SSR DEGREE COLLEGE (AUTONOMOUS) NIZAMABAD
M.Sc. BIOTECHNOLOGY- I YEAR
QUESTION BANK
SEMESTER – I, INTERNAL – II

I. Multiple Choice Questions

1. The term *enzyme* was first introduced by
   A. Emil Fischer
   B. Eduard Buchner
   C. Wilhelm Kühne
   D. Michaelis

Ans: C

2. Which model explains substrate specificity?
   A. Induced fit model
   B. Lock and key model
   C. Fluid mosaic model
   D. Operon model

Ans: B

3. Non-protein part of an enzyme required for activity is called
   A. Apoenzyme
   B. Holoenzyme
   C. Cofactor
   D. Active site

Ans: C

4. Coenzymes are usually derived from
   A. Proteins
   B. Vitamins
   C. Carbohydrates
   D. Lipids

Ans: B

5. Km is defined as the substrate concentration at which
   A. Enzyme is saturated
   B. Velocity is maximum
   C. Velocity is half of Vmax
   D. Enzyme is inhibited

Ans: C

6. Lineweaver–Burk plot is a plot of
   A. v vs [S]
   B. 1/v vs 1/[S]
   C. v vs 1/[S]
   D. [S] vs v

Ans: B

7. Competitive inhibition increases
   A. Vmax
   B. Km
   C. Turnover number
   D. Enzyme concentration

Ans: B

8. Enzymes synthesized in inactive form are called
   A. Isozymes
   B. Zymogens
   C. Ribozymes
   D. Abzymes

Ans: B

9. Enzymes that differ in amino acid sequence but catalyze same reaction are
   A. Zymogens
   B. Ribozymes
   C. Isozymes
   D. Multi-enzymes

Ans: C

10. Allosteric regulation is best explained by
    A. Hemoglobin
    B. Myoglobin
    C. ATCase
    D. Pepsin

Ans: C

11. First law of thermodynamics is based on
    A. Entropy
    B. Conservation of energy
    C. Free energy
    D. Heat loss

Ans: B

12. Measure of disorder in a system is called
    A. Enthalpy
    B. Free energy
    C. Entropy
    D. Energy charge

Ans: C

13. Gibbs free energy is represented as
    A. ΔH
    B. ΔS
    C. ΔG
    D. ΔE

Ans: C

14. Reactions with positive ΔG are called
    A. Exergonic
    B. Endergonic
    C. Spontaneous
    D. Catabolic

Ans: B

15. High-energy bond in ATP is present between
    A. Adenine and ribose
    B. Ribose and phosphate
    C. Phosphate groups
    D. Carbon and hydrogen

Ans: C

16. Glycolysis occurs in
    A. Mitochondria
    B. Ribosome
    C. Cytoplasm
    D. Nucleus

Ans: C

17. TCA cycle takes place in
    A. Cytosol
    B. Mitochondrial matrix
    C. Inner membrane
    D. Outer membrane

Ans: B

18. Chemiosmotic theory was proposed by
    A. Krebs
    B. Mitchell
    C. Fischer
    D. Calvin

Ans: B

19. β-oxidation of fatty acids occurs in
    A. Cytosol
    B. Lysosome
    C. Mitochondria
    D. Nucleus

Ans: C

20. The end product of urea cycle is
    A. Ammonia
    B. Uric acid
    C. Urea
    D. Creatinine

Ans: C

B. Fill in the Blanks

1. Enzymes are mostly _____ in nature.
   Ans: Protein

2. The protein part of enzyme is called _____.
   Ans: Apoenzyme

3. Complete active enzyme is known as _____.
   Ans: Holoenzyme

4. The region where substrate binds is called _____.
   Ans: Active site

5. Michaelis–Menten equation relates reaction velocity with _____.
   Ans: Substrate concentration

6. Maximum velocity of enzyme reaction is called _____.
   Ans: Vmax

7. In non-competitive inhibition, _____ remains unchanged.
   Ans: Km

8. Ribozymes are enzymes made of _____.
   Ans: RNA

9. Antibody enzymes are known as _____.
   Ans: Abzymes

10. Feedback inhibition is an example of _____ regulation.
    Ans: Allosteric

11. Energy currency of the cell is _____.
    Ans: ATP

12. Reactions that release energy are called _____ reactions.
    Ans: Exergonic

13. Glycolysis converts glucose into _____.
    Ans: Pyruvate

14. Cori cycle involves liver and _____.
    Ans: Muscle

15. Electron transport chain is located in _____ membrane of mitochondria.
    Ans: Inner

16. Oxidative phosphorylation produces _____.
    Ans: ATP

17. Fatty acid breakdown occurs by _____ oxidation.
    Ans: Beta

18. Transamination involves transfer of _____ group.
    Ans: Amino

19. Dark reactions of photosynthesis occur in _____.
    Ans: Stroma

20. C_4 plants minimize photorespiration using _____ pathway.
    Ans: Hatch–Slack

III. DESCRIPTIVE QUESTIONS

1. WRITE CLASSIFICATION OF ENZYMES
2. WRITE PROPERTIES AND FACTORS EFFECTING ENZYME ACTIVITY
3. DISCUSS INDETAIL ABOUT TCA CYCLE
4. WRITE INDETAIL ABOUIT ETC
5. WRITE INDETAIL MECHANISM OF PHOTOSYNTHESIS