

BIOLOGY

101. Unlinked genes show recombination frequency of
(1) 100% (2) 0%
(3) 50% (4) 10-30%
102. Presence of heterochromatin the frequency of crossing over
(1) Increases (2) Decreases
(3) does not effect (4) Is directly related to
103. First linkage maps were made for
(1) Drosophila and humans
(2) Drosophila and Pisum sativum
(3) Drosophila and Maize
(4) Humans and maize
104. Sex pie balds are
(1) Haploids (2) Gynanders
(3) Free martins (4) Nutritional mutants
105. When two alleles coming from different parents tend to enter different gametes to remain apart in offspring, it is
(1) Non-disjunction (2) Criss cross inheritance
(3) Repulsion (4) Diagynic inheritance
106. Sex determination in moths and butterflies is
(1) ZO-ZZ (2) XX-XY
(3) ZW-ZZ (4) XX-XO
107. The chromosomes bearing loops for rapid transcription and informosomes production are
(1) Lampbrush chromosomes
(2) Polytene chromosomes
(3) SAT chromosomes
(4) B chromosomes
108. Individuals showing presence of one barr body in nucleus of somatic cells
(1) Normal female (2) Normal male
(3) Turner's syndrome (4) Both (1) and (4)
109. Differential staining of chromatin is termed as
(1) Constitutive banding
(2) Heteropycnosis
(3) Chromomeric staining
(4) Interkinesis
110. Non-separation of synapsed homologous chromosomes is
(1) Mitotic non-disjunction (2) Meiotic non-disjunction
(3) Repulsion (4) Heteropycnosis
111. Wheat plant is $6n = 42$. What will be the number of chromosomes in it's Monosomic, haploid and Trisomics?
(1) 41, 21 and 7 (2) 43, 21 and 7
(3) 15, 7 and 7 (4) 13, 7 and 15
112. If there is complete linkage in F_2 generation
(1) Parental types and recombinants appear in equal ratio
(2) Recombinants are less than parental types
(3) Recombinants are more than parental types
(4) There will be only parental types
113. X-rays cause mutation by
(1) Transition (2) Transversion
(3) Deletion (4) Base substitution
114. Crossing over results in
(1) Recombination between linked genes
(2) Linkages between genes
(3) Segregation of genes
(4) Dominance of genes
115. In *Melandrium*, sex determination is of
(1) XX-XO (2) ZZ-ZW
(3) XX-XY (4) XY-XO
116. Mustard gas was used as a chemical mutagen for the first time by
(1) Muller
(2) Alterberg
(3) Auerbach and Robinson
(4) Stadler
117. A chromosome with sub-terminal centromere is
(1) Acentric (2) Acrocentric
(3) Metacentric (4) Telocentric
118. Which of the following is first Man Made Plant?
(1) Triticale (2) Raphanobrassica
(3) Upland cotton (4) *Brassica juncea*
119. Highest number of chromosomes in plants have been recorded in
(1) *Marsilia* (2) *Aulosira*
(3) *Ophioglossum* (4) *Parthenium*

120. Which of the following histones is associated with linker DNA?
- (1) H₁ (2) H_{2A}
 (3) H₃ (4) H₄
121. Which of the following increases the frequency of crossing over when increased ?
- (1) Temperature (2) X rays
 (3) Radium radiations (4) All of these
122. The number of linkage groups correspond to
- (1) Number of pairs of chromosomes in a diploid
 (2) Number of chromosomes in a diploid
 (3) General structure of an organism
 (4) Tetraploid number of chromosomes
123. Mendel observed that some characters did not assort independently. Later researches found it to be due to
- (1) Crossing over
 (2) Linkage
 (3) Dominance of one trait over the other
 (4) Amitosis
124. Individuals homozygous for cd genes were crossed with wild type (++). The F₁ dihybrid thus produced was test crossed. It produced progeny in the following ratio
- ++900
 cd 880
 +d 115
 +c 105
- What is distance between c and d genes ?
- (1) 5.75 units (2) 11 units
 (3) 47 units (4) 88 units
125. If two genes "a" and "b" are linked and show 20% recombination, the proportion of gametes produced in F₁ by a dihybrid ++/ab derived from a cross between ++/++ and ab/ab would be
- (1) ++80 : ab 20
 (2) ++50 : ab 50
 (3) ++40 : ab 40 : +a 10 : +b 10
 (4) ++20 : ab 20 : +a 20 : +b 20
126. The condition required for Hardy-Weinberg equilibrium is
- (1) No mutation and no gene flow between populations
 (2) Very large population and random mating
 (3) There must be no natural selection
 (4) All of the above
127. Mutations
- (1) Are the ultimate source of genetic variability
 (2) Are goal directed
 (3) Are commonly occurring phenomenon
 (4) Arise as a result of, or in anticipation of environmental necessities
128. Which of the following statement is correct ?
- (1) When individuals move from one population to another and interbreed at the new location, alleles are transferred from one gene pool to another
 (2) Gene flow spreads advantageous alleles throughout the species
 (3) Gene flow helps to maintain all the organisms over a large area as one species
 (4) All of the above
129. Genetic drift is a
- (1) Random process (2) Directed process
 (3) Selection-driven process
 (4) Co-evolutionary process
130. Which of the following is not a characteristic of natural selection?
- (1) Natural selection causes genetic changes in individuals
 (2) Natural selection acts on individuals but evolution occurs in populations
 (3) Fitness of an organism is measured by its reproductive success
 (4) Natural selection is not the only evolutionary force
131. Disruptive selection
- (1) Adapts individuals within a population to different habitats
 (2) Favours individuals who possess relatively extreme values for a trait at the expense of individuals with average values
 (3) Favours organisms at both ends of the distribution of the trait
 (4) All of the above

