2013

M.Sc.

1st Semester Examination

BIOTECHNOLOGY

PAPER—BIT-104

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 of the following : 2×5

(a) What are the superfamilies of DNA helicases? Mention their role.

(b) What are the trifunctional activities of *E. coli.* DNA polymerases?

(c) What do you mean by CAAT Box, GC Box and Hogness Box?

(d) How acridine dye cayses nutate on?

(e) What are neoplastic cells?

(f) Why is SOS repair known as error prone repair?

(g) What is Calmodulin? Mention its function.

(h) What do you mean by Puromycin? Mention its inhibitory role in Protein synthesis.

Group—B

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

2. State the role of radiation and Base analogue as mutagen.

3. Briefly describe the post transcriptional modification of mRNA.

4. Briefly describe the effect of p53 mutation in suppression of cancer.

5. Write notes on (any *one*) :

(i) G-Proteins ;

(ii) RNA editing ;

(iii) DNA-gyrase.

Group—C

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

6. Describe the process of aminoacylation in protein synthesis. Write down the peptidyl transferase reaction in peptide-bond formation. Describe the translational elongation with suitable diagram. 3+2+5

7. What do you mean by attenuation and antitermination ? Briefly describe the molecular mechanism of trp operon. 3+7

8. What is the differences between autocrene and paracrine signalling ? Which phospholipids participate in cell signalling ? Draw its structure. Describe the role of C-AMP mediated regulations with suitable diagram and one specific examples. 2+1+2+5

9. Write notes on (any *two*) :

(i) RNA polymerase ;

(ii) Rolling circle replication ;

(iii) Mismatch repair of DNA ;

(iv) Biocarcinogen.

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