# 2018/TDC/ODD/BOTC–102T/087

## TDC (CBCS) Odd Semester Exam., 2018

## BOTANY

**( 1st Semester )**

Course No. : BOTHCC–102T

**( Biomolecules and Cell Biology )**

*Full Marks* : 50
*Pass Marks* : 20

*Time* : 3 hours

*The figures in the margin indicate full marks for the questions*

### UNIT—I

**1.** Answer any *two* of the following : 2×2=4

*(a)* Why are fatty acids insoluble in water?

*(b)* Differentiate between reducing and non-reducing sugar.

*(c)* State the biological significance of buffers.

**2.** *(a)* Describe the Cloverleaf model of tRNA with diagrammatic representation. 4+2=6

*Or*

*(b)* Distinguish between primary, secondary and tertiary structure of proteins. 2+2+2=6

UNIT—II

3. Answer any *two* of the following : 2×2=4

(a) What is allosteric enzyme?

(b) Define free energy and entropy of a system. 1+1=2

(c) What is an active site of an enzyme? What is coenzyme? 1+1=2

4. (a) Differentiate between spontaneous and non-spontaneous biological processes with example. What is ATP? Write its role in energy currency. 2+1+3=6

*Or*

(b) What is Michaels constant? Derive Michaels-Menten equation. 1+5=6

UNIT—III

5. Answer any *two* of the following : 2×2=4

(a) What is active transport? Give example.

(b) What do you mean by endocytosis? Give example.

(c) What are the characteristics of prokaryotic ribosome? What is mesosome? 1+1=2



6. (a) Who proposed Fluid Mosaic model of cell membrane structure? With suitable sketches describe Fluid Mosaic model of plasma membrane. 1+5=6

*Or*

(b) With suitable diagram describe an eukaryotic cell. 6

UNIT—IV

7. Answer any *two* of the following : 2×2=4

(a) What is nucleosome? What is its function?

(b) What is the difference between RER and SER?

(c) Why is lysosome called suicidal bag of the cell?

8. (a) With suitable diagram describe the structure of mitochondria. Why is mitochondria called power house of the cell? 5+1=6

*Or*

(b) With neat sketches describe the structure of Golgi apparatus. Write the function of Golgi apparatus.

## UNIT—V

**9.** Answer any *two* of the following : 2×2=4

*(a)* What is interphase? Which cellular event takes place during interphase?

*(b)* What is crossing over? At which stage of cell division crossing over takes place?

*(c)* What do you mean by charismata?

**10.** *(a)* Describe different phases of cell cycle with suitable diagrams. 6

*Or*

*(b)* Describe different phases of meiosis with diagrams.

★ ★ ★