132. In Co-evolution
- (1) Two species interact extensively, and each exerts strong selection pressure on the other
 - (2) When one species evolves a new feature or modifies an old feature, the other species typically evolves new adaptations in the response
 - (3) Both species shows mutual feedback
 - (4) All of the above
133. Speciation is the process by which new species form. The scientist who played a major role in describing the process of speciation was
- (1) Charles Darwin
 - (2) Ernst Mayr
 - (3) G. J. Mendel
 - (4) George Palade
134. Allopatric speciation can occur in populations that are
- (1) Physically separated
 - (2) In the same area
 - (3) Physically non-separated
 - (4) In the same area and within the same ecological conditions
135. Darwinian fitness is a measure of
- (1) Survival
 - (2) Number of mating
 - (3) Adaptation to the environment
 - (4) Number of viable offspring
136. According to the Hardy- Weinberg theorem
- (1) The genetic structure of a population should remain constant from one generation to next if, there is no selection, mutation, migration and random drift
 - (2) The genetic structure of a population should remain constant from one generation to next, if there is mutation, selection, migration and random drift
 - (3) Only natural selection, resulting in unequal reproductive success, will cause evolution
 - (4) Genetic drift, gene flow, mutations and non-random mating are non-adaptive causes of micro-evolution, natural selection being the only adaptive cause
137. Gene flow often results in
- (1) Populations that are better adapted to the environment
 - (2) A reduction of the allele frequency differences between populations
 - (3) An increase in sampling error in the formation of the next generation
 - (4) adaptive micro-evolution
138. Two animals are considered different species if they
- (1) Look different
 - (2) Cannot inter-breed
 - (3) Live in different habitats
 - (4) Are members of different populations
139. A new species can arise in a single generation
- (1) Through geographical isolation
 - (2) In a very large population that is spread over a large area
 - (3) If a change in chromosome number creates a reproductive barrier
 - (4) If allopatric speciation occurs
140. The evolution of numerous species, such as Darwin's finches, from a single ancestor is called
- (1) Adaptive radiation
 - (2) Sympatric speciation
 - (3) Gradualism
 - (4) Convergent evolution
141. Individuals of different species living in the same area may be prevented from inter-breeding by responding to different mating chances. This is called
- (1) Ecological isolation
 - (2) Hybrid break down
 - (3) Mechanical isolation
 - (4) Behavioural isolation
142. Genetic basis of adaptation was demonstrated through experiments by
- (1) Lederberg
 - (2) Hugo de Vries
 - (3) Charles Darwin
 - (4) Lamarck
143. Population of dark *Biston betularia* increased greatly in England from 1848 to 1898. The selective agent causing the change was/were
- (1) Tree bark
 - (2) Birds
 - (3) Human beings
 - (4) Toxins from smoke
144. Many hybrids are sterile because their chromosomes don't pair up correctly during meiosis. Why aren't polyploid plants sterile?
- (1) They backcross to the parental generation
 - (2) Most are triploid
 - (3) They cross-pollinate
 - (4) They self-fertilize, using their diploid gametes
145. and generate variation, while results in adaptation to the environment.
- (1) Genetic drift natural selection mutation
 - (2) Mutation sexual recombination natural selection
 - (3) Overproduction of offspring mutation sexual recombination
 - (4) Natural selection mutation sexual recombination

146. The smallest unit that can evolve is a

- (1) Species
- (2) Genotype
- (3) Gene
- (4) Population

147. In evolutionary terms, an organism's fitness is measured by its

- (1) Health
- (2) Contribution to the gene pool of the next generation
- (3) Mutation rate
- (4) Genetic variability

148. Darwin

- (1) Was the first person to realize that organisms can evolve
- (2) Believed that organisms could pass on acquired changes to the offspring
- (3) Was eager to publish his theory so that he could get all the credit
- (4) Worked out the mechanism of evolution by natural selection

149. If a new allele suddenly becomes very abundant in a population, most likely it is

- (1) Mutating rapidly
- (2) Flowing with emigrants
- (3) Strongly selected for
- (4) A product of assortative mating

150. People, who carry an allele for normal haemoglobin and an allele for sickle cell, are resistant to malaria. They are examples of

- (1) Heterozygote advantage
- (2) Extreme diploidy
- (3) Out-breeding
- (4) Recessive superiority