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Answerkey

(NEET 2021)

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Botony

101. Inspite of interspecific competition in nature which mechanism the competing species might have evolved survival?

(1) Resorce Partitioning
(2) Competitve release
(3) Mutualism
(4) Predation

Answer: (1)

102. Match **List- I** with **List II**

List I		List II	
(a)	Cells with active cell division capacity	(i)	Vascular tissues
(b)	Tissue having all cells similar in structure and fuction	(ii)	Meristematic tissue
(c)	Tissue having different types of cells	(iii)	Sclereids
(d)	Dead cells with highly thickend walls and narrow lumen	(iv)	Simple tissue

Select the **correct** answer from the options given below

	(a)	(b)	(c)	(d)
(1)	(ii)	(iv)	(i)	(iii)
(2)	(iv)	(iii)	(ii)	(i)
(3)	(i)	(ii)	(iii)	(iv)
(4)	(iii)	(ii)	(iv)	(i)

Answer: (1)

103. During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out:

(1) RNA
(2) DNA
(3) Histones
(4) Polysaccharides

Answer: (2)

104. Match **List-I** with **List II**

List I		List II	
(a)	Cohesion	(i)	More attraction in liquid phase
(b)	Adhesion	(ii)	Mutual attraction among water, molecules
(c)	Surface tension	(iii)	Water loss in liquid phase
(d)	Guttation	(iv)	Attraction towards polar surfaces

Choose the **correct** answer from the options given below

	(a)	(b)	(c)	(d)
(1)	(ii)	(iv)	(i)	(iii)
(2)	(iv)	(iii)	(ii)	(i)
(3)	(iii)	(i)	(iv)	(ii)
(4)	(ii)	(i)	(iv)	(iii)

Answer: (1)

105. The term used for transfer of pollen grains from anthers of one plant to stigma of a different plant which during pollination, brings, genetically different types of pollen grains to stigma is:
(1) Xenogamy
(2) Geitonogamy
(3) Chasmogamy
(4) Cleistogamy
106. Which of the following stages are meiosis involves division of centromere?
(1) Metaphase I
(2) Metaphase
(3) Anaphase II
(4) Telopahse II

Answer: (1)

106. Which of the following stages are meiosis involves division of centromere?

(1) Metaphase I

(2) Metaphase

(3) Anaphase II

(4) Telopahse II

Answer: (3)

107. Which of the following is a **correct** sequence of steps in a PCR (Polymerase Chain Reaction)?
(1) Denaturation, Annealing, Extension
(2) Denaturation, Extension, Annealing
(3) Extension, Denaturation, Annealing
(4) Annealing, Denaturation, Extension

Answer: (1)

108. Gemmae are present in:
(1) Mosses
(2) Pteridophytes
(3) Some Symnosperms
(4) Some Liverworts

Answer: (4)

109. The production of gametes by the parents, formation of zygotes, the F_1 and F_2 plants, can be understood from a diagram called:
(1) Bullent square
(2) Punch square
(3) Punnett square
(4) Net Square

Answer: (3)

110. The factor that leads to Founder effect in a population is:
(1) Natural Selection
(2) Genetic recombination
(3) Mutation
(4) Genetic drift

Answer: (4)

111. Genera like *selaginella and Salvinia* produce two kinds of Spores . Such plants are known as :
(1) Homosorus
(2) Heterosorus
(3) Homosporous

(4) Heterosporous
Answer: (4)

112. Plants follow different pathways in response to environment or phases of life to form different kinds of structures. This ability is called:
(1) Elasticity
(2) Flexibiity
(3) Plasticity
(4) Maturity

Answer: (3)

113. Which of the following are **not** secondary metabolites in plants?
(1) Morphine, codeine
(2) Amino acids, glucose
(3) Vinblastin, curcumin
(4) Rubber, gums

Answer: (2)

114. Complete the flow chart on central dogma.

(a) DNA $\xrightarrow{(b)}$ mRNA $\xrightarrow{(c)}$ (d)

