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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(Et & T Engg. Branch)

BIOMEDICAL ELECTRONICS

(Professional Elective-I)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all the questions. Part (a) of each question is compulsory and carries 2 marks.. Attempt any two from (b), (c) & (d) and carries 7 marks.

Unit-I

1. (a) Draw an action potential waveform and label the amplitude and time values. 2

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- (b) Mention the component of man instrument system and also describe their functions. 7
- (c) List and explain the problems encountered in measuring a living system. 7
- (d) Explain the origin of resting and action potential. Mention their characteristics. 7

Unit-II

2. (a) What are the three basic types of bio potential electrodes? 2
- (b) Explain with neat and clean diagram the working of cardio vascular system. 7
- (c) Explain the electrical activity of heart. What is SA node? 7
- (d) Draw and explain the Einthoven triangle. 7

Unit-III

3. (a) Write three method of direct blood pressure measurement. 2

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[3]

- (b) Explain measurement of heart sound and draw the frequency spectrum of heart sound. 7
- (c) Discuss various type of temperature measurement. 7
- (d) Discuss the principles of operation of medical diagnosis using ultrasound. 7

Unit-IV

4. (a) Draw the block diagram of pacing modes. 2
- (b) Explain the working of pacemaker. 7
- (c) What are the elements of intensive care monitoring 7
- (d) Explain heart lung machine. 7

Unit-V

5. (a) Draw the block diagram of a biotelemetry transmitter. 2
- (b) Give a brief account of the role played by laser in biomedical instrumentation. 7
- (c) What are the implantable units in biotelemetry? 7

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(d) Define Biotelemetry. Explain the basic components of biotelemetry systems. 7