SSR DEGREE COLLEGE (AUTONOMOUS)
B.Sc. Programme – Microbiology
Semester – II
Paper: DSC1B – Biomolecules & Molecular Biology
Internal II Question Bank

SECTION – A: Multiple Choice Questions

1. Glycolysis occurs in
a) Cytoplasm b) Mitochondria c) Nucleus d) Ribosome → **Ans: a**

2. End product of glycolysis is
a) Glucose b) Pyruvate c) Lactate d) Acetyl CoA → **Ans: b**

3. TCA cycle occurs in
a) Cytoplasm b) Ribosome c) Mitochondrial matrix d) Nucleus → **Ans: c**

4. Electron transport chain is located in
a) Cytoplasm b) Outer membrane c) Nucleus d) Inner mitochondrial membrane → **Ans: d**

5. ATP produced directly in glycolysis is by
a) Substrate level phosphorylation b) Oxidative phosphorylation
c) Photophosphorylation d) Fermentation → **Ans: a**

6. HMP pathway is also known as
a) Glycolysis b) Pentose phosphate pathway c) TCA cycle
d) ETC → **Ans: b**

7. ED pathway is mainly seen in
a) Animals b) Plants c) Bacteria d) Fungi → **Ans: c**

8. Final electron acceptor in aerobic respiration is
a) NADH b) FAD c) CO_2 d) Oxygen → **Ans: d**

9. Anaerobic respiration occurs in absence of
a) Oxygen b) Nitrogen c) Hydrogen d) Carbon dioxide → **Ans: a**

10. Alcoholic fermentation produces
a) Lactic acid b) Ethanol c) Acetic acid d) CO_2 only → **Ans: b**

11. Lactic acid fermentation occurs in
a) Yeast b) Plants c) Muscle cells d) Algae → **Ans: c**

12. Oxidative phosphorylation occurs in
a) Cytoplasm b) Nucleus c) Ribosome d) Mitochondria → **Ans: d**

13. Buffers resist changes in
a) Temperature b) Pressure c) pH d) Volume → **Ans: c**

14. pH is defined as
a) Hydrogen ion concentration b) Hydroxyl ion concentration

c) Salt concentration d) Oxygen level → **Ans: a**

15. Instrument used to measure pH is
a) Colorimeter b) pH meter c) Spectrophotometer
d) Microscope → **Ans: b**

16. Colorimetry is based on
a) Absorption of light b) Reflection of light c) Transmission of electrons
d) Refraction → **Ans: a**

17. Spectrophotometer measures
a) Density b) Mass c) Absorbance of light d) Temperature → **Ans: c**

18. Thin layer chromatography separates substances based on
a) Size b) Shape c) Charge d) Adsorption → **Ans: d**

19. Electrophoresis separates molecules based on
a) Charge b) Colour c) Density d) Volume → **Ans: a**

20. Agarose gel electrophoresis is mainly used for
a) Lipids b) DNA c) Carbohydrates d) Vitamins → **Ans: b**

SECTION – B: Fill in the Blanks

1. Glycolysis occurs in the **cytoplasm**.
2. End product of glycolysis is **pyruvate**.
3. TCA cycle occurs in **mitochondrial matrix**.
4. Final electron acceptor is **oxygen**.
5. ATP synthesis in ETC is **oxidative phosphorylation**.
6. Fermentation occurs in **absence of oxygen**.
7. Alcoholic fermentation produces **ethanol**.
8. Lactic acid is produced in **muscle cells**.
9. Buffers maintain **pH stability**.
10. pH indicates **hydrogen ion concentration**.
11. pH of neutral solution is **7**.
12. Instrument used to measure pH is **pH meter**.
13. Colorimeter works on **light absorption**.
14. Spectrophotometer measures **absorbance**.
15. Chromatography separates substances based on **adsorption**.
16. Thin layer chromatography uses **silica gel**.
17. Electrophoresis separates based on **charge**.
18. Agarose gel is used for **DNA separation**.
19. PAGE stands for **Polyacrylamide Gel Electrophoresis**.
20. Buffers are mixtures of **weak acid and its salt**.

SECTION – C Descriptive Questions

1. Explain aerobic and anaerobic respiration.
2. Describe glycolysis, HMP (Hexose Monophosphate) pathway and ED (Entner–Doudoroff) pathway.
3. Explain the TCA cycle and electron transport chain, comparing mitochondrial and bacterial ETC.
4. Explain buffers, their types and role in biological reactions.
5. Describe the principle and applications of colorimetry and spectrophotometry.