(1) (a)- Replication; (b)-Transparency;
(c)-Transduction;(d) -Protein
(2) (a)-Translation;(b)-Replication;
(c)-Transcription;(d)-Transduction;
(3) (a)-Replication;(b)-Trnascription
(c)-Translation;(d)-Protein
(4) (a)-Transduction;(b)-Trnascription
(c)-Replication;(d)-Protein

Answer: (3)

115. When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as:
(1) Metacentric
(2) Telocentric
(3) Sub-metacentric

(4) Scrocentric
Answer: (1)

116. DNA strands on gel stained with ethidium bromide when viewed under UV radiation, appear as:
(1) Yellow bands
(2) Bright orange bands
(3) Dark red bands
(4) Bright blue brands

Answer: (2)

117. The site of perception of light in plants during photoperiodism is:
(1) Shoot ape
(2) Stem
(3) Axillary bud
(4) leaf

Answer: (4)

118. When tagetting involving gene amplification is attempted in an individuals tissue to treat disease, it is known as:
(1) Biopiracy
(2) Gene therapy
(3) Molecular diagnosis
(4) Safety testing

Answer: (2)

119. Which of the following plants is monoecious?
(1) Carica Papaya
(2) Chara
(3) Marchantia polymorpha
(4) Cycas circinalis

Answer: (2)

120. Which of the following is **not** an application of PCR (Polymerease Chain Reaction)?
(1) Molecular diagnosis
(2) Gene amplification

(3) Purification of isolated protein
(4) Detection of gene mutation

Answer: (3)

121. Match **List-I** with **List-II**

List I		List II	
(a)	Cristae	(i)	Primary constriction in chromosome
(b)	Thylakoids	(ii)	Disc-shaped sacs in Golgi apparatus
(c)	Centromere	(iii)	Infolding in mitochondria
(d)	Cisternar	(iv)	Flattened membranous sacs in stroma of plastids

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iv)	(iii)	(ii)	(i)
(2)	(i)	(iv)	(iii)	(ii)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(ii)	(iii)	(iv)	(i)

Answer: (3)

122. Diadelphous stamens are found in:
(1) China rose
(2) Citrus
(3) Pea
(4) China rose and Citrus

123. Match **List-I** and **List-II**

List I		List II	
(a)	Protoplast fusion	(i)	Totipotency
(b)	Plant tissue culture	(ii)	Pomato
(c)	Meristem culture	(iii)	Some aclones
(d)	Micropropagation	(iv)	Virus free plants

Choose the **correct** answer from the options given below

	(a)	(b)	(c)	(d)
(1)	(iii)	(iv)	(ii)	(i)
(2)	(ii)	(i)	(iv)	(iii)
(3)	(iii)	(iv)	(i)	(ii)

(4) (iv) (iii) (ii) (i)
Answer: (2)

124. Amensalism can be represented as:
(1) Species A(-) ; Species B (0)
(2) Species A(+); Species B(+)
(3) Species A(-) ; Species B(-)
(4) Species A(+); Species B(0)

Answer: (1)

125. Which of the following is an **incorrect** statement?
(1) Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles
(2) Microbodies are present both in plant and animal cells.
(3) The perinuclear space forms a barrier between the materials present inside the nucleus and that of cytoplasm
(4) Nuclear pores act as passages for proteins and RNA moleucles in both directions between nucleus and cytoplasm.

126. A typical angiosperm embryo sac at maturity is:
(1) 8-nucleate and 7-celled
(2) 7-nucleate and 8-celled
(3) 7-nucleate and 7- celled
(4) 8-nucleate and 8-celled

Answer: (1)

127. Which of the following algae contains mannitol as reserve food material?
(1) Ectocarpus
(2) Cracilaria
(3) Volvox
(4) Ulothrix

Answer: (1)

128 The plant hormone used to destroy weeds in a field is:
(1) IAA
(2) NAA
(3) 2,4-D
(4) IBA

Answer: (3)

129. The amount of nutrients, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time is referred as :
(1) Climax
(2) Climax community
(3) Standing state
(4) Standing crop

Answer: (3)

130. Mutations in plant cells can be induced by:
(1) Kinetin
(2) Infrared rays
(3) Gamma rays
(4) Zeatin

Answer: (3)

