Chapter 3
Microbial Taxonomy and Diversity

1. Which of the following statements about the Archaebacteria group of organisms are CORRECT?
(A) Archaebacterial initiator tRNA carries methionine instead of formyl methionine
(B) Archaebacterial ribosomes, like the eukaryotic ribosomes are sensitive to anisomycin but insensitive to chloramphenicol
(C) Archaebacterial RNA polymerase is insensitive to rifampicin
(D) Archaebacterial genomic DNA contain base modifications which make it refractile to cleavage with restriction endonucleases prepared from eubacteria

2. What are the differences between bacteria and archaea?
(A) Absence of internal membranous organelles
(B) The type of glycosidic bonds present in the peptidoglycan layer (or its equivalent) of the cell wall
(C) Form ester bonds between the membrane lipids
(D) Presence of 70s ribosomes

3. Which of the following are identified by the signature sequence?
(A) Transcription factors
(B) Helix-loop-helix
(C) Messenger RNA
(D) Archaebacteria

4. Binomial nomenclature has been adopted for
(A) bacteria
(B) fungi
(C) viruses
(D) protozoa

5. Accumulating evidence suggest that Domain Archaea is more closely related to Domain Eukarya than to Domain Bacteria. Which of the following properties are shared between eukaryotes and archaea?
(A) Protein biogenesis
(B) Presence of sterol containing membranes
(C) Ribosomal subunit structures
(D) Adaptation to extreme environmental conditions

6. Among the following characteristics, selected those that are the most appropriate for archaebacteria.
(A) Peptidoglycan containing muramic acid and D-amino acids are present in cell wall
(B) Long chain branched alcohols (phytanols) bound to glycerol by ether linkages are found in the lipids of cytoplasmic membrane
(C) First amino acid to initiate new polypeptide chain is *N*-formylmethionine
(D) Translation process is sensitive to the action of diphtheria toxin

7. Find the CORRECT match of the organisms with respect to their shapes and flagellar arrangements.
(A) *Salmonella typhi* – Rod – Peritrichous
(B) *Saccharomyces cerevisiae* – ovoid – Non-motile
(C) *Aquaspirillum serpens* – Rod – Amphitrichous

(D) *Vibrio cholerae* – Curved rod – Polar

8. Two organisms which are very closely related to each other have which of the following property?
(A) Similar mol% G+C values
(B) Similar mol% A+C values
(C) Heteroduplex are formed
(D) Heteroduplex are not formed

9. Which among the following come under Gram-positive eubacteria?
(A) *Clostridium*
(B) *Acetobacterium*
(C) *Actinomyces*
(D) *Rhizobium*

10. Which of the following are characteristics of archaebacterial different from eubacteria?
(A) Unicellular prokaryotes
(B) Methane producers
(C) Extreme halophiles
(D) Thermoacidophiles

Answer

1. **(A), (B), (C)**
2. **(B), (C)**
3. **(A), (B), (D)**
4. **(A), (B), (D)**
5. **(A), (C)**
6. **(B), (D)**
7. **(A), (B), (C)**
8. **(A), (C)**
9. **(A), (B), (C)**
10. **(B), (C), (D)**