

15 Evolution (19 Lessons)

1. The wings of a bird and those of a housefly adapt the two organisms to a boreal habitat.
 - i) Give the evolutionary process that may have given rise to these structures. (1 mark)
 - ii) What name is given to such structures? (1 mark)
2. The wings of a bird and that of insects are analogous structures.
 - (a) What are analogous structures? (2mks)
 - (b) Name this type of evolution. (1mk)
3. Name a vestigial structure found in:
 - (a) Man. (1mk)
 - (b) Whale. (1mk)
4. In a prolonged drought period, forage was scarce. It made animals reach out for higher forage and this way the giraffes got the stretched long necks.
 - (a) What is the term used for a characteristic such as the long necks outlined? (1 mark)
 - (b) What is the name given to the theory that describes the evolution of such structures like the long necks? (1 mark)
 - a) i) Identify the stage of cell division (1 mark)
 - (c) State and explain the limitation of the theory you named in (b) above. (2 marks)
5. The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.
 - a) Name the evolutionary process that may have given rise to these structures. (1mk)
 - b) What is the name given to such structures? (1mk)
 - c) Give two examples of vestigial organs in man. (2mk)
6.
 - a) Outline the main features of Lamarckian theory of evolution. (2mk)
 - b) In view of modern genetics, explain why Lamarck's theory is unacceptable. (1mk)
 - c) Name one factor in nature that increases the process of evolution. (1mk)
7.
 - (a) Define the term evolution (1 mark)
 - (b) State four sources of evidences that support the theory of organic evolution. (4 marks)
8. After a colony of penicillin-sensitive bacteria was exposed to antibiotic penicillin, a penicillin resistant emerged. Explain this observation (2 Marks)
9. What is meant by speciation? (2 Marks)
10.
 - a) what is natural selection? (4marks)
 - b) Describe **four** evidences for organic evolution. (16marks)
11.
 - (a) Distinguish between homologous and analogous structures in evolution. (2mks)
 - (b) Give **one** limitation of fossil records as evidence for organic revolution. (1mk)
12. a) What are vestigial structures? (1 mark)

- b) State **one** major importance of convergent evolution to living organisms. (1 mark)
c) Why is Larmarck's theory not popular with scientists? (1 mark)

13. (a) What is meant by the following term Adaptive radiation (1mk)
(b) Evolution is an ongoing process and is still going on even today. State **two** pieces of evidence which suggests that evolution is still taking place. (2mks)
(c) Explain how the following factors influence natural selection. (4mks)
(i) Predators
(ii) Diseases
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14. (a) Define:
(i) Chemical evolution. 2mks
(ii) Organic evolution. 2mks

15. 50 black mice and 50 white mice were released into an area inhabited by a pair of owls. After four months 38 of the black mice and 9 of the white mice were recaptured.
a. How this observation would be explained. (2 marks)
b. Name the theory of evolution that support the results in (a) above. (1mark)
c. Name two vestigial structures in man. (2 marks)

16. State two advantages of natural selection. (2 marks)

17. a) What are fossils? (1mark)
b) State two different types of fossils. (2marks)
c) State two limitations of the use of fossils as an evidence evolution. (2marks)
18. a) Give two reasons why the evolution of human enabled him to survive better than his hominid ancestors. (2marks)

- b) Why is Lamarck's theory of evolution not accepted by biologists today?

19. a) What is meant by the term vestigial structures? 1mk
b) Name the type of evolution illustrated by
i) Hind limbs of birds 2mks
ii) Wings of birds and insects. (1mark)
20. a) What is the difference between Darwinian and Larmackian theories of evolution. 2mks