

R5

NEET 2024

Biology (Botany)

Section – A (Compulsory)

101. List of endangered species was released by

- (1) WWF (2) FOAM
 (3) IUCN (4) GEAC

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

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

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

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

104. Which of the following are required for the dark reaction of photosynthesis?

- A. Light
 B. Chlorophyll
 C. CO₂
 D. ATP
 E. NADPH

Choose the correct answer from the options given below:

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

105. Given below are two statements:

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

Statement II: The beginning of diplotene stage is recognized by dissolution of synaptonemal complex.

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

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

106. Bulliform cells are responsible for

- (1) Protecting the plant from salt stress.
 (2) Increased photosynthesis in monocots.
 (3) Providing large spaces for storage of sugars.
 (4) Inward curling of leaves in monocots.

107. A pink flowered Snapdragon plant was crossed with a red flowered Snapdragon plant. What type of phenotype/s is/are expected in the progeny

- (1) Red flowered as well as pink flowered plants
 (2) Only pink flowered plants
 (3) Red, Pink as well as white flowered plants
 (4) Only red flowered plants

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

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

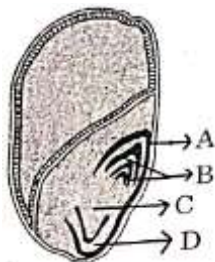
109. Identify the set of correct statements:

- A. The flowers of Vallisneria are colourful and produce nectar
- B. The flowers of waterlily are not pollinated by water.
- C. In most of frater-pollinated species, the pollen grains are protected from wetting.
- D. Pollen grains of some hydrophytes are long and ribbon like.
- E. In some hydrophytes, the pollen grains are carried passively inside water.

Choose the correct answer from the options given below:

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

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



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

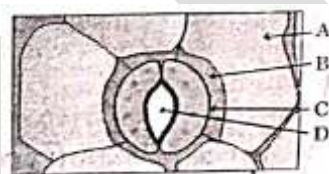
111. Spindle fibers attach to kinetochores of chromosomes during

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

112. Which of the following is an example of actinomorphic flower?

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

113. In the given figure, which component has thin outer walls and highly thickened inner walls?



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

114. Formation of interfascicular cambium from fully developed parenchyma cells is an example for

- (1) Redifferentiation
- (2) Dedifferentiation
- (3) Maturation
- (4) Differentiation

115. What is the fate of a piece of DNA carrying only gene of interest which is transferred into an alien organism?

- A. The piece of DNA would be able to multiply itself independently in the progeny cells of the organism.
- B. It may get integrated into the genome of the recipient.
- C. It may multiply and be inherited along with the host DNA.
- D. The alien piece of DNA is not an integral part of chromosome.
- E. It shows ability to replicate

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

116. Match List I with List II

	List-I		List-II
A	Rhizopus	I	Mushroom
B	Ustilago	II	Smut fungus
C	Puccinia	III	Break mould
D	Agaricus	IV	Rust fungus

Choose the correct answer from the options given below:

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

117. Hind II always cuts DNA molecules at a particular point called recognition sequence and it consists of

- (1) 6bp
- (2) 4bp
- (3) 10bp
- (4) 8bp

118. The type of conservation in which the threatened species are taken out from their natural habitat and placed in special setting where they can be protected and given special care is called;

- (1) Biodiversity conservation
- (2) Semi-conservative method
- (3) Sustainable development
- (4) in-situ conservation

119. Given below are two statements:

Statement I: Bt toxins are insect group specific and coded by a gene cry IAc.

Statement II: Bt toxin exists as inactive protoxin in *B. thuringiensis*. However, after ingestion by the insect the inactive protoxin gets converted into active form due to acidic pH of the insect gut.

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

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

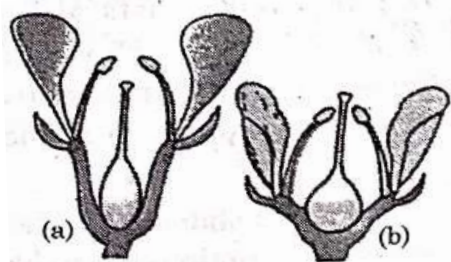
120. Match List I with List II

	List-I		List-II
A	Two or more alternative forms of a gene	I	Back cross
B	Cross of F ₁ progeny with homozygous recessive parent	II	Ploidy
C	Cross of F ₁ progeny with any of the parents	III	Allele
D	Number of chromosome sets in plant	IV	Test cross

Choose the correct answer from the options given below:

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

121. Identify the type of flowers based on the position of calyx, corolla and androecium with respect to the ovary from the given figures (a) and (b).



