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Question Paper Code: 39504

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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. Differentiate chemical and biochemical sensor.
2. Define solid electrolyte.
3. What is echolocation?
4. Write the types of optical sensor.
5. What is biosensor?
6. List the applications of enzyme sensor.
7. Differentiate tip pressure sensor from catheter pressure sensor.
8. Mention the use of resolvers.
9. Compare touch sensing and tactile sensing.
10. List the few applications of smart sensors.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Which sensor is mainly used for gas sensing? Explain in detail. (10)
(ii) Write short notes on hydrogen sensitive MOSFET. (6)

Or

- (b) Which sensor is mainly used for gas sensing? Explain in detail. (16)

12. (a) Summarize the application of optical sensor in space and environment. (16)

Or

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

13. (a) Derive the expression for the response time of the biosensor in a transient state. (16)

Or

- (b) (i) Describe in detail about the potentiometric enzyme electrode. (8)

- (ii) State the principle of optical and thermal sensors. (8)

14. (a) (i) Write short notes on resolver and servos. (8)

- (ii) Discuss in detail the principle of operation of silicon accelerometer. (8)

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) (i) Write short notes on virtual sensors. (8)

- (ii) Write short notes about pressure type smart sensor. (8)
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