

Code No: M2324/R07

Set No. 1

**IV B.Tech I Semester Supplementary Examinations, Feb/Mar 2011
BIO SENSORS AND BIO ELECTRONICS
(Bio-Technology)**

Time: 3 hours

Max Marks: 80

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

1. (a) what are biosensors?
(b) Give details about the development of biosensors. [4+12]
2. Write in detail about the mechanism of antigen tracer competes with analyte for immobilized anti body binding site. [16]
3. How do you interpret macromolecular interactions using surface plasmon resonance transducer? [16]
4. Describe the fabrication of carbon paste electrode used in biosensors. [16]
5. Explain the mechanism of antigen-antibody interactions at conducting polyprole electrode using impedimetric biosensors in body fluids. [16]
6. Explain the operation of automated water analyzed computer supported system(AWACSS) during the measurement surface, ground and drinking water for pathogens. [16]
7. Explain in detail the strategies for development of bio molecular computers. [16]
8. How Optical address system (Photonic) communicates with attached biomolecules with coordination of UV light. [16]

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Set No. 2

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BIO SENSORS AND BIO ELECTRONICS
(Bio-Technology)**

Time: 3 hours

Max Marks: 80

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

1. Give an account of interface modification of natural membranes for selective diffusion of analyte. [16]
2. Detail then various methods available for estimating the precision, accuracy and stability of enzyme sensors. [16]
3. What is chronoamperometric technique?. How detectable chemicals of interest can be intercalate into DNA and measured for concentration of genotoxic compounds. [16]
4. What are multiwalled carbon nanotubes (MWNT) and explain how they are coordinates with screen printed carbon electrodes for detecting the biological response. [16]
5. Write in detail about the contamination of liquid foods by microbial metabolites and detection of contaminants by impedemetric biosensors. [16]
6. Explain the detection of neuron toxic organophosphate [OP] compounds using microbial sensors. [16]
7. What are molecular arrays? Explain how molecular arrays are used as memory stores. [16]
8. Discuss in detail high complex behavior of photonic biocomputers systems based on non linear dynamic mechanism. [16]

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Set No. 3

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(Bio-Technology)**

Time: 3 hours

Max Marks: 80

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

1. Narrate the various likely factors contribute for the biological material stabilization in biosensors.. [16]
2. Illustrate how membrane trapped enzyme sensors are active and produce consistent results over other techniques. [16]
3. What are amperometric transducers, explain the principle and construction of amperometric transducers. [16]
4. What is impedance splitting? How it helpful to detect rapidly the pathogens. [16]
5. Explain the method for estimation of insulin concentration in blood samples using piezo electric crystal based micro gravimetric immuno assay. [16]
6. Give an account of detection of chemically induced DNA damage by various air pollutants and monitoring by DNA based biosensors. [16]
7. Give details about the self assembly of biomolecular computer device with suitable diagram. [16]
8. Define bionanofabrication, explain how this novel technology helps to create and manipulate the bio molecules in biophotonic computers. [16]

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Set No. 4

**IV B.Tech I Semester Supplementary Examinations, Feb/Mar 2011
BIO SENSORS AND BIO ELECTRONICS
(Bio-Technology)**

Time: 3 hours

Max Marks: 80

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

1. Explain the post reactional mechanism for generation of biological response to reach transducer surface. [16]
2. Explain the fabrication of composite biosensors and mention the reasons for ease in commercial scale up. [16]
3. Illustrate the following with suitable examples. [8+8]
 - (a) Refractive index sensors.
 - (b) Optical wave guides.
4. Explain in detail about how the metabolic products produces during the growth of microorganism can be detected using impedimetric transducers. [16]
5. Explain how the concentration herbicides in plants can be estimated through quartz micro fiber filter in optical biosensors. [16]
6. Give an account of detection of chemically induced DNA damage by various air pollutants and monitoring by DNA based biosensors. [16]
7. Define the following. [5+5+6]
 - (a) Logic gate
 - (b) Ion sputtering
 - (c) Sandwiched rotoxane molecule as switch .
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]
