

Code No: 07A72305

R07

Set No. 2

IV B.Tech I Semester Examinations, November 2010

BIOSENSORS AND BIOELECTRONICS

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write in detail about the potential advantages of biomolecular computers. [16]
2. Explain the detection of neuron toxic organophosphate [OP] compounds using microbial sensors. [16]
3. What are whole cell biosensors? Explain various analytes that can be estimated through whole cell based biosensors. [16]
4. Give details about the multi analyte analysis by River Analyzer (RIANA) based on fluorescent bioaffinity sensors. [16]
5. Write in detail about the detection of organo phosphorous pesticides in water by butyryl cholinesterase using impedimetric biosensors. [16]
6. Explain the principle and fabrication of thermal transducers for general calorimetric biosensors. [16]
7. Discuss in detail parallel association memory (PAM) model in biomolecular computers. [16]
8. Explain why impedimetric biosensors have not been popular compare to other biosensors. [16]

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Set No. 4

IV B.Tech I Semester Examinations, November 2010

BIOSENSORS AND BIOELECTRONICS

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Why electro chemical membrane strips are becoming popular compare to other membranes in biosensor technology. [16]
2. Write about the study of microbial metabolites accumulation in body using modified micro fabricated oxygen electrode. [16]
3. Explain construction and operation of molecular switches in biocomputer system. [16]
4. Mention several types membranes used in construction of biosensors. [16]
5. Explain how impedimetric nano structured DNA based biosensors measures the extent of DNA damage by various environment pollutants. . [16]
6. What are transducers? Explain the general features of transducers. [16]
7. Illustrate the detection and monitoring of organic substance using chemiluminescence sensors. [16]
8. It is possible to create a biological device, capable of learning and having multi level architecture and a high degree of behavioral complexity, explain this assumption based on Belousov-Zhabotinsky media photosensitive processing. [16]

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R07

Set No. 1

IV B.Tech I Semester Examinations, November 2010

BIOSENSORS AND BIOELECTRONICS

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain stepwise the events which occur between bioactive material and conductimetric transducers. [16]
2. Define negative differential resistance (NDR) and explain how NDR provides a basis for memory chips, switches and logic elements. [16]
3. How a memory store is formed by a series of domains such as chromophoric protein and light absorbing pigment, explain. [16]
4. Illustrate a protocol for immobilized antibodies to the transducer surface for analyzing the pollutants. [8+8]
5. Write about the method for serological diagnosis and estimation of nerve agents in body fluids by impedometric biosensors. [16]
6. What are acoustic transducers? Write the principle and construction of acoustic transducers. [16]
7. Automate online analysis of milk constituents (urea, ketone, hormone) using biosensors. [16]
8. What are electron carriers? Explain the importance of electron carriers in biosensors and mention the advantages and disadvantages [16]

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R07**Set No. 3****IV B.Tech I Semester Examinations, November 2010****BIOSENSORS AND BIOELECTRONICS****Bio-Technology****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Explain the importance of bioluminescent cell based biosensor for detection of bio available concentrations of Ni and Co^{2+} in the plants from the soil. [16]
2. What are microbial sensors? Explain the construction and operation of microbial sensors with suitable examples. [16]
3. Give details about the configuration of commonly employed screen-printed three electrode sensor system in amperometric transducers. [16]
4. Explain in detail the following membranes commonly used in biosensors and mention their advantages and disadvantages.
 - (a) Polysaccharide membranes
 - (b) Synthetic membranes. [8+8]
5. Discuss in detail how a photonic biomolecular computer works based on the visible properties of living organism. [16]
6. Genetically engineered microbial cell-based biosensors show several advantages and limitations with respect to potential environmental applications, Explain. [16]
7. Explain in detail about information storage and processing within the cell is more efficient by many orders of magnitude than electronic digital computation, Comment. [16]
8. What is chemiluminescence based sensors? Explain mechanism of operation and limitation of chemiluminescence sensors. [16]
