

2017

M.Phil.

1st Semester Examination

LIFE SCIENCE

PAPER—LSC-113

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 four* questions from the following : 4×2

(a) What are integrins ?

(b) What are proteoglycans ?

(Turn Over)

- (c) Why is endosomal sorting important
- (d) What makes a cell decide to commit suicide?
- (e) What are linear motors? Give examples.
- (f) What are MAPs?

Group—B

2. Answer any *four* questions from the following : 4×4
- (a) Describe cell signaling mechanism by MAP Kinase pathway. 4
 - (b) Discuss the structure and mechanism of ATP-F₁ motor. 4
 - (c) Describe the types of interactions between adhesion proteins. 4
 - (d) State briefly the endo-lysosomal system. 4
 - (e) Describe the organization of action filament. 4
 - (f) What are the microtubule stabilizing agents? What is MTOC? 2+2

Group—C

3. Answer any *two* questions from the following : 2×8

(a) (i) Describe the structure and biosynthetic steps of collagen.

(ii) What is laminin? Mention the role of laminin in ECM. (3+1)+(1+3)

(b) (i) Describe the biochemical changes in apoptosis.

(ii) State the intrinsic mitochondrial pathway of mechanism of apoptosis. 4+4

(c) (i) Write in brief the importance of cytoskeleton structures in cell.

(ii) Differentiate microtubule and microfilaments.

(iii) Give a brief account of microtubule based motor proteins. 2+2+4