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**Anna University Exams Regulation 2017**

**Rejinpaul.com Anna University Semester Exam Important Questions**

**BM8502 BIOMEDICAL INSTRUMENTATION**

### **PART B & PART C QUESTIONS**

1. Discuss the different types of surface electrodes and its uses.
2. i) What is the diameter of the tip of micro electrode? Why it should be so small? Explain.  
ii) Draw the electrical equivalent circuit of micro electrode and explain its characteristics.
3. Explain the working principle of a ECG machine with a neat block diagram.
4. Draw the electrical equivalent circuit of micro pipet and explain its characteristics
5. Explain the need and analysis of right leg driven circuit in ECG recording.
6. i) Explain the electrode –skin interface in detail with equivalent circuit. ii) What are non-polarizable electrode and explain with an example.
7. Discuss the different types of Electrodes used in the measurement of Bio potential.
8. Describe the blood gas analyzer designed to measure pH, pCO<sub>2</sub>, pO<sub>2</sub> from a sample
9. State the basic elements of electro cardiograph and explain the working of each of these.
10. With a neat block diagram, explain the working principle of EEG machine.
11. What is EMG? Draw the block diagram of EMG measurement and explain the need for each block
12. (i) Explain the working principle of PCO<sub>2</sub> Electrode?  
(ii) Briefly describe the construction and working of Ion selective field effect transistor.
13. Explain the principle of operation of an ultrasonic blood flow meter.
14. Explain the working principle of an electromagnetic type blood flow meter.
15. What are Pre-amplifiers? Explain the working of a pre amplifier used for patient safety with neat diagram.
16. (a) Illustrate the standard 10-20 electrode system for recording the spontaneous EEG with neat diagram.  
(b) Draw and mention the position of Pre cordial leads in ECG recording.
17. (a) Write short note about the following (i) ISFET (ii) Blood glucose sensors
18. Differentiate the electrical properties of Metal Micro electrode and Glass micro pipette with respective equivalent circuits.
19. Elaborate the direct method of BP measurement with appropriate diagrams.
20. Describe the following methods for blood flow measurement in detail. (i) Dye-Dilution technique ii) Suppression technique.
21. Discuss the Electronic method employed in blood cell counters in detail.
22. (i) Design a preamplifier to amplify ECG signal.  
(ii) What is power line interference? State how it can be suppressed?
23. Discuss the construction and working of electromagnetic sensor based blood flow measurement and also discuss its merits and demerits.
24. (a) Explain the principle and application of the following measurement (i) Flame photometer (ii) Spectrophotometer

**Questions Are Expected for University Exams This May or may Not Be Asked for Exams**

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