# 2013

## 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.*

### Group—A

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

(a) What is exocytosis ? State its importance.

(b) How GTP helps in Polymerization of tubulin ?

(c) What is the need of cell cycle checkpoints ?

(d) What are sequential polarity genes ? Where is it found ?

(e) How mutation differs from polymorphism?

(f) What are polygenes? Give two examples of human polygenic inheritance.

(g) Steroids can pass through the cell membrane : why it is possible?

(h) State the differences between osmosis and reverse osmosis. Give examples.

## Group—B

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

(a) Briefly discuss the role of microtubules in the formation of spindle fibres.

(b) Describe the role of cyclins and cdks in cell cycle regulations.

(c) Discuss the organization of chromosomes in solenoid structure.

(d) Write short notes on :

(i) Ca-Pump ;

(ii) Intermediate filament.

## Group—C

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

(a) What is reciprocal translocation? Discuss with suitable diagrams the different meiotic stages (pachytene, metaphase and anaphase) of a translocation heterozygote. 2+8

(b) (i) What do you mean by DNA Polymorphism? Discuss Polymorphism with suitable examples.

(ii) Describe the technique of fluorescence in situ hybridization and mention some of its application. 5+5

(c) Write short notes on : 5+5

(i) Glucose transfer ;

(ii) Genetic Counselling.

(d) (i) Why colour blindness, an X-linked genetic disease, is more prevalent in males compared to females?

(ii) In an experiment, expression of a gene was decreased : How it was possible? 5+5

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