



Printed Pages : 2

BME – 404

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3084

Roll No.

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B. Tech.

(SEM. IV) EXAMINATION, 2006-07

TRANSDUCERS IN BIOMEDICAL INSTRUMENTATION

Time : 3 Hours]

[Total Marks : 100

- Note :*
- (1) Answer **all** questions.*
 - (2) All questions carry **equal** marks.*
 - (3) In case of numerical problems assume data wherever not provided.*
 - (4) Be precise in your answers.*

1 Attempt any **four** parts of the following : **5×4=20**

- (a) Draw the block diagram for man instrumentation system. State the problems encountered in the same.
- (b) What are microelectrodes, how are they used?
- (c) Describe any two pressure transducers used in biomedical application.
- (d) How does potential propagate in cell? What is the role of refractory period in this?
- (e) Explain how blood gas electrodes work.
- (f) What is the significance of EEG?

- 2** Attempt any **four** parts of the following : **5×4=20**
- (a) What is vector cardiograph? How does it differ from electrocardiograph?
 - (b) Give a method to measure the heart rate of a patient.
 - (c) Explain how blood pressure is measured using Korotkoff's method.
 - (d) Classify different types of pacemaker.
 - (e) Explain a dc defibrillator.
 - (f) Explain electromagnetic type of blood flow meter.
- 3** Attempt any **two** parts of the following : **10×2=20**
- (a) Explain the working of ultrasonic Spiro meter.
 - (b) Which are the tests used for measuring breathing mechanics?
 - (c) Write a short note on humidifiers, nebulizers and aspirators.
- 4** Attempt any **two** parts of the following : **10×2=20**
- (a) Explain in brief magnetic resonance imaging.
 - (b) What is echo-cardiograph?
 - (c) How is ionizing radiation generated?
- 5** Attempt any **two** parts of the following : **10×2=20**
- (a) Telemetry can be used for emergency patient monitoring. - Explain.
 - (b) Explain a conventional hearing aid with neat sketch.
 - (c) Discuss the effects of electric current on human body.
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