U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Aerospace Engineering **Duration: 3 hrs.**
Course Code: 21AE7BSBFE **Max Marks: 100**
Course: Biology for Engineers **Date: 04.03.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1	a)	Elaborate on four applications of biology in different fields.		**4**
	b)	What are the levels of organization biology? Highlight the lowest level of organization with examples.		**4**
	c)	Give a diagrammatic representation of blood circulation in the human heart. Label all the important parts of the heart involved in circulation.		**6**
	d)	What are the different phases of mitosis? Elaborate using labelled diagrams.		**6**

UNIT - II

2	a)	What are the types of bone present in the human body?		**5**
	b)	Elucidate the functions of bone.		**7**
	c)	Represent diagrammatically the mechanism of muscle contraction and relaxation. What are the three types of muscles?		**8**

OR

3	a)	How does bone development occur?		**7**
	b)	Give a labelled diagrammatic representation of the skeletal muscle structure.		**5**
	c)	What are myofilaments? Write the creatin phosphate pathway.		**8**

UNIT - III

4	a)	Elaborate on the different parts of the central nervous system.		**6**
	b)	Draw the structure of a neuron. What are its functions?		**6**

	c)	What is electromyogram? How is this procedure performed?	**8**

OR

5	a)	Differentiate between CNS and PNS.	**5**
	b)	What are the steps of impulse conduction?	**8**
	c)	Elucidate the structure of synapse with a diagram. What are its functions?	**7**

UNIT - IV

6	a)	What is exobiology? What are the four evolutionary epochs in exobiology?	**5**
	b)	How does understanding the structure of wings of birds help in aerospace engineering? Give examples.	**5**
	c)	What is biomimetics? Explain this concept using shark skin as an example.	**5**
	d)	What was the significance of Miller-Urey experiment? Draw the experimental set-up.	**5**

UNIT - V

7	a)	What are the roles of radiation biology in aviation and spaceflight?	**7**
	b)	Elucidate the significance of aerospace microbiology.	**5**
	c)	Which areas of focus are involved in aerospace medicine? Elaborate on the scope of this field.	**8**

****