



BIOLOGY

BOOKS - NCERT BIOLOGY (ENGLISH)

EVOLUTION

Multiple Choice Question Mcqs

1. Which of the following is used as an atmospheric pollution indicator?

A. Lepidoptera

B. Lichens

C. Lycopersicon

D. Lycopodium

Answer: B



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2. The theory of spontaneous generation stated that

A. life arose from living forms only

B. life can arise from both living and non-living

C. life can arise from non-living things only

D. life arises spontaneously, neither from living nor from the non-living

Answer: C



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3. Animal husbandry and plant breeding programmes are the examples of

A. reverse evolution

B. artificial selection

C. mutation

D. natural selection

Answer: B



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4. Palaeontological evidences for evolution refer to the

A. development of embryo

B. homologous organs

C. fossils

D. analogous organs

Answer: C



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5. The bones of forelimbs of whale, bat, cheetah and man are similar in structure, because.

- A. one organism have given rise to another
- B. they share a common ancestor
- C. they perform the same function
- D. the have biochemical similarities

Answer: B



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6. Analogous organs arise due to

A. divergent evolution

B. artificial selection

C. genetic drift

D. convergent evolution

Answer: D



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7. $(p+q)^2 + 2pq + q^2 = 1$ represents an equation used in

A. population genetics

B. Mendelian genetics

C. biometrics

D. molecular genetics

Answer: A



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8. Appearance of antibiotic-resistant bacteria is an example of

A. adaptive radiation

B. transduction

C. pre-existing variation in the population

D. divergent evolution

Answer: C



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9. Evolution of life shows that life had a trend of moving from

- A. land to water
- B. dryland to wet land
- C. fresh water to sea water
- D. water to land

Answer: D



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10. Viviparity is considered to be more evolved because

A. the young ones are left on their own

B. the young ones are protected by a thick shell

C. The young ones are protected inside the mother's body and are looked after they are born leading to more chances of survival

D. the embryo takes a long time to develop

Answer: C



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11. Fossils are generally found in

A. sedimentary rocks

B. igneous rocks

C. metamorphic rocks

D. any type of rock

Answer: A



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12. For the MN-blood group system. The frequencies of M and N alleles are 0.7 and 0.3, respectively. The expected frequency of MN-blood group bearing organisms is likely to be

A. 42 %

B. 49 %

C. 9 %

D. 58 %

Answer: A



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13. Which type of selection is industrial melanism observed in moth, *Biston betularia*?

A. Stabilising

B. Directional

C. Disruptive

D. Artificial

Answer: B



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14. The most accepted line of descent in human evolution is

A. Australpithecus → Rampithecus →

Homo sapiens → Homo habills

B. Homo erectus → Homo habilis →

Homo sapiens

C. Ramapithecus → Homo habilis →

Homo sapiens

D. Australopithecus → Ramapithecus

→ Homo erectus → homo habilis

→ Homo sapiens

Answer: C



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15. Which of the following is an example for link species?

A. Lobe fish

B. Dodo bird

C. Sea weed

D. Chimpanzee

Answer: A



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16. Match the scientists listed under Column 'A' with ideas listed under column 'B'

Column I column II

Darwin (i) Abiogenesis

Oparin (ii) Use and disuse of organs

Lamarck (iii) continental drift theory

Wagner (iv) Evolution by natural selection

A. *A* *B* *C* *D*
 1 4 2 3

B. *A* *B* *C* *D*
 4 1 2 3

C. *A* *B* *C* *D*
 2 4 3 1

D. *A* *B* *C* *D*
 4 3 2 1

Answer: B





17. In 1953 S.L. Miller created primitive earth conditions in the laboratory and gave experimental evidence for origin of first form of life from pre-existing non-living. Organic molecules. The primitive earth conditions created include.

