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Question Paper Code: U9473

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 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)

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|---|----------|
| 1. State the classification of sensors. | CO1- U |
| 2. Compare the characteristics of alumina and beryllia substrate. | CO1- U |
| 3. Recall Synchros. | CO1- U |
| 4. Infer the function electromagnetic flowmeter. | CO1- U |
| 5. Write short notes on time lag. | CO1- U |
| 6. Calculate the threshold wavelength for caesium. | 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)

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|---|-------|------|
| 11. (a) Discuss in detail about the Characteristics of sensors. | CO1-U | (16) |
| Or | | |
| (b) Fabricate the sensors using semiconductor IC technology. | CO1-U | (16) |
| 12. (a) With proper diagram explain the working of inductive sensors. | CO1-U | (16) |
| Or | | |
| (b) Explain the function of resistive potentiometer. | CO1-U | (16) |

13. (a) Calculate the half-cell potential of an Ag electrode dipped in a solution that has 1.5×10^{-2} M Ag^- concentration. 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) With neat sketch explain the function fluid velocity sensors. CO1- U (16)
Or
(b) With neat sketch explain the function static pressure sensors. CO1- U (16)