B.E. (Electrical Engineering (Electronics & Power)) Eighth Semester (C.B.S.)

Elective – III : Bio-Medical Engineering

P. Pages : 1 **TKN/KS/16/7660**

Time : Three Hours * 0 8 4 5 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No.2.
3. Solve Question 3 OR Questions No.4.
4. Solve Question 5 OR Questions No.6.
5. Solve Question 7 OR Questions No.8.
6. Solve Question 9 OR Questions No.10.
7. Solve Question 11 OR Questions No.12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Diagrams and chemical equations should be given whenever necessary.
11. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain the structure of human cell and its constituents with neat diagram. **7**

b) Mention the names of the different sub-systems in our body. Explain them with respect to their function and constituents. **6**

OR

2. a) Discuss the different ways of transport of ions through the cell membrane. **7**

b) What is bioelectric potential? Also explain propagation of action potential. **6**

3. What is EMG? Draw the block diagram of EMG measurement and explain the need for each block. **13**

OR

4. Illustrate the standard 10-20 electrode system for recording, the spontaneous EEG with neat diagram. **13**

5. Describe the following methods for blood flow measurement in details. **13**
i) Dye-Dilation technique Quadrature.
ii) Suppression technique.

OR

6. Discuss the electronic method employed in blood cell counters in details. **13**

7. With neat schematic diagram explain the principle of following. **14**
i) pH measurement.
ii) Flame photometer.

OR

8. a) Explain the principle of electromagnetic blood flow measurement. **7**

b) Explain the principle of pulse rate measurement. **7**

9. Draw the block diagram of a typical Electrotherapeutic stimulator and explain. **13**

OR

10. What is the importance of cardiac pace- maker? How it is useful in human heart nervous system. **13**

11. Explain blood pump respiration controller and its one example. **14**

OR

12. Explain myo electric control of paralyzed muscles with its one application. **14**

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