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Question Paper Code: U9473

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Open Elective

Electronics and Communication Engineering

21UEC973 - SENSORS

(Regulations 2021)

(Common to All branches)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Give the classification lithography. CO1- U
2. For a wavelength of 450 nm and a gap of 14×10^3 nm, calculate the feature size obtained by shadow printing. CO1- U
3. Recall Synchros. CO1- U
4. Infer the function electromagnetic flowmeter. CO1- U
5. What is meant by enzyme reactor electrodes? CO1- U
6. State the properties of reference electrodes. CO2- App
7. Write short notes on HART protocol. CO1- U
8. Draw the structure of Intelligent sensors. CO1- U
9. Define: Thermography. CO1- U
10. How the environmental hazards spread? CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Explain in detail about various steps involved in sensor manufacturing. CO1-U (16)
Or
(b) Fabricate the sensors using semiconductor IC technology. CO1-U (16)
12. (a) Explain the principle and operation of linear variable differential transformer(LVDT). CO1-U (16)
Or

- (b) Explain the function of resistive potentiometer. CO1-U (16)
13. (a) Discuss in detail about the device which is used to sense the actions and reactions in the medium in the form of current, voltage, or power. CO2- App (16)
- Or
- (b) Calculate the half-cell potential of an Ag electrode dipped in a solution that has 2.5×10^{-2} M Ag^+ concentration. CO2- App (16)
14. (a) Draw the digital conversion method used in smart sensors. CO1-U (16)
- Or
- (b) Describe two types of heat flux sensors and briefly state how do they operate. Where are such sensors used in practice? CO1-U (16)
15. (a) Explain the function of RTD and Hybrid IC temperature sensor used in automobile. CO1- U (16)
- Or
- (b) With neat sketch explain the function static pressure sensors. CO1- U (16)