1 Mark Questions

1. Which one of the following statements is correct?
   (a) Gram positive bacteria lack peptidoglycan
   (b) Gram negative bacteria lack peptidoglycan
   (c) Both Gram positive and Gram negative bacteria possess peptidoglycan and the outer membrane
   (d) Both Gram positive and Gram negative bacteria possess peptidoglycan but the Gram positive bacteria lack outer membrane

2. For infection of *Escherichia coli* with the λ phage, the *E.coli* is usaully grown in a medium containing maltose because
   (a) maltose is essential for the lysis of *E. coli*
   (b) maltose serves an an important cofactor during the phage DNA replication
   (c) the presence of maltose induces maltose binding protein which is inhibitory to bacterial growth
   (d) the presence of maltose induces maltose binding protein which also serves as a receptor for the lambda phage

3. Which of the following statements about the archaebacteria group of organisms is incorrect?
   (a) Archaebacterial initiator *t*RNA 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

4. Walking pneumoniae (a typical pneumoniae) affects human beings in the age group of 5 to 25 years. The main causative agent of this disease is
   (a) *Mycobacterium tuberculosis*
   (b) *Klebsiella pneumoniae*
   (c) *Mycoplasma pneumoniae*
   (d) *Streptococcus pneumoniae*

5. Which of the following bacteriophages is used generalised transduction?
   (a) $\phi \times 174$ (b) M_{13}
   (c) Lambda (d) P_1

6. Which of the following statements is incorrect?
   (a) During conjugation of an F^+ (donor) and F^- (recipient) *E. coli*, a copy of the *F* factor is almost always transferred to the recipient
   (b) Conjugation between Hfr strain and F^- strain leaves the recipient strain F^-
   (c) Conjugation between Hfr strain and F^- strains results in high frequency of recombination and therefore, the recipient become Hfr or F^+
   (d) Conjugation between F' and F^- strains results in the recipient becoming F'

7. For which of the following property does the A-form double helix DNA not differ from that of B-form double helix?
   (a) Appearance of the major and minor grooves
   (b) Thickness of the helix
   (c) Tilt of the bases
   (d) Polarity of the two complementary strands

8. Organellar protein synthesis occurs
   (a) only in mitochondria
   (b) in mitochondria as well as in chloroplast
   (c) in endoplasmic reticulum
   (d) in lysosome

9. Which of the following characteristics holds true for prokaryotes but not for eukaryotes?
   (a) Motility by cilia

(b) Phospholipids in plasma membrane
(c) Peptidoglycan in the cell wall
(d) DNA as the genetic material

10. Oncogenic retroviruses change normal mammalian cells into cancerous cells. This transformation is primarily associated with
(a) release of numerous viral particles and concomitant death of the host cells
(b) integration of the viral genome into the host nuclear DNA
(c) presence of viral particles in the host cell membrane
(d) efficient replication of the viral genomic DNA in the host cells

11. Which of the following is not a peptide antibiotic?
(a) Polymyxins (b) Gramicidins
(c) Chloramphenicol (d) Tyrocidines

12. The group of organisms which uses light as the energy source and CO_2 as the principal carbon source are called
(a) photoheterotrophs (b) chemoautotrophs
(c) chemoheterotrophs (d) photoautotrophs

13. Which of the following bacteria are capable of oxidizing nitrite to nitrate in the soil?
(a) *Nitrosomonas* (b) *Nitrobacter*
(c) *Nitrospira* (d) *Nitrosococcus*

14. Which of the following statements on photorespiration is incorrect?
(a) It occurs only in photosynthetic cells
(b) NAD^+ is reduced to NADH
(c) No ATP molecules are formed
(d) H_2O_2 is formed

15. How many ATP molecules are generated in complete biological oxidation of one molecule of glucose?
(a) 36 ATP (b) 12 ATP
(c) 30 ATP (d) 38 ATP

16. Which of the following viral infection often leads to hepatocellular carcinoma in humans?
(a) Hepatitis A virus
(b) Hepatitis C virus
(c) Polio virus
(d) Human rhino virus

17. The replication of the polio virus positive strand RNA genome requires
(a) virus encoded RNA dependent RNA polymerase
(b) DNA dependent RNA polymerase
(c) DNA polymerase
(d) reverse transcriptase

18. The drug colchicine exerts its inhibitory action during which of the following phases of the cell cycle?
(a) G_0 (b) G_1
(c) G_2 (d) M

19. Which of the following statements is wrong?
(a) Lactic acid is produced by *Lactobacillus delbrueckii*
(b) Bacterial amylase is produced by *Bacillus subtilis*
(c) Citric acid is produced by *Rhizopus nigricans*
(d) Gibberellic acid is produced by *Fusarium monoliforme*

20. During DNA replication, the synthesis of the leading strand occurs in the 5′-3′ direction along with the movement of the replication fork. Which one of the following statements is true about the synthesis of the lagging strand?
(a) DNA polymerase II, which has an additional activity of polymerization in 3′-5′ direction, is utilised
(b) DNA polymerase I is utilised which can carry out DNA synthesis in the absence of any primer
(c) Synthesis of the lagging strand occurs in the small fragments by DNA polymerase in 5′-3′ direction using a *de novo* synthesized DNA primer
(d) Synthesis of the lagging strand occurs in small fragments in 5′-3′ direction utilising RNA primers