2013

M.Sc.

1st Semester Examination

BIOTECHNOLOGY

PAPER—BIT-103

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

1. Answer any *five* questions from the following : 5×2

(a) What is Hfr ?

(b) State the functions of att P and att B.

(c) What is a sex pili ?

(d) What is meant by continuous culture ?

(e) What role Sigma-54 plays in nitrogen fixation?

(f) How tetracyclines show their bacteriostatic activity?

(g) What is PFU?

Group—B

Answer any *two* questions from the following : 5×2

2. Briefly describe the mechanism of flagellar movement. 5

3. What is the role of *pac* sites in P22 DNA in generalised transduction? What is specialized transduction? 3+2

4. What do you know about dissimilatory nitrate reaction? Name two(2) nitrifying and two denitrifying bacteria. 3+2

5. How bacterial cells minimize osmotic stress across membrane?
Define aw. (water activity) 4+1

Group—C

Answer any *two* questions from the following : 10×2

6. State the differences in transformation between G^+ve and G^-ve bacteria. State the importance of Translocasome. What is horizontal gene transfer? 3+5+2

7. Which RNA is '+' RNA in viral genomics? Describe the genome replication of a retrovirus. 2+8

8. State the utility of IS elements in F plasmid. Write the importance of mycorrhizae in plant nutrition.
What is non-replicative transposition? 3+5+2

9. By which pathway sugar acids catabolised? What is the net ATP gain from ED Pathway?
Print out the differences between acetogenesis and methenogenesis. 2+2+6

———