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**Question Paper Code : 50410**

**B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017**

**Sixth Semester**

**Electronics and Communication Engineering**

**EC 6001 – MEDICAL ELECTRONICS**

**(Regulations 2013)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions**

**PART – A**

**(10×2=20 Marks)**

1. Define Lead. Name the types of leads used for ECG.
2. Define action potential.
3. What is meant by total lung capacity ?
4. Give the merits and demerits of electromagnetic blood flow meter.
5. Compare Haemodialysis and peritoneal dialysis.
6. What is meant by fibrillation ? And give its type.
7. Define micro and macro shock.
8. List the applications of diathermy.
9. State the principle of Thermography.
10. List out the properties of LASER.

**PART – B**

**(5×16=80 Marks)**

11. a) Discuss the different types of surface electrodes and its applications. **(16)**  
(OR)
- b) i) With circuit diagram explain the instrumentation amplifier. **(8)**  
ii) Give the origin of brain waves and describe the 10-20 electrode system used in EEG. **(8)**



12. a) Explain the principle of following :
- i) Auto analyzer (8)
  - ii) PO<sub>2</sub> measurement (8)
- (OR)
- b) i) Explain auscultatory blood pressure measurement and write its advantages and disadvantages. (8)
- ii) Write the principle of coulter counter and with block diagram explain multi parameter coulter counter. (8)
13. a) i) Explain working principle of demand pacemaker with a diagram. (8)
- ii) Explain the DC defibrillator. (8)
- (OR)
- b) Explain the heart lung machine with neat block diagram and discuss about the different types of oxygenators. (16)
14. a) i) Draw the block diagram of short wave diathermy unit and explain it. (8)
- ii) Explain the working of a biotelemetry system with sub-carrier. (8)
- (OR)
- b) Define Leakage current. Explain the impact of leakage in cardiac patient and discuss about the prevention methods. (16)
15. a) i) Discuss the various applications of lasers in different fields of medicine. (8)
- ii) Discuss the benefits and limitations of telemedicine. (8)
- (OR)
- b) With neat sketch explain the following :
- i) Thermograph (8)
  - ii) Endoscopy unit. (8)