Biology Grade 9 — Chapter 10

Evolution

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Independent practice MCQs from the supplied Class 9 Biology notes pack. Total: 50 questions.

A. Important / Main Topics

1. The differences in traits displayed by members of the same species are called:

(A) Variation
(B) Adaptation
(C) Evolution
(D) Mutation

Correct Answer: A

Explanation: Variation refers to differences in traits among members of the same species.

2. According to scientists, the Earth is more than:

(A) 4 million years old
(B) 4 billion years old
(C) 4 trillion years old
(D) 4 thousand years old

Correct Answer: B

Explanation: The Earth is more than four billion years old.

3. Evolution is defined as:

(A) The sudden appearance of new traits
(B) The extinction of a species
(C) The gradual alteration of a population's traits over time
(D) The migration of a species

Correct Answer: C

Explanation: Evolution is the gradual alteration of a population's or species' traits over time.

4. An inherited trait that increases an organism's chances of survival is called:

(A) Variation
(B) Mutation
(C) Gene flow
(D) Adaptation

Correct Answer: D

Explanation: An adaptation is an inherited trait that increases survival chances.

5. Who proposed the theory of natural selection?

(A) Charles Darwin
(B) Aristotle
(C) Carolus Linnaeus
(D) Robert Hooke

Correct Answer: A

Explanation: Charles Darwin — this correctly answers the question.

6. Darwin made his observations during a voyage on the ship:

(A) Endeavour
(B) Beagle
(C) Victoria
(D) Santa Maria

Correct Answer: B

Explanation: Darwin made his observations during a voyage on the ship Beagle.

7. Darwin published "On the Origin of Species" in:

(A) 1838
(B) 1848
(C) 1859
(D) 1895

Correct Answer: C

Explanation: Darwin published "On the Origin of Species" in 1859.

8. The evolutionary process by which new biological species arise is called:

(A) Variation
(B) Adaptation
(C) Natural selection
(D) Speciation

Correct Answer: D

Explanation: Speciation is the evolutionary process by which new species arise.

9. Speciation typically begins when a species is split into:

(A) Two geographical regions
(B) Two different climates
(C) Two different diets
(D) Two different sizes

Correct Answer: A

Explanation: Speciation starts when a species gets split into two geographical regions.

10. The inability of two groups to interbreed and produce fertile offspring is called:

(A) Geographical isolation
(B) Reproductive isolation
(C) Adaptation
(D) Divergence

Correct Answer: B

Explanation: Reproductive isolation is the inability to interbreed and produce fertile offspring.

11. Which of the following is evidence from palaeontology?

(A) Homologous structures
(B) Selective breeding
(C) Fossil record
(D) Vestigial organs

Correct Answer: C

Explanation: The fossil record is evidence from palaeontology.

12. Structures with the same basic shape due to common ancestry are called:

(A) Vestigial organs
(B) Analogous structures
(C) Artificial structures
(D) Homologous structures

Correct Answer: D

Explanation: Structures with the same basic shape due to common ancestry are called Homologous structures.

13. The wings of flightless birds are an example of:

(A) Vestigial organs
(B) Homologous structures
(C) Artificial selection
(D) Fossil record

Correct Answer: A

Explanation: Wings on flightless birds are vestigial organs (non-functional remnants).

14. The practice of breeding plants and animals for desired genetic features is called:

(A) Natural selection
(B) Artificial selection
(C) Mutation
(D) Adaptation

Correct Answer: B

Explanation: Artificial selection (selective breeding) is the practice of breeding for desired traits.

15. The human appendix is an example of:

(A) A homologous structure
(B) An adaptation
(C) A vestigial organ
(D) A fossil

Correct Answer: C

Explanation: The appendix is a vestigial organ (non-functional remnant).

16. Which of the following is a source of variation?

(A) Crossing over
(B) Independent assortment
(C) Mutation
(D) All of the above

Correct Answer: D

Explanation: Crossing over, independent assortment, and mutation are all sources of variation.

17. Which of the following is a source of variation?

(A) All of the above
(B) Gene flow
(C) Fertilization
(D) Mutation

Correct Answer: A

Explanation: Gene flow, fertilization, and mutation are all sources of variation.

18. New life forms developed from:

(A) Multicellular organisms
(B) Unicellular organisms
(C) Non-living matter
(D) Fossils

Correct Answer: B

Explanation: New life forms developed from unicellular organisms.

19. The process by which individuals with advantageous traits survive and reproduce is called:

(A) Variation
(B) Mutation
(C) Natural selection
(D) Gene flow

Correct Answer: C

Explanation: Natural selection is the process by which individuals with advantageous traits survive and reproduce.

