

TEST BANK FOR

Campbell, Biology, 12e by Lisa A. Urry

Chapters 1-56

Chapter 1: Evolution, the Themes of Biology, and Scientific Inquiry

Multiple choice: Choose the one alternative that best completes the statement or answers the question.

1. Which of the following statements about cells is correct?
- A. Single cells cannot exist independently.
 - B. Cells are limited in size, which is between 200 to 500 micrometres in diameter.
 - C. Some cells are non-living in nature.
 - D. Both prokaryotic and eukaryotic organisms are made up of cells.

Topic: The study of life reveals unifying themes

Bloom's Taxonomy: Levels 1-2: Remembering/Understanding

Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: D

2. A cell lacking which of the following structures is most likely to be a prokaryote?
- A. Nuclear membrane
 - B. Cell membrane
 - C. Cytoplasm
 - D. Nucleic acid

Topic: The study of life reveals unifying themes

Bloom's Taxonomy: Levels 1-2: Remembering/Understanding

Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: A

3. In comparison to eukaryotes, prokaryotes [BLANK].
- A. are more structurally complex
 - B. are larger
 - C. are smaller
 - D. do not have membranes

Topic: The study of life reveals unifying themes

Bloom's Taxonomy: Levels 1–2: Remembering/Understanding

Learning Outcome: 1.1; Global LO: G7, V&C LO: VC-SF

Answer: C

4. Which of the following types of cells use deoxyribonucleic acid (DNA) as their genetic material but do not have their DNA encased within a nuclear envelope?
- A. animal
 - B. plant
 - C. archaean
 - D. fungi

Topic: The study of life reveals unifying themes

Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: C

5. To understand the chemical basis of inheritance, we must understand the molecular structure of DNA. This is an example of the application of which concept to the study of biology?
- evolution
 - emergent properties
 - reductionism
 - feedback regulation

Topic: The study of life reveals unifying themes

Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G7, V&C LO: VC-SF

Answer: C

6. A double-stranded DNA molecule with three guanine and five thiamine nucleotides (in a 5 3 strand) has how many nucleotides in total?
- 3
 - 5
 - 8
 - 16

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Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: D

7. A localised group of organisms that belong to the same species is called a [BLANK].
- population
 - community
 - ecosystem
 - family

Topic: The study of life reveals unifying themes

Bloom's Taxonomy: Levels 1–2: Remembering/Understanding

Learning Outcome: 1.1; Global LO: G5, V&C LO: VC-SF

Answer: A

8. Which of the following statements is true regarding the complexity of biological systems?
- An understanding of the interactions between different components within a living system is an approach towards understanding reductionism.
 - Knowing the function of a component of a living system can provide insights into the structure and organisation of the living system.
 - Understanding the chemical structure of DNA reveals how it directs the functioning of a living cell.
 - An ecosystem displays complex properties of the biotic component only.

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Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: B

9. Which statement about ecological organisation is correct?
- An organism is part of a community.
 - A community is part of a population.
 - An ecosystem is made up of organisms only
 - Biosphere is a part of the ecosystem

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Bloom's Taxonomy: Levels 1-2: Remembering/Understanding; Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: B

10. Which of the following order is correct in terms of the hierarchy of the organisation?

- A. Ecosystem → Biosphere → Population → Community → Organism
- B. Biosphere → Ecosystem → Population → Community → Organism
- C. Ecosystem → Community → Biosphere → Population → Organism
- D. Biosphere → Ecosystem → Community → Population → Organism

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Bloom's Taxonomy: Levels 3–4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G5, V&C LO: VC-SF

Answer: D

11. Apple on tree ripens, ripe apple produces ethylene, ethylene signals neighbouring apples to ripen neighbour apples produce more ethylene more apples ripen. The above process is an example of which of the following?

- A. positive feedback regulation
- B. negative feedback regulation
- C. chemical cycling
- D. emergent properties

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Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G1, V&C LO: VC-EM

Answer: A

12. When your body temperature rises on a hot day, the neural and hormonal mechanisms activate sweating. Evaporation of sweat leads to cooling of the body surface. This is an example of [BLANK].

- A. positive feedback regulation
- B. chemical cycling
- C. negative feedback regulation
- D. emergent properties

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Bloom's Taxonomy: Levels 3–4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G1, V&C LO: VC-EM

Answer: C

13. Which of the following is the correct order of organization of genetic material from smallest to largest?

- A. gene, nucleotide, chromosome, genome
- B. chromosome, genome, nucleotide, gene
- C. genome, chromosome, gene, nucleotide
- D. nucleotide, gene, chromosome, genome

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Bloom's Taxonomy: Levels 1-2: Remembering/Understanding

Learning Outcome: 1.1; Global LO: G1, V&C LO: VC-E

Answer: D

14. Characters are transmitted from parents to offspring. [BLANK] are the units of inheritance.

- A. Genes
- B. Proteins
- C. RNA
- D. DNA

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Bloom's Taxonomy: Levels 1–2: Remembering/Understanding

Learning Outcome: 1.1; Global LO: G1, V&C LO: VC-E

Answer: A

15. As letters are to English language, [BLANK] is/are to genetic information.

- A. proteins
- B. nucleotides
- C. DNA double helix
- D. carbohydrates

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Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-E

Answer: B

16. Three important research developments that have made the genomic and proteomic approaches possible are [BLANK].

- A. high throughput technology, bioinformatics, and interdisciplinary research teams
- B. bioinformatics, gene therapy, and genetically modified organisms
- C. computers, nanotechnology, and bioinformatics
- D. cloning, computers, and gene therapy

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Learning Outcome: 1.1; Global LO: G4, V&C LO: VC-SF

Answer: A

17. Which of the following questions is considered a thought-provoking scientific query?

- A. How long ago did the Pterosaurs live on this planet?
- B. Does the amount of solute in water affect the boiling point of the solution?
- C. Who invented the telescope?
- D. How many tigers are left in India?

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Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.1; Global LO: G1, V&C LO: VC-SF

Answer: D

18. Which of the following statements about genetic information is correct?

- A. All forms of life employ the same genetic code
- B. mRNA is the only type of RNA found in a eukaryotic cell
- C. A typical human liver cell has one set of chromosomes
- D. DNA is not found in prokaryotic cells

Topic: The Core Theme: Evolution accounts for the unity and diversity of life

Bloom's Taxonomy: Levels 1-2: Remembering/Understanding

Learning Outcome: 1.2; Global LO: G4, V&C LO: VC-E

Answer: A

19. The process by which the information in a gene directs the synthesis of a protein is called [Blank].

- A. gene expression
- B. replication
- C. post translation modification
- D. cloning

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Bloom's Taxonomy: Levels 3-4: Applying/Analysing

Learning Outcome: 1.2; Global LO: G1, V&C LO: VC-E

Answer: A

20. Plants convert [Blank].

- A. chemical energy to mechanical energy
- B. sunlight to mechanical energy
- C. sunlight to chemical energy