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

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: VII**
Branch: ES CLUSTER (ML/EEE/EIE/ECE/ETE) **Duration: 3 hrs.**
Course Code: 19ES7BSBFE **Max Marks: 100**
Course: Biology for Engineers **Date: 15.09.2023**

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) With one example, describe the interaction of life with environment. **05**

   b) The organization of the living world is hierarchical. Explain in brief. **05**

   c) What is biology? Why it is important for an engineering student to study biology? **10**

UNIT - II

2. a) Identify the different components of a typical prokaryotic cell shown in the given Figure.1. Differentiate between prokaryotic and eukaryotic cells. **10**

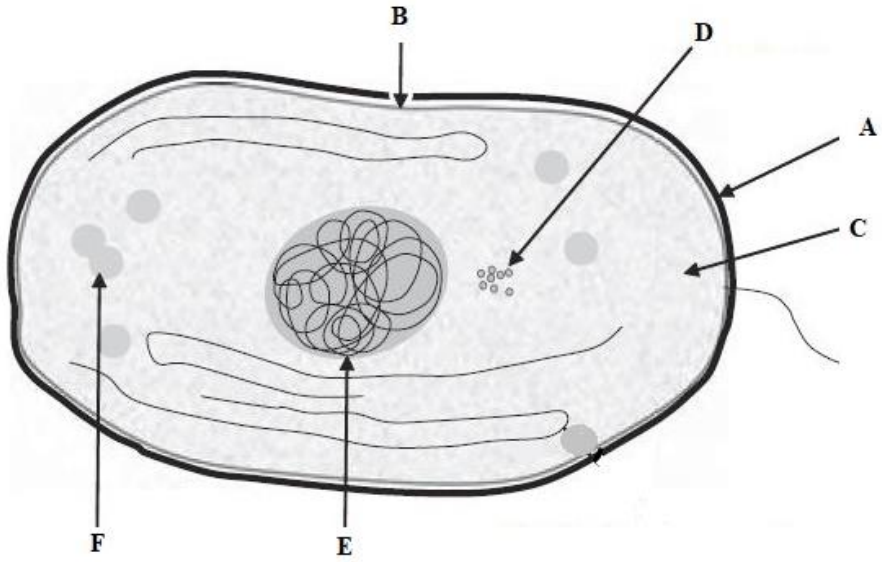

Figure.1.

   b) Cell reproduction in humans is a complex process compared to bacteria. Justify this statement by explaining interphase, mitosis and cytokinesis of a cell cycle. **10**

OR

3.	a)	What kind of biological macromolecules are living things made up of? How would you define a hybrid compound?	**05**
	b)	Differentiate between DNA and RNA with relevant structures.	**05**
	c)	Give a detailed classification of carbohydrates. Enumerate diverse functions of this biomolecule.	**10**

UNIT - III

4.	a)	How do ionizing radiations differ in their properties and penetrating powers?	**10**
	b)	Use your knowledge to explain the useful applications of X-ray in medical field. Discuss the structure and working of an X-ray generator.	**10**

UNIT - IV

5.	a)	The scientists who work with radioactivity follow strict handling protocols and wear radiation-sensitive badges to monitor their exposure over time to help ensure a safe level of exposure. If exposure to ionizing radiation is not carefully controlled, what types of health effects are seen? Explain in detail.	**10**
	b)	Is electromagnetic radiation used by cell phones harmful? If so, explain cell phone radiation hazards.	**10**

UNIT - V

6.	a)	Being an important nutrient, how nitrogen effects growth, functions and quality of a plant?	**10**
	b)	Describe in detail, the common nitrogen deficiency symptoms in crops.	**10**

OR

7.	a)	Explain the effects of phosphorus on plant growth and quality. What are the symptoms of phosphorus deficiency in plants?	**10**
	b)	How potassium deficiency affects the fruits, grains and leaves of a plant? How essential is this nutrient to plants?	**10**

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