

2013

M.Sc.

4th Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-402

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.

Write the answers to the questions of each Unit in separate books.

UNIT—39

Answer any two questions from the following :

1. (a) Give a brief account of lipids present in human plasma membrane including their functions.
- (b) Name the factors those influence membrane fluidity.
- (c) What is hydropathy index ?

5+4+1

(Turn Over)

2. (a) Briefly describe the mechanism of action of Receptor Tyrosine Kinase mediated signal transduction pathway.
- (b) Discuss the cell signaling action of Insulin for regulation of blood glucose.
- (c) How can a cell surface protein be involved in both cell adhesion and transmembrane signal transduction?
4+4+2
3. (a) Describe the basic organisation of microtubules present in cells including their functions.
- (b) What is the role of GTP in dynamic instability of microtubules?
- (c) What are actin binding proteins?
4+3+3
4. (a) What are pluripotent stem cells? How do they differ from adult stem cells?
- (b) What are myosatellite cells?
- (c) Describe in brief tissue differentiation and its epigenetic control.
(1+1)+2+(3+3)

UNIT— 40

Answer any *two* questions from the following :

1. (a) What are the important criteria for an ideal vector?
- (b) Why you can select phage M 13 vectors for cloning purpose?
- (c) Define Plasmid and their properties.

3+3+4

2. (a) Describe the procedure and application of PCR.
- (b) Who is E.M. Southern ? Write the technique developed by him.

5+5

3. (a) What is tissue culture? Give a short account of tissue-culture media.
- (b) Briefly describe the "goals" and "milestones" of the "Human genome Project".

(2+3)+5

4. Write brief notes on following :

(a) Phenotypic trait ;

(b) Transfection by calcium phosphate precipitation.

5+5