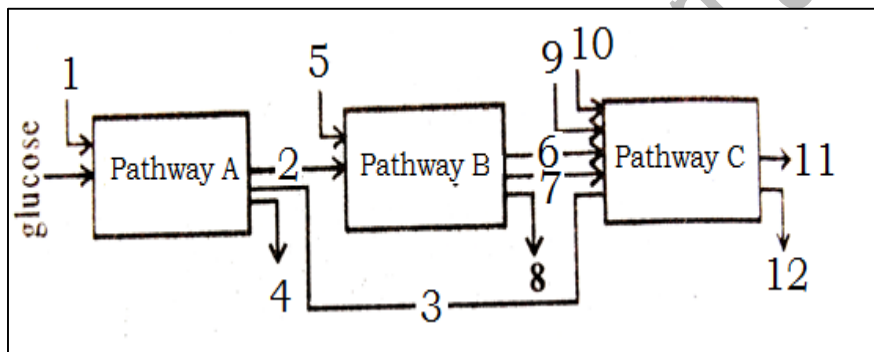
119. Pigment-containing membranous extensions in some cyanobacteria are:

- 1) Basal bodies
- 2) Pneumatophores
- 3) **Chromatophores**
- 4) Heterocysts

120. Which of the metabolites is common to respiration mediated breakdown of fats, carbohydrates and proteins?

- 1) Fructose 1, 6 – bisphosphate
- 2) Pyruvic acid
- 3) **Acetyl CoA**
- 4) Glucose – 6 – phosphate

121. The three boxes in this diagram represents the three major biosynthetic pathways in aerobic respiration. Arrows represents net reactants or products.



Arrows numbered 4, 8 and 12 can all be:

- 1) **ATP**
- 2) H_2O
- 3) FAD^+ or $FADH_2$
- 4) $NADH$

122. Which one of the following is not used for ex-situ plant conservation?

- 1) Seed banks
- 2) **Shifting cultivation**
- 3) Botanical Gardens
- 4) Field gene banks

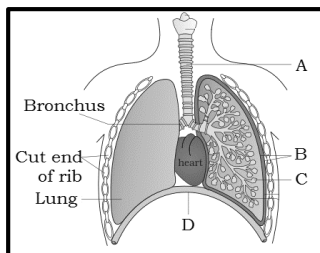
123. During seed germination its stored food is mobilized:

- 1) Cytokinin
- 2) ABA
- 3) **Gibberellin**
- 4) Ethylene

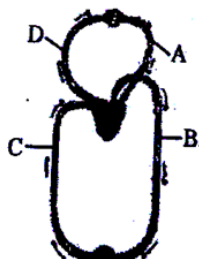
124. Select the correct match of the digested products in humans given in column I with their absorption site and mechanism in column II.

	Column I	Column II
1)	Fructose, Na ⁺	Small intestine passive absorption
2)	Glycerol, fatty acids	Duodenum, move as chylomicrons
3)	Cholesterol, maltose	Large intestine, active absorption
4)	Glycine, glucose	Small intestine, active absorption

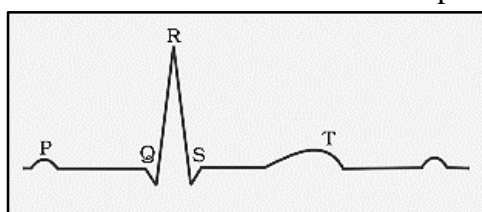
125. The figure shows a diagrammatic view of human respiratory system with labels A, B, C and D. Select the option which gives correct identification and main function and / or characteristics.



- 1) B-pleural membrane-surrounds ribs on both sides to provide cushion against rubbing.
 - 2) **C-Alveoli-thin walled vascular bag like structures for exchanges of gases**
 - 3) D-Lower end of lungs-diaphragm pulls it down during inspiration
 - 4) A-trachea-long tube supported by complete cartilaginous rings for conducting inspired air.
126. Figure shown schematic plan of blood circulation in humans with labels A to D. Identify the label and give its functions.

