

Reg. No. :

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

Question Paper Code : 50550

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Eighth Semester

Electronics and Instrumentation Engineering

EI 8073 — BIOMEDICAL INSTRUMENTATION

(Common to Electrical and Electronics Engineering/ Instrumentation and Control Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the principle of an ultrasonic transducer?
2. Define resting and action potential.
3. What is the principle of spirometry?
4. List the indirect BP measurement Techniques.
5. What is a differential amplifier?
6. Name the different types of electrodes used in the measurement of biopotential.
7. What is the fluoroscopic technique?
8. What is meant by thermography?
9. Define Diathermy.
10. What is the purpose of pacemakers?

PART B — (5 × 13 = 65 marks)

11. (a) With a neat diagram explain the cardiovascular systems in detail

Or

- (b) Explain in detail the block diagram of a biomedical instrumentation system.

12. (a) Explain different types of spirometers for pulmonary function measurement and their operation.

Or

- (b) Explain in detail ESR and GSR measurement

13. (a) Explain with a neat diagram of limb electrodes, floating electrodes and pregelled disposable electrodes in detail.

Or

- (b) Draw the block diagram of a recording setup of EEG and explain the different parts.

14. (a) With a neat block diagram explain in detail Radiographic technique in detail

Or

- (b) Explain in detail the different types of biotelemetry systems.

15. (a) With a neat diagram explain ICCU patient monitoring system in detail

Or

- (b) Explain in detail the different types of defibrillators

PART C — (1 × 15 = 15 marks)

16. (a) Explain in detail the instruments for checking safety parameters of biomedical equipment.

Or

- (b) Explain how robotics is used for orthopedic prostheses fixation.