

Evolution — Assignment 1

Class 12 Biology · Topic-wise question bank covering every concept of the chapter · Narayan Gurukul Academy

Instructions: (1) Attempt all questions. This worksheet walks through every concept of the chapter, topic by topic.
(2) The interactive MCQ version of these questions (with instant answer reveal) is available on the notes page.
(3) Universal values: $g = 10 \text{ m/s}^2$ unless stated. Give answers with correct SI units.

Origin of Life and Chemical Evolution

MCQ Questions (choose the correct option)

- The theory of spontaneous generation states that life arises from
 - non-living matter
 - pre-existing life
 - genes
 - RNA
- Biogenesis means life arises from
 - pre-existing life
 - non-living matter
 - water
 - air
- The Miller-Urey experiment synthesised
 - amino acids
 - carbohydrates
 - proteins
 - DNA
- Life is believed to have originated in
 - water
 - air
 - soil
 - rocks

1 Mark Questions

- What is biogenesis?
- Who disproved spontaneous generation?
- What did the Miller-Urey experiment produce?

2 Mark Questions

- What is chemical evolution?
- Describe the Miller-Urey experiment.

3 Mark Questions

- Describe the origin of life by chemical evolution.
- Explain the experiments of Pasteur and Miller-Urey.

Evidences of Evolution

MCQ Questions (choose the correct option)

1. Homologous organs have
 - (A) the same structure but different functions
 - (B) different structures but the same function
 - (C) the same structure and function
 - (D) no relation
2. Analogous organs have
 - (A) different structures but the same function
 - (B) the same structure but different functions
 - (C) the same structure and function
 - (D) no relation
3. Fossils are evidence of
 - (A) palaeontology
 - (B) biochemistry
 - (C) embryology
 - (D) anatomy
4. The wings of a butterfly and a bird are
 - (A) analogous organs
 - (B) homologous organs
 - (C) vestigial organs
 - (D) connecting links

1 Mark Questions

1. What are homologous organs?
2. What are analogous organs?
3. What is a fossil?

2 Mark Questions

1. Differentiate between homologous and analogous organs.
2. What is a connecting link? Give an example.

3 Mark Questions

1. Describe the evidences of evolution.
2. Explain the significance of fossils in evolution.

Darwin's Theory and Natural Selection

MCQ Questions (choose the correct option)

1. Darwin's theory is based on
 - (A) natural selection
 - (B) mutation
 - (C) genetic drift
 - (D) coevolution
2. The struggle for existence leads to

- (A) survival of the fittest
 - (B) extinction only
 - (C) no change
 - (D) coevolution
3. Natural selection acts on
- (A) variations
 - (B) genes only
 - (C) proteins
 - (D) chromosomes
4. The book 'On the Origin of Species' was written by
- (A) Darwin
 - (B) Lamarck
 - (C) Wallace
 - (D) Mendel

1 Mark Questions

1. What is natural selection?
2. Who wrote 'On the Origin of Species'?
3. What is the struggle for existence?

2 Mark Questions

1. What is meant by the survival of the fittest?
2. State Darwin's theory of evolution.

3 Mark Questions

1. Explain Darwin's theory of natural selection.
2. Describe the types of natural selection.

Adaptive Radiation and Modern Synthetic Theory

MCQ Questions (choose the correct option)

1. Darwin's finches are an example of
 - (A) adaptive radiation
 - (B) coevolution
 - (C) genetic drift
 - (D) convergent evolution
2. The modern synthetic theory combines
 - (A) natural selection and genetics
 - (B) only mutation
 - (C) only selection
 - (D) only drift
3. Adaptive radiation leads to
 - (A) diversification
 - (B) extinction
 - (C) no change

- (D) migration
- 4. Mutation produces
 - (A) new variations
 - (B) no change
 - (C) proteins
 - (D) chromosomes

1 Mark Questions

1. What is adaptive radiation?
2. What is the modern synthetic theory?
3. What is a mutation?

2 Mark Questions

1. Explain adaptive radiation with an example.
2. What is the role of mutation in evolution?

3 Mark Questions

1. Describe adaptive radiation with reference to Darwin's finches.
2. Explain the modern synthetic theory of evolution.

Hardy-Weinberg Principle and Changing Allele Frequencies

MCQ Questions (choose the correct option)

1. The Hardy-Weinberg principle describes
 - (A) constant allele frequencies
 - (B) changing allele frequencies
 - (C) mutation
 - (D) speciation
2. Genetic drift is a change in allele frequency due to
 - (A) chance
 - (B) selection
 - (C) mutation
 - (D) migration
3. Gene flow occurs due to
 - (A) migration
 - (B) selection
 - (C) drift
 - (D) mutation
4. The Hardy-Weinberg equation is
 - (A) $p^2 + 2pq + q^2 = 1$
 - (B) $p + q = 0$
 - (C) $p^2 + q^2 = 0$
 - (D) $p - q = 1$

1 Mark Questions

1. State the Hardy-Weinberg principle.
2. What is genetic drift?
3. What is gene flow?

2 Mark Questions

1. What are the factors affecting the Hardy-Weinberg equilibrium?
2. What is the founder effect?

3 Mark Questions

1. Explain the Hardy-Weinberg principle.
2. Describe the factors that change allele frequencies.

Speciation, Isolation and Coevolution

MCQ Questions (choose the correct option)

1. Speciation is the formation of
 - (A) new species
 - (B) new genes
 - (C) new habitats
 - (D) new organs
2. Allopatric speciation occurs due to
 - (A) geographic separation
 - (B) no isolation
 - (C) gene flow
 - (D) mutation only
3. Coevolution involves
 - (A) mutual evolutionary influence of species
 - (B) one species only
 - (C) no interaction
 - (D) genetic drift
4. Reproductive isolation prevents
 - (A) interbreeding
 - (B) migration
 - (C) mutation
 - (D) selection

1 Mark Questions

1. What is speciation?
2. What is coevolution?
3. What is reproductive isolation?

2 Mark Questions

1. Differentiate between allopatric and sympatric speciation.
2. Give one example of coevolution.

3 Mark Questions

1. Explain the process of speciation.
2. Describe coevolution with examples.

Human Evolution

MCQ Questions (choose the correct option)

1. The first human-like ancestor was
 - (A) Homo habilis
 - (B) Homo sapiens
 - (C) Homo erectus
 - (D) Neanderthal
2. Homo erectus is known to have
 - (A) used fire
 - (B) no tools
 - (C) no language
 - (D) no bipedalism
3. Modern humans are
 - (A) Homo sapiens
 - (B) Homo erectus
 - (C) Neanderthals
 - (D) Australopithecus
4. Ramapithecus was
 - (A) more ape-like
 - (B) more human-like
 - (C) a modern human
 - (D) a bird

1 Mark Questions

1. Who was Homo habilis?
2. When did Homo sapiens appear?
3. Name the first human-like ancestor.

2 Mark Questions

1. Trace the sequence of human evolution.
2. What was the significance of bipedalism?

3 Mark Questions

1. Describe the evolution of humans.
2. Explain the major stages in human evolution.