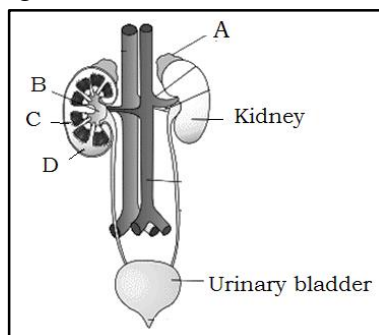


- 1) B-Pulmonary artery-takes blood from heart to lungs, PO₂ = 90 mm Hg
 - 2) **C-Vena Cava – takes blood from body parts to right auricle, PCO₂ = 45 mm Hg**
 - 3) D-Dorsal aorta – takes blood from Heart to body Part PO₂ = 95 mm Hg
 - 4) A- Pulmonary vein – takes impure blood from body parts, PO₂ = 60 mmHg
127. The diagram given here is the standard ECG of a normal person, the P-wave represents the:



- 1) Initiation of the ventricular contraction
- 2) Beginning of the systole
- 3) End of systole
- 4) **Contraction of both the atria**

128. Figure shown human urinary system with structures labelled A to D. Select option which correctly identifies them and gives their characteristics and / or functions.



- 1) B-pelvis-broad funnel shaped space inner to hilum, directly connected to loops of Henle.
 - 2) C- Medulla-inner zone of kidney and contains complex nephrons.
 - 3) D- Cortex-outer part of kidney and do not contain any part of nephrons
 - 4) **A- Adrenal gland- located at the anterior part of kidney. Secrete Catecholamines which stimulate glycogen breakdown.**
129. The H-zone in the skeletal muscle fibre is due to:
- 1) The central gap between myosin filaments in the A-band
 - 2) **The central gap between actin filaments extending through myosin filaments the A-band**
 - 3) Extension of myosin filaments in the central portion of A-band
 - 4) The absence of myofibrils in the central portion of A-band
130. Select the correct statement with respect to location in humans:
- 1) **Accumulation of uric acid crystals in joints causes their inflammation**
 - 2) The vertebral column has 10 thoracic vertebrae
 - 3) The joint between adjacent vertebrae is a fibrous joint
 - 4) The decreased level of progesterone causes osteoporosis in old people

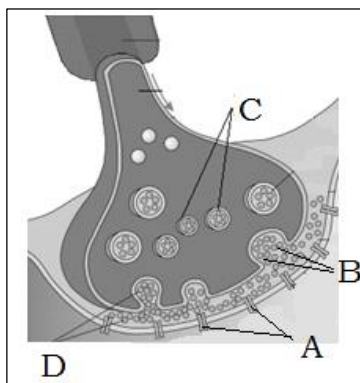
131. The characteristics and an example of a synovial joint in humans is:

	Characteristics	Examples
1)	Fluid filled between two joints, provides cushion	Skull bones
2)	Fluid filled synovial cavity between two bones	Joint between atlas and axis
3)	Lymph filled between two bones, limited movement	Gliding joint between carpals
4)	Fluid cartilage between two bones, limited movement	Knee joint

132. The most abundant intracellular cation is:

- 1) Ca^{++}
- 2) H^+
- 3) **K^+**
- 4) Na^+

133. A diagram showing axon terminal and synapse is given. Identify correctly at least two of A-D.



- 1) B- Synaptic connection, D- K^+
- 2) A- Neurotransmitter, B- Synaptic cleft
- 3) C- Neurotransmitter, D- Ca^{++}
- 4) **A- Receptor, C- Synaptic vesicles**

134. Select the answer which correctly matches the endocrine gland with the hormone it secretes and its function /deficiency symptom:

	Endocrine gland	Hormone	Function/ deficiency symptom
1)	Posterior pituitary	Growth Hormone (GH)	Oversecretion Stimulates abnormal
2)	Thyroid gland	Thyroxine	Lack of iodine in diet result in goiter
3)	Corpus luteum	Testosterone	Stimulates spermatogenesis
4)	Anterior pituitary	Oxytocin	Stimulates uterus contraction during child birth

