Printed Pages : 3

EBT061

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

PAPER ID : 154853

Roll No.

B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15

BIOMEDICAL INSTRUMENTATION

Time : **3** Hours] [Total Marks : **100**

Note : Attempt all questions as directed. All questions carry equal marks.

1 Attempt any two of the followings :

(a) What are noninvasive biomedical tools? Explain the functioning of any noninvasive instrument.

(b) What are transducers? Discuss the principle behind any transducer used in biomedical instrument.

(c) What do you understand by bioelectric potential? How does it support in biomedical instrumentation?

2 Attempt any two of the followings :

(a) Discuss the role of biomedical instrumentation to measure cardiovascular parameters.

(b) Mention the respiratory parameters of medical significance. How can instrumentation help in monitoring respiratory status? Describe with the help of suitable example.

(c) What is colored doppler? How does it help monitoring the flow of blood through vessels?

3 Attempt any two of the followings :

(a) Write a short note on sensory measurement. Describe the principle behind the instrument used in such measurement.

(b) What do you understand by behavioral parameters? How does instrumentation help monitoring the behavioral changes effectively? Explain with the help of suitable example.

(c) Taking example of any invasive and non-invasive instruments of biomedical measurement, mention the advantages and disadvantages.

4 Attempt any two of the followings :

(a) What are radioactive-tracers? How can they be used in disease diagnostics? Give one example where such tracers are effectively used in diagnostics.

(b) What is GM tube? Describe the principle and importance of GM tube.

(c) What are the methods to produce X-ray? Describe its role in diagnostics and mention its advantages and disadvantages in biomedical measurements.

5 Attempt any two of the followings :

(a) What are the parameters of assessment of electrical safety? How do these parameters ensure electrical safety of laboratory instruments?

(b) Describe as to how computation tools, sensors and networking have assisted biomedical instrumentation to achieve new heights. Support your answer taking at least one example.

(c) What are the key points for maintenance of biomedical instruments? How do they influence the accuracy and efficacy of instruments?
