

EVOLUTION

1. Biogenetic law of Von Baer & Ernst haekel is

- (a) Phylogeny repeats ontogeny (b) Ontogeny repeats phylogeny**
(c) Ontogeny never repeats phylogene (d) Ontogeny and phylogeny are cyclic

2. Evidence from fossils records are obtained by calculating age of fossil found in–

- (a) Metamorphic rock (b) Sedimentary rocks* (c) Igneous rocks (d) Earth crust

3. Mammals originated during the period-

- (a) Triassic* (b) Jurassic (c) Cretaceous (d) Permian

4. First plant having seed habit (Heterosporous Pterodophyte) originated during-

- (a) Silurian* (b) Devonian (c) Carboniferous (d) Permian

5. First human appeared during-

- (a) Oligocene (b) Miocene (c) Pliocene (d) Pleistocene*

6. Era of reptiles and gymnosperm is-

- (a) Precambrian (b) Paleozoic (c) Mesozoic * (d) Cenozoic

7. The correct order of evolution of horse is-

- (a) Mesohippus, Hyracotherium, Meryhippus, pliohippus, equus.
(b) Mesohippus, Meryhippus, Hyracotherium, pliohippus, equus.
(c) Mesohippus, Meryhippus, pliohippus, Hyracotherium, equus.
(d) Hyracotherium, Mesohippus, Meryhippus, pliohippus, equus.*

8. Darwin's theory of pangenesis was refuted by-

- (a) Recapitulation theory (b) theory of Germplasm*
(c) Chromosome theory (d) theory of biogenesis

9. Mutation theory of Hugo de vries was put forward while working on-

- (a) Drosophila (b) Ancon sheep (c) Oenothera amarckiana* (d) Antirrhinum

10. Evolution at genetic level is termed as-

- (a) Microevolution* (b) Macroevolution (c) Gene Evolution (d) Point mutation

11. The oldest microfossil so far of age 3.5 billion year ago was-

- (a) Coacervates (b) Eobionts (c) Microspheres (d) Cyanobacteria*

12. In his book, "The origin of life (1938)" oparin submitted abiogenesis first bur biogenesis ever since, this theory is named as-

- (a) Spontaneous generation (b) Chemical origin* (c) Primary abiogenesis (d) Biogenesis

13. Experimental evidence for molecular evolution of life was provided by-

- (a) Oparin (b) Haldane * (c) Urey and Miller (d) Syndey fox

14. During pre-biotic origin of life which chemical played important role in formation of nucleotide specially guanosine-

- (a) CH₄ (b) CO₂ (c) NH₃ (d) HCN**

15. Among the following which molecule till now not synthesized by mimicking the environment of pre-biotic environment-

- (a) Ribose** (b) Pyrimidines (c) Purine (d) L-aminoacids

16. Among the following the evidence of evolution from biogeography is-

- (a) Embryo development (b) Plate tectonics (c) Darwin finches* (d) Darwin turtles

17. Thorns of Bougenwalia plant and tendril of cucurbits are-

- (a) Homologous organs** (b) Paralogous organ (c) Analogous organ (d) Orthologous organ

18. Placental mammals such as mouse, wolf, Australian marsupials such as marsupial mouse, Tasmanian wolf shows-

- (a) Parallel evolution** (b) Convergent evolution
(c) Divergent evolution (d) Phyletic evolution

19. Which of the following is not an vestigial organ in humans-

- (a) Ear muscles (b) Tail vertebra (c) Premolar** (d) Appendix

20. Which of the following was earliest form with lipid bilayer and can reproduce by budding-

- (a) Coacervates (b) Micro spheres** (c) protobionts (d) Monospheres

21. Which of them do not cause variation at genetic level-

- (a) Mutation and recombination (b) Gene migration and drift
(c) Natural selection and artificial selection (d) Panmictic population**

22. The raw material for evolution is variability of gene or allele at/in-

- (a) individual level (b) population (c) gene pool** (d) community

23. Founder effect is concerned with-

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

24. If the individual at one extreme of the size distribution (eg., larger one) contribute more offspring to next generation then such selection is called as-

- (a) Directional** (b) Disruptive (c) Cyclic (d) Stabilizing

25. Examples of polymorphism in human is-

- (a) ABO blood group (b) Sickle cell anaemia (c) height and Intelligence (d) All of the above**

26. When the preservation of genetic variability is through heterozygote superiority it is termed as-

- (a) Heteropolymorphism (b) Balanced polymorphism**
(c) Stabilizing polymorphism (d) Directional polymorphism

27. Type of speciation due to polyploidy is-

- (a) Allopathic (b) Parapatric (c) Peripatric (d) Sympatric**

28. When the two species are morphologically almost identical but reproductively isolated, are termed as-

- (a) Taxonomic species (b) Ecotypes (c) Sibling species** (d) Morphospecies

29. Which of the following is not a prerequisite for natural selection's operation?

- a) More offspring than can possibly survive b) Differential reproduction
c) An innate desire to change** d) Competition for resources

30. Which statement best characterizes natural selection?

- a) Blind, random chance hitting upon lucky combinations
b) The slow accumulation of adaptive mutations**
c) Absolute dependence on carbon-based biochemistry
d) Organisms perishing when unexpected calamities occur

31. The wing of the bat and the fore-limb of the dog are said to be homologous structures. This indicates that:

- a) They have the same function
b) Bats evolved from a lineage of dogs
c) They are structures which are similar due to common ancestry**
d) The limb bones of each are anatomically identical

32. Marine mammals have many structural characteristics in common with fishes. The explanation that evolutionary theory would give for this similarity is:

