

Code No: **R163204D**

R16

SET - 1

III B. Tech II Semester Regular/Supplementary Examinations, August-2021
BIO-MEDICAL ENGINEERING

(Common to Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Electronics and Computer Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)

2. Answer **ALL** the question in **Part-A**

3. Answer any **FOUR** Questions from **Part-B**

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**PART -A**

**(14 Marks)**

1. a) Distinguish Absolute and Refractory Period. [2M]
- b) What are the salient features of needle electrodes? [2M]
- c) Why is the SA node called as natural pacemaker? [2M]
- d) Define the term blood pressure. What is its importance? [3M]
- e) What is the principle of X-ray machine? [3M]
- f) Define Micro shock and Macro shock. [2M]

**PART -B**

**(56 Marks)**

2. a) With the help of a neat diagram, explain the relationship between the action potential and muscle contraction. [7M]
- b) Draw the structure of a living cell of our body and explain its constituents detail. [7M]
3. a) What are polarizable and non-polarizable electrodes? Explain. [7M]
- b) Discuss about various errors caused by the electrodes in the measurement of the body potentials. [7M]
4. a) Explain how the ECG wave form helps in assessing the functioning of the heart? [7M]
- b) With suitable figures explain, how pH, pCO<sub>2</sub>, and pO<sub>2</sub> are measured in blood? [7M]
5. a) Discuss the problems faced in patient monitoring equipment. [7M]
- b) With suitable figures, explain the anatomy of Vision. [7M]
6. a) Discuss the function of the components of Biotelemetry system. [7M]
- b) Explain the features of different block of a CAT scan. [7M]
7. a) Discuss the working of isolation amplifier with a neat diagram. [7M]
- b) Discuss the importance of monitor recorders in biomedical instrumentation. [7M]

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