

Total number of printed pages-3

53 (IE 801) BIIN

2019

BIOMEDICAL INSTRUMENTATION

Paper : IE 801

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions out of seven.

1. (a) With a neat diagram, explain Electrocardiograph. 8
- (b) With neat diagrams, explain 12 standard lead ECG configurations. 12
2. (a) Explain imaging techniques and modes of transmission in ultrasound. 15
- (b) Explain heart sounds. 5



Contd.

3. (a) Explain the construction and working of two types of instruments for measuring the mechanics of breathing. 14

(b) Explain the following electrodes: 6

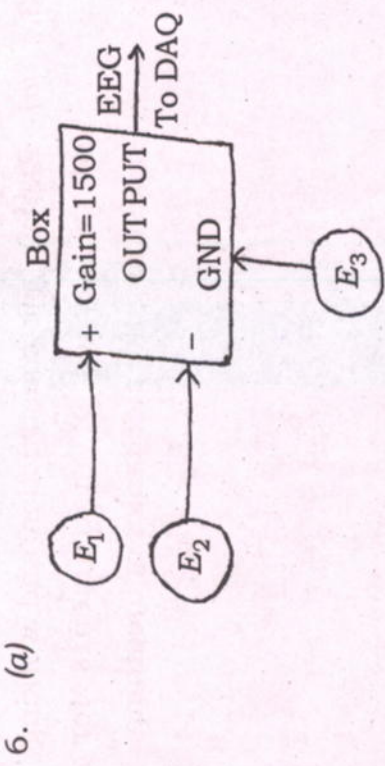
- (i) Column type
- (ii) Needle.

4. (a) With a neat diagram, explain the working of heart-lung machine. 12

(b) Explain X-ray machine. 8

5. Explain the following: 20

- (a) Biotelemetry
- (b) Plethysmograph
- (c) Pacemaker.



In the above figure, E_1, E_2 and E_3 represents electrodes connected to the patient scalp for EEG measurement. Design the circuit connected in the box. 12

(b) Explain a technique for human blood pressure measurement. 8

7. Write short notes on: 4x5=20

- (a) GSR
- (b) Surface electrode
- (c) Resting potential
- (d) Audiometer.