- (1) (a) Hypogynous; (b) Epigynous
- (2) (a) Perigynous; (b) Epigynous
- (3) (a) Perigynous; (b) Perigynous
- (4) (a) Epigynous; (b) Hypogynous

122. Which one of the following is not a criterion for classification of fungi?

- (1) Mode of nutrition
- (2) Mode of spore formation
- (3) Fruiting body
- (4) Morphology of mycelium

123. These are regarded as major causes of biodiversity loss:

- A. Over exploitation
- B. Co-extinction
- C. Mutation
- D. Habitat loss and fragmentation
- E. Migration

Choose the correct option:

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

124. Match List I with List II

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

Choose the correct answer from the options give below:

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

125. In a plant, black seed color (BB/Bb) is dominant over white seed color (bb). In order to find out the genotype of the black seed plant, with which of the following genotype will you cross it

- (1) bb
- (2) Bb
- (3) BB/Bb
- (4) BB

126. Match List I with List II

	List-I		List-II
A	Nucleolus	I	Site of formation of glycolipid
B	Centriole	II	Organization like the cartwheel
C	Leucoplasts	III	Site for active ribosomal RNA synthesis
D	Golgi apparatus	IV	For storing nutrients

Choose the correct answer from the options given below:

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

127. Inhibition of Succinic dehydrogenase enzyme by malonate is a classical example of:

- (1) Feedback inhibition
- (2) Competitive inhibition
- (3) Enzyme activation
- (4) Cofactor inhibition

128. Which one of the following can be explained on the basis of Mendel's Law of Dominance?

- A. Out of one pair of factors one is dominant and the other is recessive.
- B. Alleles do not show any expression and both the characters appear as such in F₂ generation.
- C. Factors occur in pairs in normal diploid plants.
- D. The discrete unit controlling a particular character is called factor.
- E. The expression of only one of the parental characters is found in a monohybrid cross.

Choose the correct answer from the options given below:

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

129. Given below are two statements:

Statement I: Parenchyma is living but collenchyma is dead tissue

Statement II: Gymnosperms lack xylem vessels but presence of xylem vessels is the characteristic of angiosperms.

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

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

130. How many molecules of ATP and NADPH are required for every molecule of CO₂ fixed in the Calvin Cycle?

- (1) 2 molecules of ATP and 2 molecules of NADPH
- (2) 2 molecules of ATP and 3 molecules of NADPH
- (3) 2 molecules of ATP and 2 molecules of NADPH
- (4) 3 molecules of ATP and 2 molecules of NADPH

131. The equation of Verhulst-Pearl logistic growth is

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

From this equation, K indicates:

- (1) Biotic potential
- (2) Carrying capacity
- (3) Population density
- (4) Intrinsic rate of natural increase

132. Tropical regions show greatest level of species richness because

- A Tropical latitudes have remained relatively undisturbed for millions of years, hence more time was available for species diversification.
- B. Tropical environments are more seasonal.
- C. More solar energy is available in tropics.
- D. Constant environments promote niche specialization.
- E. Tropical environments are constant and predictable.

Choose the correct answer from the options given below

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

133. The lactose present in the growth medium of bacteria is transported to the cell by the action of :

- (1) Acetylase
- (2) Permease
- (3) Polymerase
- (4) Beta-galactosidase.

134. The cofactor of the enzyme carboxypeptidase is:

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

135. The capacity to generate a whole plant from any cell of the plant is called:

- (1) Micropropagation
- (2) Differentiation
- (3) Somatic hybridization
- (4) Totipotency

Section – B (Attempt Any 10)

136. Match List I with List II

	List-I		List-II
A	Robert May	I	Species-Area relationship
B	Alexander von Humboldt	II	Long term ecosystem experiment using out door plots
C	Paul Ehrlich	III	Global species diversity at about 7 million
D	David Tilman	IV	Rivet popper hypothesis

Choose the correct answer from the options given below:

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

137. Match List I with List II

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

Choose the correct answer from the options given below:

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

138. Read the following statements and choose the set of correct statements:

In the members of Phaeophyceae,

- A. Asexual reproduction occurs usually by biflagellate zoospores.
- B. Sexual reproduction is by oogamous method only.
- C. Stored food is in the form of carbohydrates which is either mannitol or laminarin.
- D. The major pigments found are chlorophyll a, c and carotenoids and xanthophyll.
- E. Vegetative cells have a cellulosic wall, usually covered on the outside by gelatinous coating of algin.

Choose the correct answer from the options given below:

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

139. The DNA present in chloroplast is:

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

140. Match List I with List II

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

Choose the correct answer from the options given below:

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

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

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

142. Identify the correct description about the given figure:



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

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

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

144. Given below are two statements:

Statement I: In C_3 plants, some O_2 binds to RuBisCO, hence CO_2 fixation is decreased.

Statement II: In C_4 plants, mesophyll cells show very little photorespiration while bundle sheath cells do not show photorespiration.

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

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

145. Match List I with List II

	List-I		List-II
A	Rose	I	Twisted aestivation
B	Pea	II	Perigynous flower
C	Cotton	III	Drupe
D	Mango	IV	Marginal placentation

Choose the correct answer from the options given below:

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

146. In an ecosystem if the Net Primary Productivity (NPP) of first trophic level is

$100x \text{ (kcal m}^{-2}\text{) yr}^{-1}$, what would be the GPP (Gross Primary Productivity) of the third trophic level of the same ecosystem?

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

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

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

148. Match List I with List II

	List-I		List-II
A	GLUT-4	I	Hormone
B	Insulin	II	Enzyme
C	Trypsin	III	Intercellular ground substance
D	Collagen	IV	Enables glucose transport into cells

Choose the correct answer from the options given below:

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

149. Match the List I with List II

	List-I		List-II
A	Citric acid cycle	I	Cytoplasm
B	Glycolysis	II	Mitochondrial matrix
C	Electron transport system	III	Intermembrane space of mitochondria
D	Proton gradient	IV	Inner mitochondrial membrane

Choose the correct answer from the options given below:

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

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

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