135. A pregnant female deliver a baby who suffers from stunted growth, mental retardation / low intelligence quotient and abnormal skin. This is the result of:

- 1) Low secretion of growth hormone
- 2) Cancer of the thyroid gland
- 3) Over secretion of pars distalis
- 4) **Deficiency of iodine in diet**

136. Which of the following statements is correct in relation to the endocrine system?

- 1) Organs in the body like gastrointestinal tract, heart, kidney and liver do not produce any hormones.
- 2) **Non-nutrient chemicals produced by the body in trace amount that act as intercellular messenger are known as hormones.**
- 3) Releasing and inhibitory hormones are produced by the pituitary gland
- 4) A denohypophysis is under direct neural regulation of the hypothalamus.

137. Meiosis takes place in:

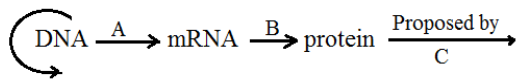
- 1) Conidia
- 2) Gemmule
- 3) Megaspore
- 4) **Meiocyte**

138. Monoecious plant of Chara shows occurrence of:
- 1) stamen and carpel of the same plant
 - 2) upper antheridium and lower oogonium on the same plant
 - 3) **Upper oogonium and lower antheridium on the same plant**
 - 4) antheridiophore and archegoniophore on the same plant
139. Select the wrong statement:
- 1) Anisogametes differ either in structure, function or behaviour
 - 2) **In Oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile**
 - 3) Chlamydomonas exhibits both isogamy and anisogamy and Fucus shows oogamy
 - 4) Isogametes are similar in structure function and behaviour
140. Which one of the following statements is correct?
- 1) Sporogenous tissue is haploid
 - 2) Endothecium produces the microspores
 - 3) **Tapetum nourishes the developing pollen**
 - 4) Hard outer layer of pollen is called intine
141. Product of sexual reproduction generally generates:
- 1) Prolonged dormancy
 - 2) **New genetic combination leading to variation**
 - 3) Large biomass
 - 4) Longer viability of seeds
142. Advantage of cleistogamy is:
- 1) More vigorous offspring
 - 2) **No dependence of pollinators**
 - 3) Vivipary
 - 4) Higher genetic variability
143. Seed coat is not thin, membranous in:
- 1) **Coconut**
 - 2) Groundnut
 - 3) Gram
 - 4) Maize
144. Megasporangium is equivalent to;
- 1) Fruit
 - 2) Nucellus
 - 3) **Ovule**
 - 4) Embryo sac

145. Perisperm differs from endosperm in:
- 1) having no reserve food
 - 2) **being a diploid tissue**
 - 3) its formation by fusion of secondary nucleus with several sperms
 - 4) being a haploid tissue
146. Which one of the following is not the function of placenta? It:
- 1) secretes estrogen
 - 2) facilitates removal of carbon dioxide and waste material from embryo
 - 3) **secretes oxytocin during parturition**
 - 4) facilitates supply of oxygen and nutrients to embryo
147. What is the correct sequence of sperm formation?
- 1) Spermatogonia, spermatocyte, spermatozoa, spermatid
 - 2) Spermatogonia; spermatozoa, spermatocyte, spermatid
 - 3) **Spermatogonia, spermatocyte, spermatid, spermatozoa**
 - 4) Spermatid, spermatocyte, spermatogonia, spermatozoa
148. Menstrual flow occurs due to lack to:
- 1) FSH
 - 2) Oxytocin
 - 3) Vasopressin
 - 4) **Progesterone**
149. Artificial insemination mean:
- 1) Transfer of sperms of husband to a test tube containing ova
 - 2) **Artificial introduction of sperms of a healthy donor into the vagina**
 - 3) Introduction of sperms of a healthy donor directly into the ovary
 - 4) Transfer of sperms of a healthy donor to a test tube containing ova
150. One of the legal methods of birth control is:
- 1) by abstaining from coitus from day 10 to 17 of the menstrual cycle
 - 2) by having coitus at the time of day break
 - 3) by a premature ejaculation during coitus
 - 4) **abortion by taking an appropriate medicine**
151. Which of the following cannot be detected in a developing foetus by amniocentesis?
- 1) Sex of the foetus
 - 2) Down syndrome
 - 3) **Jaundice**
 - 4) Klinefelter syndrome