131. Which of the following statements is **not** correct?
(1) Pyramid of biomass in sea is generally inverted
(2) Pyramid of biomass in sea is generally upright
(4) Pyramid of numbers in a grassland ecosystem is upright

Answer: (2)

132. In the equation GPP – R = NPP
(1) Radiant energy
(2) Retardatin factor
(3) Environment factor
(4) Respiration losses

Answer: (4)

133. Which of the following algae produce Carrageen?
(1) Green algae
(2) Brown algae
(3) Red algae

(4) Blue-green algae
Answer: (3)

134. The first stable product of CO_2 fixation in sorghum is:
(1) Pyruvic acid
(2) Oxaloacetic acid
(3) Succinic acid
(4) Phosphoglyceric acid

Answer: (2)

135. Match **List-I** with **List-II**

List I		**List II**	
(a)	Lenticels	(i)	Phellogen
(b)	Cork cambium	(ii)	Suberin deposition
(c)	Secondary cortex	(iii)	Exchange of gases
(d)	Cork	(iv)	Phelloderm

Choose the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iv)	(i)	(iii)	(ii)
(2)	(iii)	(i)	(iv)	(ii)
(3)	(ii)	(iii)	(iv)	(i)
(4)	(iv)	(ii)	(i)	(iii)

Answer: (2)

Sections – B (Biology : Botany)

136. Which of the following statements is **incorrect?**
(1) During aerobic respiration, role of oxygen is limited to the terminal stage.
(2) In ETC (Electron Trnasport Chain), One molecule of NADH + H^+ gives rise to 2 ATP molecules and $FADH_2$ gives rise to 3 ATP molecules.
(3) ATP is synthesized through complex V
(4) Oxidation reduction reactions produce proton gradient in respiration

Answer: (2)

137. Match **Column-I** with **Column-II**.

	Column-I	Column-II
(a)	$\%\text{⚥}\,K_{(5)}C_{1+2+(2)}A_{(9)+1}\underline{G}_1$	(i) Brassicaceae
(b)	$\oplus\text{⚥}\,K_{(5)}\overset{\frown}{C_{(5)}A_5}\underline{G}_2$	(ii) Liliaceae
(c)	$\oplus\text{⚥}\,\overset{\frown}{P_{(3+3)}A_{3+3}}\underline{G}_{(3)}$	(iii) Fabaceae
(d)	$\oplus\text{⚥}\,K_{2+2}C_4A_{2-4}\underline{G}_{(2)}$	(iv) Solanaceae

Select the **correct** answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iii)	(iv)	(ii)	(i)
(2)	(i)	(ii)	(iii)	(iv)
(3)	(ii)	(iii)	(iv)	(i)
(4)	(iv)	(ii)	(i)	(iii)

Answer: (1)

138. Match **List-I** with **List-II**

List I		List II	
(a)	S phase	(i)	Proteins are synthesized
(b)	G_2 Phase	(ii)	Inactive phase
(c)	Quiescent Stage	(iii)	Interval between mitosis and initiation of DNA replication

(d)	G_1 Phase	(iv)	DNA replication

Choose the **correct** answer from the options given below

	(a)	(b)	(c)	(d)
(1)	(iii)	(ii)	(i)	(iv)
(2)	(iv)	(ii)	(iii)	(i)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(ii)	(iv)	(iii)	(i)

Answer: (3)

139. Plasmid pBR322 has PstI restriction enzyme site within gene amp^R that confers ampiclling resistence. If this enzyme is used for inserting gene for β-galactoside production and the recombinant plasmid is inserted in an E coli straints

(1) It will not be able to confer ampicilling resistance to the host cell.
(2) the transformed cell will have the ability to resist ampicllin as well as produced – galactoside
(3) It will lead to lysis of host cell.
(4) It will be able to produce a novel protein with dual ability

Answer: (1)

140. Identify the correct statement.

(1) In capping, Methyl guanosine triphosphate is added to the 3' end of hnRNA
(2) RNA polymerase binds with Rho factor to terminate the process of transcription in bacteria
(3) The coding strand in a transcription unit is copied to an mRNA.
(4) Split gene arrangement is characteristics of prokaryotes.

