

CBCS Scheme

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15BT554

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

Bioinstrumentation & Biosensors

Time: 3 hrs.

Max. Marks: 80

Note: 1. Answer FIVE full questions, choosing one full question from each module.

2. Draw neat labeled diagram, wherever necessary.

Module-1

- 1 a. Explain the functional elements of instrumentation system. (08 Marks)
b. Write short notes on optical transducers and LVDT. (08 Marks)

OR

- 2 a. With the help of a block diagram, explain the working of HPLC. (08 Marks)
b. Describe the working principle of fluorescence spectrophotometer. Add a note on its types. (08 Marks)

Module-2

- 3 a. List the various medical instrumentation terminologies used. (06 Marks)
b. Explain the principle and application of EEG. (06 Marks)
c. Explain with waveform the action wave potential. (04 Marks)

OR

- 4 a. Elaborate on the principle, application and types of MRI. (08 Marks)
b. Write short notes on digital Mammography and endoscopy. (08 Marks)

Module-3

- 5 a. What is cardiac catheterization? Explain its uses. (08 Marks)
b. Describe the component parts of pacemaker in detail. Add a note on its classification. (08 Marks)

OR

- 6 a. In detail, explain the instrumentation and working of a spirometer. (08 Marks)
b. Outline any two methods used in measuring gas flow rate. (08 Marks)

Module-4

- 7 a. Describe various parameters to be considered while designing a bioassay technique. (08 Marks)
b. Discuss in detail any two bioanalytical techniques and its application. (08 Marks)

OR

- 8 a. Elaborate on the components of a robot. Add a note on LERT classification system. (08 Marks)
b. What is Barcode technology? Explain its objectives and types of barcode readers used. (08 Marks)

Module-5

- 9 a. Outline the steps involved in the microfabrication of the sensors. (10 Marks)
b. Explain in detail blood glucose sensors. (06 Marks)

OR

- 10 a. Explain the application of BIAcore as an optical biosensor. (06 Marks)
b. Elaborate on Noninvasive biosensors in clinical analysis. (05 Marks)
c. Write a brief note on ISFET's. (05 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.