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Question Paper Code: 31583

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Elective

Electronics and Instrumentation Engineering

01UEI904 - ADVANCED SENSORS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List the types of electrochemical sensor.
2. Draw the structure of an ion selective electrode.
3. What is echolocation?
4. Write the types of optical sensor.
5. List any two disadvantages of purified enzymes.
6. What is biosensor?
7. What is silicon accelerometer? Mention its uses.
8. What are the types of altimeter?
9. List the few excitation signals for sensing elements in a smart sensor.
10. Mention the applications of smart sensors.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain with neat diagram operation and principle of hydrogen sensitive MOSFET. (16)

Or

- (b) Describe the sensor matrices for the two dimensional measurements of concentrations in detail. (16)

12. (a) Define echolocation. Explain the working principle of echolocation and its applications. (16)

Or

- (b) Explain the working principle of holographic sensors. (16)

13. (a) (i) Explain in detail about Potentiometric enzyme sensor. (8)
(ii) Discuss the principle of operation of optical enzyme sensor. (8)

Or

- (b) Explain the construction and the working principle of Piezo-electric-enzyme sensor. (16)

14. (a) With neat sketch explain any one type of pressure sensor. (16)

Or

- (b) Explain the principle and working of angle of attack sensors. (16)

15. (a) Discuss in detail about data acquisition and interfacing methods for smart sensors. (16)

Or

- (b) Explain how the temperature is measured using the smart sensors. (16)