Answer: (2)

141. Now a days it is possible to detect the mutated gene causing cancer by allowing radioactive probe to hybridise its complimentary DNA in a clone of cells, followe by its detection using autoradiography because:

(1) mutated gene partially appears on a photographic film.
(2) mutated gene completely and clearly appears on a photographic film.
(3) mutated gene does not appear on a photographic film as the probe has no complimentarity with it.
(4) mutated gene does not appear on photographic film as the probe has complimentarity with it.

Answer: (3)

142. In the exponential growth equation

$N_t = N_0 e^{rt}, e$ represents

(1) The base of number logariths
(2) The base of exponential logarithms
(3) The base of natural logarithms
(4) The base of geomatrics logarithms

Answer: (3)

143. Select the correct pair.
(1) Large colorless empty cells in the epidermis of grass leaves – Subsidary cells
(2) In dicot leaves, vascular bundles are surrounded by large thick walled cells – Interfascicular cambium
(3) Cells of medullary ray that from part of cambial ring-Interfascicular cambium
(4) Loose parenchyma ceels rupturing the epidermis and forming a lens shaped opening in bark – Spongy parenchyma

Answer: (3)

144. In some members of which of the following pairs of families, pollen grains retain their variability for months after release?
(1) Poaceae ; Rosaceae
(2) Poaceae ; Leguminosae
(3) Poaceae ; Solanaceae
(4) Rosaceae ; Leguminosae

Answer: (4)

145. What is the role of RNA polymerase III in the process of transcription in eukaryotes?
(1) Transcribes rRnas (28S, 18S and 5.8S)
(2) Transcribes tRNA, 5s rRNA and snRNA
(3) Transcribes precursor of mRNA
(4) Transcribes only snRNAs

Answer: (2)

146. Which of the following statement is incorrect?
(1) Both ATP and NADPH+H+ are synthesized during non cyclic photophosphorylation.
(2) Stroma lamellae have PS I only and lack NADP reductase.

(3) Grana lamellae have both PS I and PS II
(4) Cyclic photophosphorylation involves both PS I and PS II.

Answer: (4)

147. Which of the following statement is correct?
(1) Fusion of two cells is called Karyogamy.
(2) Fusion of protoplasms between two motile on non –motile gametes is called plasmogamy.
(3) Organisms that depend on living plznts are called saprophytes.
(4) Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath cells.

Answer: (2)

148. Match List – I with List – II

List I		**List II**	
(a)	Protein	(i)	C = C double bonds
(b)	Unsaturated fatty acid	(ii)	Phosphodiester bonds
(c)	Nucleic acid	(iii)	Glycosidic bonds
(d)	Polysaccharide	(iv)	Peptide bonds

Choose the **correct** answer from the options given below

	(a)	(b)	(c)	(d)
(1)	(iv)	(i)	(ii)	(iii)
(2)	(i)	(iv)	(iii)	(ii)
(3)	(ii)	(i)	(iv)	(iii)
(4)	(iv)	(iii)	(i)	(ii)

Answer: (1)

149. DNA fingerprinting involves identifying differences in some specific regions in DNA sequence, called as :
(1) Satellite DNA
(2) Repetitive DNA
(3) Single nucleotides
(4) Polymorphic DNA

Answer: (2)

150. Match Column - I with Column – II

Column - I		Column - II	
(a)	Nitrococcus	(i)	Denitrification
(b)	Rhizobium	(ii)	Conversion of ammonia to nitrite
(c)	Thiobacillus	(iii)	Conversion of nitrite to nitrate
(d)	Nitrobacter	(iv)	Conversion of atmospheric nitrogen to ammonia

Choose the **correct** answer from the options given below

	(a)	(b)	(c)	(d)
(1)	(ii)	(iv)	(i)	(iii)
(2)	(i)	(ii)	(iii)	(iv)
(3)	(iii)	(i)	(iv)	(ii)
(4)	(iv)	(iii)	(ii)	(i)

Answer: (1)

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