

NCERT solutions for class 12 biology chapter 7 Evolution

Q 1. Explain antibiotic resistance observed in bacteria in light of Darwinian selection theory.

Answer:

Darwinian selection theory suggests that the environment selects organisms with useful variation over those which do not have useful variations. It is mainly because, in a dynamic environment, these organisms are better adapted to survive. A well-defined example for Darwin's theory is antibiotic resistance in bacteria. When bacteria were grown on penicillin containing agar medium, all the bacteria died, however, the ones having variations conferring penicillin resistance survived. Later, these bacteria multiplied and increased their number. As a result of this, penicillin-resistant bacteria evolved and survived because of the environment that selected these over the others.

Q2. Find out from newspapers and popular science articles any new fossil discoveries or controversies about evolution.

Answer:

A recent study suggests Ledumahadi mafube is the fossil from South Africa, that marked the beginning of gigantic dinosaurs. This 200 million-year-old dinosaur weighed around 12 tons, making it the earliest dinosaur to pass beyond the 10-ton threshold. Later, dinosaurs would become even bigger. But in its time, *Ledumahadi mafube* was a giant among dwarfs (Source- Business standard).

Q3. Attempt giving a clear definition of the term species. .

Answer:

The term species refers to a group of individuals that are similar in their characters and can interbreed among themselves and produce viable and fertile progenies.

Q4. Try to trace the various components of human evolution (hint: brain size and function, skeletal structure, dietary preference, etc.)

Answer:

The various components of human evolution involve the age of appearance, brain capacity, posture, locomotion, height, body hairs, dietary preferences, skeletal structure, cranium structure etc. A summary of human evolution based on these components is as follows:

	Name of the Organisms	Brain capacity in cm ³	Posture	Dietary preferences	Some other features
1.	<i>Dryopithecus</i>	not known	Bent, ape-like	Soft fruits and leaves	Equal sized arms and legs, large canines
2.	Ramapithecus	not known	Semi-erect, more man-like	seeds and nuts	Large molars, small canines

3.	Australopithecus	500	Fully erect	Herbivorous	Small canines, hunted with stones
5.	Homo habilis	650-800	Fully erect	Carnivorous	Toolmakers with small canines
6.	Homo erectus	900	Fully erect	Omnivorous	Used tools made of stones and bones
7.	Homo neanderthalensis	1400	Fully erect	Omnivorous	Cave dwellers used to hide their bodies
8.	Homo sapiens	1200-1600	Fully erect	Omnivorous	Highly intelligent, social

Q5. Find out through internet and popular science articles whether animals other than man has self-consciousness.

Answer:

Self-consciousness is the awareness of an animal towards its surroundings. Other than man, the animals which show self-consciousness are dolphins, orangutans, gorilla, chimps, elephants etc. Even dogs also show subtle consciousness.

Q6. List 10 modern-day animals and using the internet resources link it to a corresponding ancient fossil. Name both.

Answer:

Some modern animals and fossils to which they can be linked are as follows:

	Name of the animal	Name of the fossils
1.	Man	<i>Ramapithecus</i>
2.	Giraffe	<i>Palaeotragus</i>
3.	Tetrapods	<i>Ichthyostega</i>
4.	Fish	<i>Arandaspis</i>
5.	Dog	<i>Leptocyon</i>
6.	Horse	<i>Eohippus</i>
7.	Whale	<i>Protocetus</i>

8.	Bat	<i>Archaeonycteris</i>
9.	Elephant	<i>Moerithers</i>
10.	Camel	<i>Protylopus</i>

Q7. Practise drawing various animals and plants.

Answer:

With the help of your teachers try drawing various plants and animals. While drawing, you can draw comparisons between different structures of animals and plants.

Note- The answer to this question varies according to the students.

Q8. Describe one example of adaptive radiation.

Answer:

Adaptive radiation refers to the process in which the individuals belonging to a rapidly diversifying group, diverge from their lineage to form new species. Adaptive radiation works on the theory of natural selection. One example of adaptive radiation is Darwin's finches of Galapagos island. These finches were formed from a single diversifying species that came on this geographical region accidentally. The new species diversified and got adapted to the conditions present on this habitat. The different finches developed different eating habits and accordingly developed different beak structures. This further led to their evolution through adaptive radiation.

Q9. Can we call human evolution as adaptive radiation?

Answer:

No, human evolution cannot be called adaptive radiation because, in adaptive radiation, a single species diversifies into new different species, however, in case of human evolution, the gradual evolution of a single species occurred with time.

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