

Reg. No. : 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Question Paper Code : 21327**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Sixth Semester

Electronics and Communication Engineering

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

(Regulation 2008/2010)

(Common to PTEC 2021 – Medical Electronics for B.E. (Part-Time) Seventh Semester – ECE – Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the characteristics needed for Bio-amplifier.
2. Compare the signal characteristics ECG and PCG.
3. What are the components of Blood?
4. What is stroke volume?
5. List the applications of Bio Telemetry.
6. What are pacemakers?
7. What are Soft and Hard X-rays?
8. Mention the characteristics required for the radio isotope to be used for medical imaging.
9. List the parts of endoscope unit.
10. What is Macro shock?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss about the different types of electrodes used in Bio potential measurement. (10)  
(ii) Explain the measurement of EMG. (6)

Or

- (b) Draw and explain the different lead configurations and its significances in ECG. (16)

12. (a) Explain the following:  
(i) Fick's method for the determination of cardiac output. (8)  
(ii) Ultrasonic blood flow meter. (8)

Or

- (b) Explain the principle of the following:  
(i) Sphygmomanometer (8)  
(ii) Measurement of  $\text{PHCO}_3$  (8)

13. (a) Explain the following:  
(i) R-wave Inhibited pacemaker (8)  
(ii) DC defibrillator (8)

Or

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

14. (a) Explain the need of following in the X-ray imaging system:  
(i) Collimator (5)  
(ii) Bucky grid (5)  
(iii) Image intensifier (6)

Or

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

15. (a) Write brief notes on:

(i) Thermograph (8)

(ii) Endoscopy unit (8)

Or

(b) Explain the following:

(i) Surgical diathermy (8)

(ii) Argon Laser and its medical application (8)