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**Question Paper Code : 51409**

**B.E/B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016**

**Sixth / Seventh Semester**

**Electronics and Communication Engineering**

**EC 2021/EC 601/EC 1001/10144 ECE 11 – MEDICAL ELECTRONICS**

**(Regulations 2008/2010)**

**(Common to PTEC 2021/10144 ECE 11 – Medical Electronics for B.E. (Part-Time)**

**Sixth/Seventh Semester – ECE – Regulations 2009/2010)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**PART – A (10 × 2 = 20 Marks)**

1. Define resting and action potential.
2. Draw the waveform of EOG signal and give the characteristics.
3. What is stroke volume ?
4. What do you mean by the term auto analyzer ? State its units.
5. Differentiate internal and external pacemakers.
6. List some of the applications of telemetry.
7. Mention the characteristics required for the radio isotopes to be used for medical imaging.
8. What do mean by the term betatron and give its application ?
9. Which laser is most commonly used for ophthalmic application ? Why ?
10. Mention the electrical safety perceptual measures to be followed when working with medical equipments.

**PART – B (5 × 16 = 80 Marks)**

11. (a) (i) Discuss about the different types of electrode used in bio potential measurement. (10)

(ii) Explain the principle behind measurement of EMG in detail. (6)

**OR**

(b) (i) Draw and explain 10-12 electrode placement system in detail. (8)

(ii) Explain the 12 lead system used in ECG. (8)

12. (a) Explain the working principle of electromagnetic blood flow meter ? Mention its advantages and disadvantages. (16)

**OR**

(b) (i) Write about the working principle of blood cell counter over conductivity. Mention the problems associated with this method. (8)

(ii) Explain in detail about the working principle of auto analyzer. (8)

13. (a) Discuss with suitable block diagrams the different modes of operation of cardiac Pacemakers. (16)

**OR**

(b) Explain the Multi-channel Bio telemetry system with neat diagram. (16)

14. (a) With a neat block diagram explain the components of X-ray machine in detail. (16)

**OR**

(b) Explain the principle of Nuclear Imaging with neat diagram. (16)

15. (a) Explain the function of surgical diathermy in detail and brief about various modes of operation. (16)

**OR**

(b) Explain in detail the function of each unit in medical thermographs and give its applications. (16)