

**M.Sc. 1st Semester Examination, 2015**

**ZOOLOGY**

**PAPER — ZOO-102 (Gr. - A & B)**

*Full Marks : 40*

*Time : 2 hours*

**Answer all questions**

*The figures in the right-hand margin indicate 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 questions of each Group in separate books**

**GROUP — A**

**( Cell Biology )**

**1. Answer any two questions of the following : 2 × 2**

**(a) State how colchicine and Nocodazole affect microtubular assembly. 2**

*( Turn Over )*

( 2 )

- (b) State the functional differences between different transporters. 2
- (c) What is the functional significance of receptor dimerization ? 2
- (d) State the function of integrin in extra cellular matrix. 2
2. Answer any *two* questions of the following : 4 × 2
- (a) Illustrate the mechanism of stepwise activation of Ca<sup>+2</sup>/calmodulin-dependent protein kinase. 4
- (b) Describe the structure of Laminin and state its functions. 4
- (c) Describe the mechanism of activation of monomeric switch protein after binding with EGF. 4
- (d) What are intermediate filaments ? How does IF (intermediate filaments) assemble from fibrous subunits ? State its functions. 1 + 2 +1

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3. Answer *one* question of the following :  $8 \times 1$

(a) (i) Illustrate the mechanism of plus end directed and minus end directed microtubular motor transport in eukaryotic cell.

(ii) What is lipid raft ?  $6 + 2$

(b) (i) Elucidate the mechanism of DNA damage induced arrest at  $G_1$  phase of cell cycle.

(ii) Provide a brief account of glyco-saminoglycans (GAGs) in extracellular matrix.  $5 + 3$

### GROUP – B

( *Histochemistry* )

4. Answer any *two* of the following :  $2 \times 2$

(a) What is mordant ?  $2$

(b) Distinguish between natural and synthetic dyes with an example.  $2$

( 4 )

- (c) State the chemical structure of picric acid. 2
- (d) Note on : Sudan Black-B. 2
5. Answer any *two* questions of the following :  $4 \times 2$
- (a) Histologically demonstrate the cytoplasmic RNA in laboratory. 4
- (b) Define auxochrome. State its function.  $2 + 2$
- (c) 'Formaldehyde reacts with several parts of amino acids.' — Justify. 4
- (d) Notes on :  $2 + 2$
- (i) Perfusion fixation
- (ii) Gluteraldehyde as a fixative.
6. Answer any *one* questions from the following :  $8 \times 1$
- (a) Name one hydrolytic enzyme present in time lysosome and how do you localize it through histochemical method ?  $1 + 7$
- (b) Write notes on (any *four*) :  $2 \times 4$
- (i) ABC-method

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- (ii) Fluorescent marker for immuno histo-chemistry reaction
  - (iii) Dye from plant origin
  - (iv) Microwave fixation
  - (v) Collaidal Gold method
  - (vi) Vital dye
  - (vii) Secondary liquefection
  - (viii) Function of a specific dye without mordant.
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