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PES University, Bangalore

(Established under Karnataka Act 16 of 2013)

UE18BT101

DECEMBER 2018: END SEMESTER ASSESSMENT (ESA) B.TECH I SEMESTER
UE18BT101: ENGINEERING BIOLOGY

Time: 2 hours **Max Marks: 60**

Answer All Questions

1. a) Illustrate the experimental setup of Miller Urey experiment which substantiated the origin of life on earth. **[4]**

   b) Which engineering principles adopted by termites in building their mounds have inspired architects? Discuss. **[5]**

   c) Enlist the anomalous properties of water. **[3]**

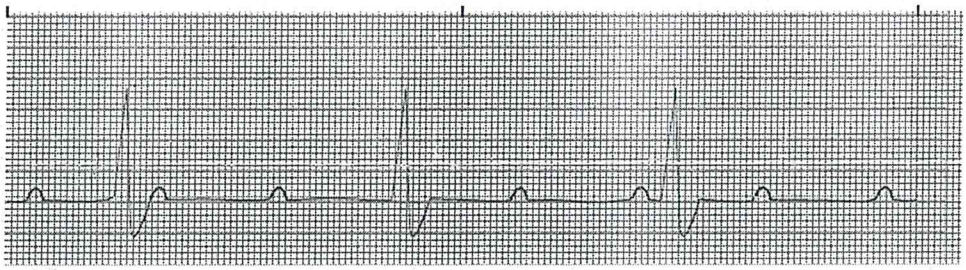
2. a) Define enzyme. Name the models which explain enzyme-substrate binding. Elaborate on types of enzyme inhibition. **[6]**

   b) With suitable schematic representation, state the key features of stages of cellular respiration. **[6]**

3. a) ATP Synthase is an energy generating rotary motor engine present inside the cells. Elaborate on how F_0 and F_1 help in movement of ATP synthase. **[3]**

   b) With a simple schematic sketch, depict the path of blood circulation in the heart. **[6]**

   c) Name the major waves formed in an Electrocardiogram. Observe the ECG given below and indicate if it is normal or abnormal. **[3]**



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4. a) Elucidate the different layers of artificial neural networks. Highlight the functions of each layer. [6]

   b) Elaborate on the major parts of Electronic nose and their functions. [6]

5. a) Outline the components of a biosensor using a block diagram. [5]

   b) Summarize the process of drug discovery and development. [5]

   c) Enlist any four characteristics of cancer cells. [2]

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