CBCS SCHEME

USN | | | | | | | | | | |

18BT651

Sixth Semester B.E. Degree Examination, July/August 2022
Biology for Engineers

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. With a neat labelled diagram, explain the function and structure of a Eukaryotic cell. **(10 Marks)**

b. Analyze the reasons as to why a normal cell would become cancerous with reference to carcinoma. **(05 Marks)**

c. Delineate the process of FACS cell counting with a neat labelled diagram. **(05 Marks)**

OR

2 a. "Mitochondria is termed as power house of the cell". Justify. **(10 Marks)**

b. Describe the cell cycle in which equational division occurs. **(10 Marks)**

Module-2

3 a. What are biomolecules? How are they important for cell process? **(10 Marks)**

b. Various types of bonds are required to link biomolecules. Explain the types of bonds in biomolecules. **(10 Marks)**

OR

4 a. Explain the structure and function of proteins. **(07 Marks)**

b. State and describe central dogma of biology. **(07 Marks)**

c. Vitamins are essential for normal cell process. Detail the types and functions of vitamins. **(06 Marks)**

Module-3

5 a. What is an enzyme? Which are the six classes of enzymes? **(07 Marks)**

b. State and explain the models proposed for optimum enzyme activation. **(06 Marks)**

c. Cellulases are used in textile and paper industry – uphold the statement. **(07 Marks)**

OR

6 a. Discuss the factors affecting the enzyme activity. **(10 Marks)**

b. How are enzymes such as amylase and protease used in industries? **(10 Marks)**

Module-4

7 a. Which factors determine the optimal quality of biomaterial for tissue engineering? **(08 Marks)**

b. Discuss the role of ATP synthase in cell metabolism. **(07 Marks)**

c. State applications of gelatin. **(05 Marks)**

OR

8 a. Discuss the biomaterials that are used in implants. **(08 Marks)**

b. Describe the action of kinesin and dynein. **(06 Marks)**

c. Enumerate the use of biomaterials in cell growth and culture. **(06 Marks)**

Module-5

9 a. What is biomimicry? State few examples from where we have been inspired to fabricate biomimetic. **(10 Marks)**

b. Biosensors such as electrical tongue and electrical nose are important in industries. Justify. **(10 Marks)**

OR

10 a. How do we compare the function of eye to camera? **(08 Marks)**

b. Explain bioremediation and its principle. **(07 Marks)**

c. Bioprinting techniques are essential in the field of tissue engineering. Discuss. **(05 Marks)**

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