SSR DEGREE COLLEGE (AUTONOMOUS)
B.Sc. Programme – Microbiology
Semester – II
Paper: DSC1B – Biomolecules & Molecular Biology
Internal 1 Question Bank

SECTION – A: Multiple Choice Questions

1. Monosaccharides containing aldehyde group are called
a) Ketoses b) Aldoses c) Disaccharides d) Polysaccharides → **Ans: b**

2. Glucose and fructose differ from each other as
a) Isomers b) Epimers c) Anomers d) Enantiomers → **Ans: a**

3. Interconversion of α and β forms of glucose is called
a) Epimerism b) Mutarotation c) Isomerism d) Racemization → **Ans: b**

4. Muramic acid is a component of
a) Cell membrane b) Peptidoglycan c) Capsule d) Ribosome → **Ans: b**

5. The basic building block of proteins is
a) Fatty acids b) Amino acids c) Nucleotides d) Sugars → **Ans: b**

6. Peptide bond is formed between
a) Two sugars b) Two fatty acids c) Two amino acids d) Two nucleotides → **Ans: c**

7. Lock and key hypothesis was proposed by
a) Watson b) Crick c) Fischer d) Koshland → **Ans: c**

8. Induced fit hypothesis explains
a) Protein synthesis b) Enzyme action c) DNA replication d) Transcription → **Ans: b**

9. Triacylglycerols are examples of
a) Structural lipids b) Storage lipids c) Phospholipids d) Steroids → **Ans: b**

10. Essential fatty acids cannot be synthesized by
a) Plants b) Microbes c) Animals d) Algae → **Ans: c**

11. DNA is a genetic material because it can
a) Replicate b) Mutate c) Express d) All of the above → **Ans: d**

12. Watson and Crick proposed the
a) Single helix model b) Triple helix model c) Double helix model d) Linear model → **Ans: c**

13. RNA contains which sugar
a) Deoxyribose b) Ribose c) Glucose d) Fructose → **Ans: b**

14. Extra chromosomal genetic elements include
a) Chromosomes b) Ribosomes c) Plasmids d) Lysosomes → **Ans: c**

15. DNA replication follows
a) Conservative b) Semi-conservative c) Dispersive d) Random
→ **Ans: b**

16. Enzyme required for DNA replication is
a) RNA polymerase b) DNA polymerase c) Ligase d) Helicase
→ **Ans: b**

17. Transcription is the synthesis of
a) DNA from RNA b) RNA from DNA c) Protein from RNA d) DNA from protein → **Ans: b**

18. Translation occurs on
a) Ribosomes b) Nucleus c) Mitochondria d) Cell wall → **Ans: a**

19. Lac operon is an example of
a) Gene mutation b) Gene regulation c) DNA repair d) Replication
→ **Ans: b**

20. Structural lipids are mainly found in
a) Cytoplasm b) Cell membrane c) Nucleus d) Ribosome → **Ans: b**

SECTION – B: Fill in the Blanks

1. Monosaccharides with aldehyde group are called **aldoses**.
2. Conversion between alpha and beta glucose is called **mutarotation**.
3. Muramic acid is a component of **peptidoglycan**.
4. **Amino acids** are the building blocks of proteins.
5. Peptide bond links **amino acids**.
6. **Enzymes** lower the activation energy.
7. **Triacylglycerols** are storage lipids.
8. Essential fatty acids must be obtained from **diet**.
9. DNA has a **double helix** structure.
10. RNA contains **ribose sugar**.
11. **Plasmids** are extra chromosomal genetic elements.
12. DNA replication is **semi-conservative**.
13. DNA polymerase synthesizes **DNA**.
14. Transcription produces **RNA**.
15. Translation produces **proteins**.
16. **Ribosomes** are the site of protein synthesis.
17. **Operon** is a unit of gene regulation.
18. Lac operon is found in **prokaryotes**.
19. Structural lipids form **cell membranes**.
20. Nucleotides are the building blocks of **nucleic acids**.

SECTION – C Descriptive Questions

1. Describe carbohydrates with classification and examples.
2. Explain amino acids and proteins – types, structure and functions
3. Describe the classification of enzymes and explain the concept of active site and activation energy.
4. Describe the structure of DNA according to Watson and Crick model.
5. Explain DNA and RNA as genetic material.