A. low temperature, volcanic storms,
atmosphere rich in oxygen

- B. low temperature, volcanic storms,
reducing atmosphere
- C. high temperature, volcanic storms, non-
reducing atmosphere
- D. high temperature, volcanic storms,
reducing atmosphere containing
 CH_4 , NH_3 etc.

Answer: D



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18. Variations during mutations of meiotic recombinations are

A. random and directionless

B. random and directional

C. random and small

D. random, small and directional

Answer: A



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Very Short Answer Type Questions

1. What were the characteristic of life forms that had been fossilised ?



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2. Did aquatic life get fossilised ? If, yes where do we come across such fossils. ?



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3. What are we referring to when we say 'simple organism' or 'complex organism' ?



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4. How do we compute the age of a living tree ?



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5. Give an example for convergent evolution and identify the features towards which they

are converging.



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6. How do we compute the age of a fossils ?



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7. What is the most important pre-condition for adaptive radiation ?



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8. How do we compute the age of a rock ?



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9. When we talk functional macromolecules (e.g., proteins as enzymes, hormones, receptors, antibodies etc.), towards what are they evolving ?



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10. In a certain population, the frequency of three genotypes is as follows

Genotypes	<i>BB</i>	<i>Bb</i>	<i>bb</i>
Frequency	22 %	62 %	16 %

What is the likely frequency of B and b alleles ?



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11. Among the five factors that are known to affect Hardy- Weinberg equilibrium, three factors are gene flow, genetic drift and genetic

recombination. What are the other two factors. ?



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12. What is founder effect ?



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13. Who among the Drypithecus and Ramapithecus was more man like ?



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14. By what Latin name, the first Hominid was known?



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15. Among Ramapithecus, Australopithecines and Homo habilis who probably did not eat meat ?



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Short Answer Tpye Question

1. Louis Pasteur's experiments, if you recall, proved that life can arise from only pre-existing life. Can we correct this as life evolves from pre-esistent life or otherwise we will never answer the question as to how the first forms of life arose ? Comment.



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2. The scientist believe that evolution is gradual. But extinction, part of evolutionary story, are ' sudden ' and 'abrupt' and also group-specific. Comment whether a natural disaster can be the cause for extinction of species.



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3. Why is nascent oxygen supposed to be toxic to aerobic life forms?





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4. While creation and presence of variation is directionless, natural selection is directional as it is in the context of adaptation. Comment.



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5. The evolutionary story of moths in England during industrialisation reveals, that ' evolution is apparently reversible '. Clarify this statement.



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6. Comment on the statement that ' evolution and natural selection are end result or consequence of some other processes, but themselves are not processes'.



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7. State and explain any three factors affecting allele frequency in population.





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8. Gene flow occurs through generations. Gene flow can occur across language barriers in humans. If we have a technique of measuring specific allele frequencies in different population of the world, can we not predict human migratory patterns in pre-history and history ? Do you agree or disagree ? Provide explanation to your answer.



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9. How do you express the meaning of words like race, breed, cultivars or variety ?



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10. When we say ' survival of the fittest ' , does it mean that

(a) those which are fit only survive

(b) those that survive are called fit? Comment.



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11. Enumerate three most characteristic criteria for designating a Mendelian population.



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12. Migration may enhance or blurr the effects of selection' comment.



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Long Answer Type Questions

1. Name the law that states that the sum of allelic frequencies in a population remains constant. What are the five factors that influence these values ?



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2. Explain divergent evolution in detail. What is the driving force behind it ?



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3. You have studied the story of peppered moths in England. Had the industries been removed, what impact could it have on the moth population ? Discuss.



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4. What are the key concepts in the evolution theory of Darwin?



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5. Two organisms occupying a particular geographical area (say desert) show similar adaptive strategies. Taking examples, describe the phenomenon.



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6. We are told that evolution is a continuing phenomenon for all living things. Are humans also evolving ? Justify your answer.



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7. Had Darwin been aware of Mendel's work would he be able to explain the origin of variations. Discuss.



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