152. If two persons with 'AB' blood group marry and have sufficiently large number of children these children could be classified as 'A' blood group: 'AB' blood group: 'B' blood group in 1 : 2 : 1 ratio. Modern technique of protein electrophoresis reveals presence of both 'A' and 'B' type proteins in 'AB' blood group individuals. This is an example of:
- 1) incomplete dominance
 - 2) Partial dominance
 - 3) Complete dominance
 - 4) **Codominance**
153. Which Mendelian idea is depicted by a cross in which the F₁ generation resembles both the parents?
- 1) Law of dominance
 - 2) Inheritance of one gene
 - 3) **Co-dominance**
 - 4) Incomplete dominance
154. If both parents are carriers for thalassemia, which is an autosomal recessive disorder, what are the chances of pregnancy resulting in an affected child?
- 1) 50%
 - 2) **25%**
 - 3) 100%
 - 4) NO CHANCE
155. Which of the following statements is not true of two genes that show 50% recombination frequency?
- 1) **The genes are tightly linked**
 - 2) The genes show independent assortment
 - 3) If the genes are present on the same chromosome, they undergo more than one crossovers in every meiosis.
 - 4) The genes may be on different chromosomes
156. The incorrect statement with regard to Haemophilia is:
- 1) It is a recessive disease
 - 2) **It is a dominant disease**
 - 3) A single protein involved in the clotting of blood is affected
 - 4) It is a sex-linked disease
157. Which one is the incorrect statement with regards to the importance of pedigree analysis?
- 1) It helps to trace the inheritance of a specific trait
 - 2) **It confirms that DNA is the carrier of genetic information**
 - 3) It helps to understand whether the trait in question is dominant or recessive
 - 4) It confirms that the trait is linked to one of the autosome

158. The diagram shows an important concept in the genetic implication of DNA. Fill in the blanks A to C.



- 1) A- translation, B- transcription, C- Erwin Chargaff
 - 2) **A- transcription, B- translation, C- Francis Crick**
 - 3) A- translation, B- extension, C- Rosalind Franklin
 - 4) A- transcription, B- replication, C- James Watson
159. Which enzymes will be produced in a cell in which there is a nonsense mutation in the lac Y gene?
- 1) Lactose permease
 - 2) Transacetylase
 - 3) Lactose permease and transacetylase
 - 4) **β -galactosidase**
160. The eye of octopus and eye of cat show different patterns of structure, yet they perform similar function. This is an example of:
- 1) Homologous organs that have evolved due to divergent evolution.
 - 2) Analogous organs that have evolved due to convergent evolution.
 - 3) Analogous organs that have evolved due to divergent evolution
 - 4) Homologous organs that have evolved due to convergent evolution
161. The process by which organisms with different evolutionary history evolved similar phenotypic adaptations in response to a common environmental challenge, is called:
- 1) **Convergent evolution**
 - 2) Non-random evolution
 - 3) Adaptive radiation
 - 4) Natural selection
162. Variation in gene frequencies within populations can occur by chance rather than by natural selection. This is referred to as:
- 1) **Genetic drift**
 - 2) Random mating
 - 3) Genetic load
 - 4) Genetic flow
163. According to Darwin, The organic evolution is due to:
- 1) Interspecific competition
 - 2) Competition within closely related species
 - 3) Reduced feeding efficiency in one species
 - 4) **Intraspecific competition**

