

- 1) Which one of the following is incorrect?
  - a) Speciation has occurred
  - b) Speciation is occurring
  - c) Speciation will occur
  - d) None of these
  
- 2) Which one of the following is a causal factor of speciation?
  - a) Genetic drift and mutation
  - b) Geographic isolation and migration
  - c) Habitat geometry
  - d) All of these
  
- 3) In which one of the following speciations does a population split into two geographically isolated populations?
  - a) Natural speciation
  - b) Allopatric
  - c) Parapatric
  - d) Sympatric
  
- 4) Which one of the following is a primary component of speciation?
  - a) Genetic isolation
  - b) Diversification
  - c) Both (a) and (b)
  - d) Genetic drift
  
- 5) When one or more species arise without geographical segregation of population, it is known as:
  - a) Allopatric speciation
  - b) Sympatric speciation



- c) Parapatric speciation
  - d) Peripatric speciation
- 6) Natural selection may contribute to the reproductive isolation of incipient species by enhancing varieties to develop barriers to hybridisation. This is known as:
- a) Wall ace effect
  - b) Bottleneck effect
  - c) Founder effect
  - d) Trafalgar effect
- 7) Disruptive selection was proposed by:
- a) CC Li (1955)
  - b) C P Haskins (1957)
  - c) J M Smith (1962)
  - d) G L Stebbins (1968)
- 8) Ring species provides evidence that speciation has occurred:
- a) Allopatrictically
  - b) Sympatrically
  - c) Parapatrictically
  - d) None of these
- 9) Which one of the following is the main difference between different models of speciation?
- a) Accumulation of genetic differences
  - b) Evolution of reproductive isolation
  - c) Way of interruption of gene flow
  - d) All of these
- 10) Which one of the following is applicable to genetic drift?



- a) Sewall Wright effect
- b) Wallace effect
- c) Bottleneck effect
- d) Fountain effect

11) In majority of animal groups, the mode of speciation is:

- a) Peripatric
- b) Sympatric
- c) Allopatric
- d) Parapatric

12) Which one of the following is a post-zygotic isolating mechanism?

- a) Hybrid sterility
- b) Hybrid inviability
- c) Hybrid breakdown
- d) All of these

13) Consider the following statements:

- a) Levels and patterns of biodiversity depend on the process of speciation
- b) Speciation can be observed directly from beginning to end
- c) Changes in protein may provide basis of new species
- d) Speciation may result from changes in gene regulation

The correct statements are:

- a) All of these
- b) A, Band C
- c) A, C and D
- d) A and D



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14) Which one of the following plays a more important role in the speciation of plants?

- a) Ethological isolation
- b) Mechanical isolation
- c) Geographical isolation
- d) Ecological isolation

15) In isolation, changes in the gene pool may occur through:

- a) Natural selection
- b) Genetic drift
- c) Founder effect
- d) A combination of all of these

16) Three-spined sticklebacks present a good example of:

- a) Allopatric speciation
- b) Sympatric speciation
- c) Peripatric speciation
- d) Hybrid inviability

17) Which one of the following forms a ring species around the Himalayas?

- a) Greenish Warbler (*Phylloscopus trochiloides*)
- b) Larus gulls
- c) *Ensatina* salamanders
- d) *Drosophila bipectinata*

18) Which one of the following is probably the most common method of sympatric speciation?

- a) Hybridisation
- b) Structural changes
- c) Polyploidy



d) Founder effect

19) The pattern of species richness depends on:

- a) Changes in species
- b) Extinction
- c) Speciation
- d) All of these

20) Which one of the following is a geographic mode of speciation?

- a) Sympatry
- b) Parapatry
- c) Allopatry
- d) All of these

21) Which one of the following speciations can occur if some individuals begin to mate at a different time of a day or year?

- a) Allopatric
- b) Sympatric
- c) Both (a) and (b)
- d) None of these

22) Genus X has five species which differ in the time of their peak breeding activity. This is due to:

- a) Ecological isolation
- b) Behavioural isolation
- c) Mechanical isolation
- d) Temporal isolation

23) Which one of the following about Raphanobrassica is incorrect?



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- a) Tetraploid
- b) Fertile
- c) True breeding
- d) Completely isolated reproductively from its progenitors

24) Chromosomes that lack a centromere:

- a) Undergo irregular disjunction at mitosis
- b) Unable to be included in the daughter nuclei
- c) Ultimately lost
- d) All of these

25) Which one of the following about natural selection is correct?

- a) Natural selection can produce new genes.
- b) Natural selection can produce new gene combination(s) directly.
- c) Natural selection is responsible for moulding the genetic variations present in the population.
- d) All of these

26) Consider the following statements:

- a) Among polyploids, tetraploids have the diploid chromosome complement doubled
  - b) Habitat preference may promote speciation
  - c) Whenever disruptive or diversifying selection is active, sympatric speciation may occur
  - d) Geographical isolation is essential for speciation
- The correct statements are:

- a) All of these
- b) B, C and D
- c) A and B
- d) Band C



27) In parapatric speciation, reproductive isolation is:

- a) Temporal
- b) Temporal or behavioural
- c) Geographical
- d) All of these

28) Which one of the following tends to alter gene frequencies in large populations?