20. Members of a species compete for:

(A) Resources
(B) Mates
(C) Food and water
(D) All of the above

Correct Answer: D

Explanation: Members of a species compete for resources, mates, food, and water.

21. Evolutionary changes can be:

(A) Passed on to next generations
(B) Lost over time
(C) Reversed immediately
(D) Stopped by competition

Correct Answer: A

Explanation: Evolutionary changes can be passed on to next generations.

22. Natural selection is based on how many principles?

(A) Two
(B) Four
(C) Three
(D) Five

Correct Answer: B

Explanation: The four principles are overproduction, competition, variations, and natural selection.

23. The principle that organisms produce more offspring than can survive is called:

(A) Competition
(B) Variation
(C) Overproduction
(D) Adaptation

Correct Answer: C

Explanation: Overproduction is the principle that living creatures are very fertile and produce many offspring.

24. Darwin observed finches with different beak shapes on the:

(A) Hawaiian Islands
(B) Maldives
(C) Andaman Islands
(D) Galapagos Islands

Correct Answer: D

Explanation: Darwin observed finches with different beak shapes on the Galapagos Islands.

25. Before the Industrial Revolution, most peppered moths were:

(A) Light-coloured
(B) Dark-coloured
(C) Green-coloured
(D) Red-coloured

Correct Answer: A

Explanation: Before 1848, all reported variants of the peppered moth were light-coloured with dark patches.

B. Less Important / Secondary Topics

26. By 1895, what percentage of the peppered moth population was dark-coloured?

(A) 95%
(B) 50%
(C) 75%
(D) 100%

Correct Answer: A

Explanation: 95% — this correctly answers the question.

27. Industrial Melanism in peppered moths was caused by:

(A) Increased light
(B) Industrial pollution
(C) Decreased predators

(D) Increased food

Correct Answer: B

Explanation: Industrial Melanism in peppered moths was caused by Industrial pollution.

28. The peppered moth case study demonstrates that:

(A) Individual moths can change colour
(B) Predators do not affect moth populations
(C) Evolution and natural selection operate on genetic change within a population
(D) Pollution is always beneficial

Correct Answer: C

Explanation: The case study demonstrates that evolution and natural selection operate on the basis of genetic change within a population.

29. In natural selection, which organisms survive?

(A) The largest
(B) The strongest
(C) The oldest
(D) The fittest (best adapted)

Correct Answer: D

Explanation: Natural selection is essentially an elimination process; only the fittest (best adapted) organisms survive.

30. The fossil record shows the evolution of which of the following?

(A) Both humans and horses
(B) Humans
(C) Horses
(D) Neither humans nor horses

Correct Answer: A

Explanation: The text states that researchers have found comprehensive records demonstrating how humans and horses have evolved.

31. Which of the following is an example of a homologous structure?

(A) Wings of a bird and wings of an insect
(B) Forelimbs of a human and forelimbs of a whale
(C) Appendix in humans
(D) Wings of a flightless bird

Correct Answer: B

Explanation: Forelimbs of a human and forelimbs of a whale — this correctly answers the question.

32. Modern corn was developed from a wild ancestor through:

(A) Natural selection
(B) Mutation
(C) Selective breeding
(D) Genetic drift

Correct Answer: C

Explanation: Modern corn was developed from a wild ancestor through Selective breeding.

33. Dog breeds have been produced from the wolf by:

(A) Natural selection
(B) Vestigial evolution
(C) Fossilization
(D) Artificial selection

Correct Answer: D

Explanation: Dog breeds have been produced from the wolf by Artificial selection.

34. Which of the following is a difference between natural and artificial selection?

(A) Natural selection is slower
(B) Natural selection is faster
(C) Artificial selection operates in natural populations
(D) Artificial selection is caused by mutations

Correct Answer: A

Explanation: Natural selection is a slow process (thousands to millions of years), while artificial selection is fast (next generation).

35. Which of the following is a vestigial organ in humans?

(A) Heart
(B) Appendix
(C) Liver
(D) Kidney

Correct Answer: B

Explanation: The appendix is a vestigial organ in humans.

36. A scientist discovers a new unicellular organism that has a nucleus, is aquatic, and moves using pseudopodi

(A) To which kingdom does it most likely belong? A. Monera
(B) Fungi
(C) Protista
(D) Animalia

Correct Answer: C

Explanation: "Protista" is correct: it matches the idea asked in the question ("A scientist discovers a new unicellular organism that has a nucleus, is aquatic, and moves using pseudopodi"), while the other choices do not.

37. Which of the following best explains why the two-kingdom system was replaced?

(A) It had too many kingdoms
(B) It was too complicated
(C) It did not include bacteria
(D) Organisms like Euglena had both plant-like and animal-like characteristics

Correct Answer: D

Explanation: Euglena has chlorophyll (plant-like) and heterotrophic nutrition in darkness with no cell wall (animal-like), making the two-kingdom system inadequate.

