

Code No: 07A72305

R07

Set No. 2

IV B.Tech I Semester Examinations, May 2011
BIOSENSORS AND BIOELECTRONICS
Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Give in detail about the paradigm shift in fabrication of low-cost biosensors for various application. [16]
2. Give details about the configuration of commonly employed screen-printed three electrode sensor system in amperometric transducers. [16]
3. What are molecular arrays? Explain how molecular arrays are used as memory stores. [16]
4. (a) Write in detail about several stability problems encountered during the operation of enzyme based biosensors.
(b) Define shelf-stability and explain how one can improve the shelf-stability of biological material during the process of detection . [8+8]
5. Illustrate the method of estimation urea from blood sample by bio affinity sensors. [16]
6. Discuss the development and fabrication of hybrid computers in which both biomolecular and conventional electronic components play a major role. [16]
7. Detail various methods available for estimating the precision, accuracy and stability of enzyme sensors. [16]
8. Discuss the design of various types transducers employed in chemiluminescence sensors. [16]

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Set No. 4

**IV B.Tech I Semester Examinations, May 2011
BIOSENSORS AND BIOELECTRONICS
Bio-Technology**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Write the principle involved and fabrication of mechanical transducers. [16]
2. Mention the technical and functional characteristics required to assess the quality of biosensors. [16]
3. Give details about the monitoring and detection of organic pollutants in waste water using aluminum oxide chemiluminescence based sensors. [16]
4. Mention several optimistic and pessimistic reasons of using DNA as molecular array and memory stores in biocomputational system. [16]
5. Explain the irreversible nature of multi analyte enzyme interactions resulting in increased sensitivity. [16]
6. Write short notes on the following.
(a) Resonant oscillation in electrons
(b) Resonance mirror device.
(c) Fluorophore (probe). [5+5+6]
7. Explain in detail about the autonomous, programmable photonic computer machines made of biomolecules. [16]
8. Write the applications of Evanescent wave immuno sensors for clinical diagnostics. [16]

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Set No. 1

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BIOSENSORS AND BIOELECTRONICS
Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. How a memory store is formed by a series of domains such as chromophoric protein and light absorbing pigment, explain. [16]
2. Explain in detail the applicability of potentiometric biosensors to analyze the ions present in the soil. [16]
3. Give details about probing molecular interactions at semi conductive surface by impedimetric biosensors. [16]
4. Illustrate a protocol for immobilized antibodies to the transducer surface for analyzing the pollutants. [8+8]
5. Explain the process for monitoring the odor and freshness of foods using biosensors [16]
6. The DNA with its π electron system of base pairs is reminiscent of an electric wire, comment. [16]
7. Explain the operation of automated water analyzed computer supported system(AWACSS) during the measurement surface, ground and drinking water for pathogens. [16]
8. Write short notes on the following.
 - (a) Optical fiber sensors.
 - (b) Ion selective membrane interface.
 - (c) Solution capacitance. [6+5+5]

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R07

Set No. 3

IV B.Tech I Semester Examinations, May 2011

BIOSENSORS AND BIOELECTRONICS

Bio-Technology

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain the method for detection of sulphur dioxide from air pollution using chemiluminescence sensors. [16]
2. Give details about the basic geometric and thermodynamic properties of dsDNA are well used stored and can be modeled by available software systems. [16]
3. Explain the method for estimation of insulin concentration in blood samples using piezo electric crystal based micro gravimetric immuno assay. [16]
4. What are transducers? Explain the general features of transducers. [16]
5. Write the principle and operation of scheme picture screen printed transducer used in impedimetric biosensors. [16]
6. What are molecular wires? Explain the construction of molecular wire in biocomputers systems. [16]
7. What are ion mediators? Explain the role ferrocenes in transporting the electrons to transducers. [16]
8. Give details about the applicability of array biosensors which uses a sandwich assay format for detection of microbial pathogens by bioaffinity sensors. [16]
