The Assam Royal Global University, Guwahati
Royal School of Life Sciences
M.Sc Zoology , 1st Semester
Semester End Examination ,December 2018
Course Title : Molecular Cell Biology
Course Code: ZOO144 C103

Time: 3 hours

Maximum Marks: 70

Note :Attempt all questions as per instructions given
The figure in the right hand margin indicate marks.

SECTION - A

1. Answer the following : (all compulsory)

2x8

a) Differentiate between microtubules and microfilaments .
b) What are the different ATP-driven pumps in the plasma membrane .
c) Name the different proteins which help in microtubular movement.
d) Which adhesion molecules in cell are Ca+ dependent? Define them.
e) What is collagen? Write about its function ?
f) How are cellulose fibrils oriented in a cell ?
g) Define chromosomes.
h) Define apoptosis. What is the significance of apoptosis ?

SECTION – B

2. Answer the following : (any one)

10

a) Write a detailed note on the composition and arrangement of molecules on a lipid bilayer.
b) Describe the different cytoskeletal elements in the cell.

3. Answer the following : (any two)

6x2

a) Describe the different cell-to -cell signaling pathway mechanisms .
b) What are gap junctions ? Describe their structures.
c) Write a note on the molecular arrangement of cilia in eukaryotic cell.

4. Answer the following (any two)

6x2

a. Write a note on the ECM components .

b. Describe how cyclin-CDK complex regulates cell cycle.

c. Write a note on auxin. What role does auxin play in a cell ?

5. Answer the following : (any two)

a. Define the following :

6x2

i) What are pseudogenes ?

ii) What are non-functional ?

iii) What are transposon? What are the effect caused by transposons ? What are the uses of transposons ?

b. Write a note on intracellular protein traffic mechanism.

c. What is apoptosis ? Describe the mechanism and significance of apoptosis .

Section -- C

6. Answer the following :

8

Write a detailed note on cell cycle elaborating about the different types of cell division . Describe each phase in details with diagram.