TELANGANA UNIVERSITY
S.S.R. DEGREE & PG COLLEGE, NIZAMABAD
DEPARTMENT OF ZOOLOGY
SUB:- STRUCTURAL BIOLOGY, SEM-I, PAPER-I
INTERNAL-II QUESTION BANK

I. Multiple Choice Questions

1. Which organelle is responsible for energy production?
    1. Nucleus
    2. Mitochondria ✅
    3. Ribosome
    4. Golgi apparatus
2. The cell theory was proposed by:
    1. Darwin
    2. Schleiden and Schwann ✅
    3. Mendel
    4. Watson
3. Which structure controls entry and exit of substances?
    1. Cell wall
    2. Plasma membrane ✅
    3. Cytoplasm
    4. Nucleus
4. Which organelle packages proteins?
    1. Golgi apparatus ✅
    2. Ribosome
    3. Lysosome
    4. ER
5. DNA replication is:
    1. Conservative
    2. Semi-conservative ✅
    3. Dispersive
    4. Random
6. The backbone of DNA is made of:
    1. Sugar-phosphate ✅
    2. Protein
    3. Lipid
    4. Amino acids
7. Which RNA carries amino acids?
    1. mRNA
    2. tRNA ✅
    3. rRNA
    4. snRNA

8. The site of transcription is:
    1. Cytoplasm
    2. Nucleus ✅
    3. Ribosome
    4. ER
9. The site of translation is:
    1. Nucleus
    2. Ribosome ✅
    3. Golgi
    4. Lysosome
10. The shape of bacterial DNA is:
    1. Linear
    2. Circular ✅
    3. Branched
    4. Spiral
11. Which base pairs with adenine in DNA?
    1. Uracil
    2. Thymine ✅
    3. Cytosine
    4. Guanine
12. Which base pairs with adenine in RNA?
    1. Thymine
    2. Uracil ✅
    3. Cytosine
    4. Guanine
13. The organelle absent in prokaryotes:
    1. Ribosome
    2. Nucleus ✅
    3. Plasma membrane
    4. Cytoplasm
14. The process of protein synthesis is called:
    1. Replication
    2. Translation ✅
    3. Transcription
    4. Mutation
15. The enzyme that unwinds DNA is:
    1. DNA polymerase
    2. Helicase ✅
    3. Ligase
    4. Primase
16. The enzyme that joins Okazaki fragments:
    1. Ligase ✅
    2. Helicase
    3. Polymerase

4. Primase

17. The organelle responsible for photosynthesis:
    1. Chloroplast ✅
    2. Mitochondria
    3. Golgi
    4. ER
18. The nucleolus is involved in:
    1. Protein synthesis
    2. rRNA synthesis ✅
    3. Lipid synthesis
    4. DNA replication
19. The genetic material in retroviruses is:
    1. DNA
    2. RNA ✅
    3. Protein
    4. Lipid
20. The central dogma of molecular biology is:

1. DNA → RNA → Protein ✅
2. RNA → DNA → Protein
3. Protein → DNA → RNA
4. DNA → Protein → RNA

II. Fill in the Blanks.

1. Prokaryotic cells lack a true **nucleus**.
2. The site of protein synthesis in cells is the **ribosome**.
3. The plasma membrane is composed mainly of **phospholipids** and proteins.
4. Mitochondria are known as the **powerhouse** of the cell.
5. Lysosomes contain **digestive enzymes**.
6. The structural framework of the cell is provided by the **cytoskeleton**.
7. DNA is located in the **nucleus** of eukaryotic cells.
8. The cell wall of plants is made of **cellulose**.
9. The functional unit of heredity is the **gene**.
10. RNA differs from DNA by having **uracil** instead of thymine.
11. The sugar in DNA is **deoxyribose**.
12. The sugar in RNA is **ribose**.
13. Transcription occurs in the **nucleus**.
14. Translation occurs in the **cytoplasm**.
15. The double helix model of DNA was proposed by **Watson and Crick**.
16. The process of DNA copying itself is called **replication**.
17. Messenger RNA carries genetic information from DNA to **ribosomes**.
18. Transfer RNA brings **amino acids** to the ribosome.
19. Ribosomal RNA forms the structural and functional core of **ribosomes**.
20. The basic unit of life is the **cell**.

III. Answer the following Questions.

1. **Cell Cycle?**
2. **What is Semi Conservative Method?**
3. **Post Transcriptional modification?**
4. **Genetic Code?**
5. **DNA Replication?**