- a) Mutation and genetic recombination
- b) Natural selection
- c) Gene migration
- d) All of these

29) A large change in gene frequencies by        is a characteristic of small populations:

- a) Natural selection
- b) Genetic drift
- c) Mutation
- d) Gene migration

30) Natural selection is the main evolutionary agent in:

- a) Large population
- b) Medium population
- c) Small population
- d) All of the above

31) Sewall Wright has modified his genetic drift theory into:

- a) Sampling error theory
- b) Shifting balance theory
- c) Natural selection theory



d) Punctuated equilibrium theory

32) Changes in chromosome numbers (except polyploidy) arise by:

- a) Deletion
- b) Duplication
- c) Inversion
- d) Translocation

33) Which one of the following about biological concept of species is incorrect?

- a) Distinct unit at any given time
- b) Groups of interbreeding natural populations
- c) Evolutionary capacity to change continuously
- d) None of these

34) Reinforced mating discrimination:

- a) Is exhibited as dominant trait
- b) Exhibits variability within species
- c) May be influenced by a known set of
- d) All of these

35) Reinforcement occurs when natural selection strengthens behavioural discrimination to prevent:

- a) Interspecies mating
- b) Intraspecies mating
- c) Both (a) and (b)
- d) None of these

36) Which one of the following is an example of ethological isolation?

- a) Courtship pattern



- b) Specific mating calls
- c) Specific scents
- d) All of these

37) Genetic drift results in the:

- a) Elimination of genes in a small population
- b) Fixation of genes in a small population
- c) Both (a) and (b)
- d) Neither elimination nor-fixation of genes

38) A higher chromosome number of male parent represents:

- a) Mechanical isolation
- b) Reproductive isolation
- c) Ethological isolation
- d) Both (a) and (b)

39) Raphanobrassica is a classical example of:

- a) Autooctoploidy
- b) Allopolyploidy
- c) Autopolyploidy
- d) Hexaploidy

40) Consider the following statements:

- (A) Peripatric speciation was proposed by Ernst Mayr
- (B) In peripatric speciation, one of the populations is much smaller than the other
- (C) Genetic drift plays a significant role in peripatric speciation
- (D) Peripatric speciation is related to the founder effect and selection bottlenecks occur in it

The incorrect statements are:

- a) A,BandC



- b) BandC
- c) CandD
- d) None of the above

41) Which one of the following is a special case of genetic drift?

- a) Haldane effect
- b) Founder effect
- c) Confusion effect
- d) Anderson effect

42) The first speciation gene discovered in mammals is the:

- a) sd gene
- b) RB gene
- c) ab! Gene
- d) Prdm 9 gene

43) The initial barrier to gene flow in allopatric speciation is:

- a) Mechanical
- b) Behavioural
- c) Geographical
- d) Different time of mating

44) Consider the following statements:

- a) Reduced gene flow probably plays a key role in speciation
- b) A species must be monophyletic and share one or more derived characteristics
- c) In hybridisation, the heterogametic sex is the most likely to have reduced fertility or viability
- d) Different types of barriers are responsible for different types of speciation.

The incorrect statements are:



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- a) A and B
- b) B and D
- c) C and D
- d) None of these

45) Which one of the following is an outcome of speciation?

- a) Adaptive radiation
- b) Co-evolution
- c) Divergent evolution
- d) Parallel evolution

46) A post isolating mechanism prevents \_\_\_\_\_ of hybrid:

- a) Development
- b) Survival
- c) Reproduction
- d) All of these

47) The formation of many species from a single common ancestor is known as:

- (a) Variation
- (b) Adaptive radiation
- (c) Parallel evolution
- (d) Co-evolution

48) Which one of the following functions in isolating a population?

- a) Time
- b) Geography
- c) Behaviour
- d) All of these



49) Which one of the following is the fundamental unit of evolution?

- a) Species
- b) Genus
- c) Individual
- d) Population

50) The chromosomes of the hybrid individuals:

- a) Fail to separate during meiosis
- b) Fail to form gametes
- c) Form defective gametes
- d) All of these

51) In which one of the following does interspecific sterility result in the production of offsprings with lethal genes in them?

- a) Nemeophila
- b) Xiphophorus
- c) Limulus
- d) Rana

52) Auto polyploids are sterile to varying degrees, because:

- a) Generally, plants lack sex chromosomes
- b) The majority of plants are monoecious
- c) Unequal segregation of chromosomes in the quadrivalents
- d) None of these

53) Polyploidy is common in plants, because:

- a) A majority of plants are monoecious
- b) There is a general absence of sex chromosomes
- c) Asexual reproduction in plants results in partially sterile polyploid species to



propagate

- d) All of these

54) Polyploidy occurs due to:

- a) Errors during meiosis
- b) Errors during fertilisation
- c) Both (a) and (b)
- d) None of these