164. Infection of Ascaris usually occurs by:
- 1) Eating imperfectly cooked pork.
 - 2) Tse-tse fly.
 - 3) Mosquito bite
 - 4) **Drinking water containing eggs of Ascaris**
165. The cell-mediated immunity inside the human body is carried out by:
- 1) B-lymphocytes
 - 2) Thrombocytes
 - 3) Erythrocytes
 - 4) **T-lymphocytes**
166. In plant breeding programmes, the entire collection (of plants/ seeds) having all the diverse alleles for all genes in a given crop is called:
- 1) cross-hybridation among the selected parents
 - 2) evaluation and selection of parents
 - 3) **germplasm collection.**
 - 4) selection of superior recombinants
167. During sewage treatment, biogases are produced which include:
- 1) methane, oxygen, hydrogen sulphide
 - 2) hydrogen sulphide, methane, sulphur dioxide
 - 3) hydrogen sulphide, nitrogen, methane
 - 4) **methane, hydrogen sulphide, carbon dioxide**
168. A good producer of citric acid is:
- 1) Pseudomonas
 - 2) Clostridium
 - 3) Saccharomyces
 - 4) **Aspergillus**
169. DNA fragments generated by the restriction endonucleases in a chemical reaction can be separated by:
- 1) Polymerase chain reaction
 - 2) **Electrophoresis**
 - 3) Restriction mapping
 - 4) Centrifugation
170. The colonies of recombinant bacteria appear white in contrast to blue colonies of non recombinant bacteria because of:
- 1) Insertional inactivate of alphagalactosidase in non-recombinant bacteria
 - 2) Insertional inactivation of alpha- galactosidase in recombinant bacteria
 - 3) Inactivation of glycosidase enzyme in recombinant bacteria
 - 4) **Non-recombinant bacteria containing beta-galactosidase**

171. A sedentary sea anemone gets attached to the shell lining of hermit crab. The association is:
- 1) Symbiosis
 - 2) **Commensalism**
 - 3) Amensalism
 - 4) Ectoparasitism
172. A biologist studied the population of rats in a barn. He found that the average natality was 250, average mortality 240, immigration 20 and emigration 30. The net increase in population is:
- 1) 15
 - 2) 05
 - 3) **Zero**
 - 4) 10
173. Natural reservoir of phosphorus is:
- 1) Animal bones
 - 2) **Rock**
 - 3) Fossils
 - 4) Sea water
174. Which one of the following processes during decomposition is correctly described?
- 1) Humification- Leads to the accumulation of a dark coloured substance humus which undergoes microbial action at every fast rate
 - 2) Catabolism- Last step decomposition under fully anaerobic condition
 - 3) Leaching- Water soluble inorganic nutrients rise to the top layers of soil
 - 4) **Fragmentation- Carried out by organisms such as earthworm**
175. Secondary productivity is rate of formation of new organic matter by:
- 1) Parasite
 - 2) **Consumer**
 - 3) Decomposer
 - 4) Producer
176. Natural reservoir of phosphorus is:
- 1) Animal bones
 - 2) **Rock**
 - 3) Fossils
 - 4) Sea water
177. Which of the following represent maximum number of species among global biodiversity?
- 1) Lichens
 - 2) **Fungi**
 - 3) Mosses and Ferns
 - 4) Algae

178. Global warming can be controlled by:

- 1) Reducing reforestation, increasing the use of fossil fuel.
- 2) Increasing deforestation, slowing down the growth of human population
- 3) Increasing deforestation, reducing efficiency of energy usage
- 4) **Reducing deforestation, cutting down use of fossil fuel.**

179. Kyoto Protocol was endorsed at:

- 1) CoP – 5
- 2) CoP – 6
- 3) CoP – 4
- 4) **CoP – 3**

180. The Air Prevention and Control of Pollution Act came into force in:

- 1) **1981**
- 2) 1985
- 3) 1990
- 4) 1975

Dr. Abhang Prabhu's Tutorials