- a) Fish and mammals are closely related
b) Fish evolved structures similar to those already existing in mammals
c) Marine mammals evolved directly from the fishes
d) Marine mammals adapted to an environment similar to that of the fishes**

33. An alternation in the arrangement of nucleotides in a chromosome, possibly resulting in either a structural or physiological change in the organism, is called:

- a) Genetic drift b) Natural selection c) Gene flow d) A mutation**

34. A sudden major climatic change would most likely initially result in:

- a. A rapid increase in adaptive radiation
b. A rapid increase in extinction rates
c. A sharp increase in numbers of species
d. An increase in mutation rates**

35. Which of the following best represents Lamarck's ideas on the evolutionary process?

- a) Survival of the fittest
- b) Inheritance of acquired characteristics**
- c) Neutral drift
- d) Punctuated equilibrium

36. With respect to the alleles for sickle cell anemia, which genotype(s) is (are) at a disadvantage to persons residing in tropical areas of Africa?

- a. homozygous recessive*
- b. homozygous dominant
- c. heterozygous
- d. both heterozygous and homozygous dominant

37. Individual species will continually evolve as a result of:

- a. coevolution.
- b. convergent evolution.
- c. punctuated equilibrium.
- d. natural selection**.

38. Evolutionary modifications that improve the survival and reproductive success of an organism are called:

- a. mutations.
- b. vestigial structures.
- c. homoplastic traits.
- d. Adaptations*.

39. Whose findings of evolution by natural selection were presented with those of Darwin?

- a. Alfred Wallace
- b. Carolus Linnaeus
- c. Charles Lyell
- d. Gregor Mendel

40. Perhaps the most direct evidence for evolution comes from:

- a. biogeography.
- b. comparative anatomy.
- c. developmental biology.
- d. the fossil record.**

41. Bird wings and insect wings are considered to be:

- a. homologous structures.
- b. homogenous structures.
- c. vestigial structures.
- d. homoplastic structures.**

42. The front limbs of birds and bats, both wings, are considered to be:

- a. homologous structures.**
- b. homozygous structures.
- c. convergent structures
- d. homoplastic structures.

43. When populations with separate ancestors adapt in similar ways to similar environmental constraints, it is referred to as:

- a. biogeography.
- b. coevolution.
- c. convergent evolution**.
- d. homologous evolution.

44. Which of the following early embryos would be the easiest to distinguish from the others?
a. bird b. honey bee** c. Human d. snake
45. If a population of 1000 individuals has 160 aa genotypes, the genotype frequency of the aa genotype is:
a. 0.016. b. 0.08. c. 0.16**. d. 0.8.
46. If a population of 1000 individuals has 160 aa genotypes, assuming simple dominance by the A allele, the phenotype frequency of the dominant phenotype is:
a. 0.08. b. 0.16. c. 0.42. d. 0.84**.
47. What is the correct equation for the Hardy-Weinberg principle?
a. $p^2 + 2pq + q^2 + q^2 = 100$ b. $p^2 + 2p + 2q + q^2 = 1$
c. $p^2 - 2pq + q^2 = 1$ d. $p^2 + 2pq + q^2 = 1$ **
48. In the Hardy-Weinberg equation, the term q^2 refers to the frequency of:
a. the recessive allele at a given locus. b. the homozygous recessive genotype at a given locus.**
c. the recessive alleles in a given population. d. the heterozygotes in a population.
49. Which of the following causes changes in allele frequencies?
a. genetic drift b. natural selection
c. gene flow from migration d. All of these.**
50. Due to a rapid change in the environment, a population of ants was reduced from 1 million to 1 thousand. What type of genetic drift will occur in the gene pool of this population when it expands again?
a. the founder effect b. migration
c. a genetic bottleneck** d. gene flow
51. Random evolutionary changes in a small breeding population is known as:
a. gene flow. b. genetic drift* c. disruptive selection. d. natural selection.
52. The migration of breeding individuals between populations causes a corresponding movement of alleles, which is referred to as:
a. genetic drift. b. directional selection. c. natural selection. d. gene flow.**
53. The overuse of antibiotics has led to a form of antibiotic resistant tuberculosis. This has occurred as a result of:
a. directional selection within the bacterial population.**
b. stabilizing selection within the bacterial population.
c. disruptive selection within the bacterial population.
d. a heterozygote advantage within the bacterial population.

54. In _____ selection, individuals with a phenotype near the mean are favored over those at the phenotypic extremes.

- a. directional b. Disruptive c. stabilizing** d. frequency-dependent

55. The distribution of phenotypes for human birth weight is a good example of:

- a. the founder effect. b. directional selection. c. disruptive selection. d. stabilizing selection**.

56. In the human species, a heterozygote advantage is demonstrated by which condition?

- a. hemophilia b. sickle cell anemia** c. Down syndrome d. Klinefelter syndrome

57. Theory of abiogenesis or spontaneous generation was finally disapproved by

- a. Louis Pasteur** b. A.I. Oparin c. A.R. Wallace d. Sydney Fox

58. Chronological sequence of evolution of the genus Homo are

- a. Homo habilis – H. erectus -- H. neander -- H. sapiens sapiens**
b. Homo habilis – H. sapiens neanderthalensis -- H. sapiens sapiens
c) Homo erectus – H. habilis -- H. sapiens sapiens -- H. sapiens neanderthalensis
d) Homo neanderthalensi – H. erectus -- H. sapiens sapiens -- H. habilis

59. Which of the following fossil man possessed a cranial capacity almost equal to that of modern man?

- a. Neanderthal man** b. Java ape man c. Peking man d. Australopithecus africanus

60. During the evolution of man, the first human like being was

- a. Homo sapiens b. Homo habilis** c. Ramapithecus d. Dryopithecus