

Total No. of Questions : 21]

[Total No. of Printed Pages : 4

**XIARKD21**  
**5837**  
**BIOTECHNOLOGY**

Time : 2.30 Hours]

[Maximum Marks : 70

**(Objective Type Questions)**

1 each

1. (i) The technology used to clean environment by removing toxic substance from soil or water is called :
- (A) Biotechnology                      (B) Bioremediation  
(C) Biodeterioration                  (D) Bioaccumulation
- (ii) Which type of ribosomes are found in Prokaryotes ?
- (A) 60S                                      (B) 70S  
(C) 80S                                      (D) 90S
- (iii) The  $\text{pH} = \text{pKa}$  shows maximum buffering capacity of :
- (A) Weak acid                              (B) Weak base  
(C) Weak acid or weak base              (D) None of these

7. Write down the structure of primary proteins.
8. Explain the term multiple allelism.
9. Discuss the term Translation in brief.

### Section-C

(Short Answer Type Questions)

3 each

10. Write down the public perception of Biotechnology.
11. Describe the structure of mitochondria with suitable diagram.
12. Discuss the defence mechanism in plants.
13. Give the outline classification of Carbohydrates.
14. Differentiate between DNA and RNA.
15. Write short note on extranuclear inheritance.
16. Differentiate between Prokaryotic and Eukaryotic Genomes.
17. Explain the concept of Electrophoresis in brief.

### Section-D

(Long Answer Type Questions)

5 each

18. Describe the various stages of mitosis with the help of suitable diagrams.

Or

Write down the morphological and structural defense mechanisms in plants.

19. Write short notes on the following :

(a) Photosystem I and II

(b) RUBISCO

Or

Discuss Calvin cycle for  $\text{CO}_2$  assimilation.

20. What are Mendel's laws of inheritance ? Explain laws of dominance and law of segregation in brief.

Or

Discuss sex-linked inheritance in man with reference to inheritance of X-linked genes in *Drosophila* also.

21. What is Genetic Code ? Explain the properties of genetic code.

Or

How is gene expression regulated ? Discuss in detail lac operon model.

- (iv) Which of the following is indigestible polysaccharide ?  
 (A) Glucose (B) Glycogen  
 (C) Starch (D) ~~Glucose~~ Cellulose
- (v) The tertiary structure of protein provides ..... of polypeptide chain.
- (vi) What is inter-nucleotide distance of DNA ?
- (vii) What is Dark Reaction ?
- (viii) Electron transport chain and ATP synthesis are coupled by a .....  
 (Fill in the blank)
- (ix) Which of the following yields less energy ?  
 (A) ~~ATP~~ (B) ADP  
 (C) AMP (D) None of these
- (x) Which technique is used to separate two identical proteins ?

### Section-B

#### (Very Short Answer Type Questions)

2 each

2. What are the functions of Chloroplast ?
3. What are Vacuoles ?
4. Explain the term homeostasis.
5. What are Triglycerides ?
6. Write down the concept of pH.