38. Which of the following correctly distinguishes Archaea from Bacteria?

(A) Archaea lack peptidoglycan in their cell walls; Bacteria have peptidoglycan
(B) Archaea are eukaryotic; Bacteria are prokaryotic
(C) Archaea are multicellular; Bacteria are unicellular
(D) Archaea are sensitive to traditional antibacterial antibiotics; Bacteria are not

Correct Answer: A

Explanation: Archaea lack peptidoglycan in their cell walls; Bacteria have peptidoglycan — this correctly answers the question.

39. A scientist is classifying a newly discovered organism. It is multicellular, autotrophic, has cellulose in its cell wall, and contains chloroplasts. To which kingdom does it belong?

(A) Protista
(B) Plantae
(C) Fungi
(D) Animalia

Correct Answer: B

Explanation: Members of kingdom Plantae are eukaryotic, multicellular, and autotrophic with chloroplasts containing chlorophyll. Their cell wall is made up of cellulose.

40. Which of the following statements about viruses is correct?

(A) They are included in the kingdom Monera

(B) They are classified in the domain Archaea
(C) They are not included in any domain or kingdom
(D) They are classified as fungi

Correct Answer: C

Explanation: Because viruses are at the borderline of living and non-living, they are not included in any domain or kingdom under modern classification.

41. A person is exercising vigorously. Which homeostatic response is most likely to occur?

(A) Decreased blood flow to the skin
(B) Decreased breathing rate
(C) Decreased body temperature
(D) Increased sweating and increased blood flow to the skin

Correct Answer: D

Explanation: Increased sweating and increased blood flow to the skin — this correctly answers the question.

42. Which of the following correctly matches an organ system with its role in homeostasis?

(A) Digestive — maintains blood nutrient levels
(B) Cardiovascular — maintains tissue fluid homeostasis
(C) Lymphatic — stabilizes gases, wastes, temperature, and pH
(D) Endocrine — provides protection from injury

Correct Answer: A

Explanation: Digestive — maintains blood nutrient levels — this correctly answers the question.

43. A student examines a leaf under the microscope. Which of the following structures would be present for gas exchange?

(A) Xylem
(B) Stomata
(C) Phloem
(D) Cuticle

Correct Answer: B

Explanation: Stomata are tiny pores on the lower epidermis that allow the exchange of oxygen and carbon dioxide with the environment.

44. Which of the following best explains why plant cells can become turgid while animal cells cannot?

(A) Plant cells have a nucleus; animal cells do not
(B) Plant cells have chloroplasts; animal cells do not
(C) Plant cells have a rigid cell wall; animal cells lack a cell wall
(D) Plant cells have mitochondria; animal cells do not

Correct Answer: C

Explanation: Plant cells can become turgid due to the presence of a cell wall, which allows plant parts to maintain structure and stay upright. Animal cells lack a cell wall and cannot become turgid.

45. Which of the following statements about the shoot system is correct?

(A) It is generally underground
(B) It consists only of reproductive parts
(C) It anchors the plant
(D) It includes leaves, stems, flowers, and fruits

Correct Answer: D

Explanation: It includes leaves, stems, flowers, and fruits — this correctly answers the question.

46. Which of the following correctly describes the role of guard cells?

(A) They regulate the opening and closing of stomata
(B) They transport water
(C) They perform photosynthesis
(D) They store food

Correct Answer: A

Explanation: They regulate the opening and closing of stomata — this correctly answers the question.

47. A scientist is studying a tissue that covers and lines body surfaces and organs. Which tissue type is this?

(A) Connective tissue
(B) Epithelial tissue
(C) Muscular tissue
(D) Nervous tissue

Correct Answer: B

Explanation: Epithelial tissue — this correctly answers the question.

48. Which of the following best explains why most organs contain all four tissue types?

(A) To increase their size
(B) To reduce their weight
(C) To perform complex functions requiring different cell activities
(D) To prevent disease

Correct Answer: C

Explanation: Most organs contain all four tissue types, which work together to perform specific functions.

49. Which of the following is a function of the endocrine system?

(A) Transport of oxygen
(B) Providing physical defence against infection
(C) Producing movement
(D) Maintaining balance of many blood components like glucose, water, and calcium

Correct Answer: D

Explanation: Maintaining balance of many blood components like glucose, water, and calcium — this correctly answers the question.

50. Which of the following statements about the levels of organization is correct?

(A) Organ systems are made of organs
(B) Tissues are made of organs
(C) Organs are made of organ systems
(D) Cells are made of tissues

Correct Answer: A

Explanation: Organ systems are groups of organs that perform related functions. Answer.