2012

M.Sc.

1st Semester Examination

BIOTECHNOLOGY

PAPER—BIT-102

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.

(Cell Biology and Genetics)

Group—A

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

    (a) Compare and contrast between Peroxisome and mitochondria.

    (b) State the importance of genetic councelling.

(c) Define apocrine and Paracrine glands with examples.

(d) What is Karyotype? Mention its major use in Genetics.

(e) What do you mean by genetic polymorphism?

(f) How cytochalasin affect microfilament Polymerization?

(g) Mention the biochemical path for which Phenyl Ketoneuria and alkaptonuria occurs.

(h) What do you mean by anterio-Posterior embryogenesis?

Group—B

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

(a) Briefly discuss the sliding filament theory of muscle contraction.   5

(b) State the role of different histone proteins in organization of Chromatin fibre in eukaryotes.

5

(c) Briefly describe the sex-linked inheritance Pattern with suitable crosses.   5

(d) State the role of Phosphorylation in the mechanism of action of $Na^+ - K^+$ AT Pase.   5

Group—C

3. Answer any *two* questions from the followings : 10×2

(a) What is Protofilament? How is the polarity of microtubules associated in its elongation? Describe the structure of eukaryotic flagella with suitable diagram. 2+3+5

(b) Distinguish between Paracentric and Pericentric inversion. Briefly discuss the cytological consequences of Paracentric chromosomes with suitable diagrams. What is reciprocal translocation? 2+6+2

(c) Define gene pool and genetic equilibrium. Discuss the Hardy-Weinberg Principle with a suitable example. State the factors influencing the above principle.

3+4+3

(c) Write short notes on (any *two*) : 5+5

   (i) One gene one enzyme hypothesis.

   (ii) Homeotic genes.

   (iii) Pedigree analysis.

———