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**Question Paper Code: 39053**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. List the three basic components of a chemical sensor.
3. Classify the fibre optic sensor based on the application.
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. Mention the use of resolvers.
9. Compare touch sensing and tactile sensing.
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) Which sensor is mainly used for gas sensing? Explain in detail. (16)

12. (a) Explain the sensors used in space and environmental applications. (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) Explain the construction and the working principle of Piezo-electric-enzyme sensor. (16)

14. (a) Mention the steps involved in fabricating the high pressure sensor. Explain with a neat sketch. (16)

Or

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

15. (a) With suitable diagram, explain the general architecture of smart sensor. (16)

Or

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