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Paper Code : OE-EI701 Telemetry & wireless Sensor Network

Time Allotted : 3 Hours *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following : [1 x 10 = 10]
   (i) What is the range of input variable for two wire or three wire telemetry scheme?
   (ii) Name, in how many ways can MAC Protocols be classified?
   (iii) What do you mean by sensor node?
   (iv) What is the full form of LVDT?
   (v) What is VCO?
   (vi) MEMS stands for what?
   (vii) What is the DOA sensor used for?
   (viii) Define Data Fusion.
   (ix) What are the four basic components of WSN?
   (x) What is the purpose of balanced modulator?
   (xi) What is the base band frequency range of FDM system?
   (xii) What do you mean by habitat monitoring?

Group-B (Short Answer Type Question)

Answer any three of the following [5 x 3 = 15]

2. Describe the voltage telemetry system using wires. [5]
3. Differentiate between FDM and TDM. [5]
4. How PM wave can be derived from FM demodulator? [5]
5. What is cross-talk? How we can overcome from this? [5]
6. What is a Dynamic Routing Table? Describe the format of a Dynamic Routing Table. [5]

Group-C (Long Answer Type Question)

Answer any three of the following [15 x 3 = 45]

7. (a) What is the main function of PLL? [2]
   (b) Draw a generalizes block diagram and describe. [8]
   (c) What is the function of low pass filter in PLL? [5]
8. (a) What do you mean by Multi casting? [3]
   (b) State 5 applications of Multi casting. [6]
   (c) Explain the 5 multicast routing protocols. [6]
9. (a) Draw the practical system of an 8 channel TDM-PAM telemetering transmitter system. [7]
   (b) Draw the pulse wave forms at the outputs pf the clock. [4]
   (c) Why is synchronization is needed in TDM system? [4]
10. (a) Define the Dijkstra Algorithm. [2]
    (b) Draw and discuss working of Dijkstra Algorithm with the block diagram. [6]
    (c) Give an example of the Dijkstra Algorithm by showing the formation of the shortest path tree. [7]
11. Define the terms with example with respect to sensor network: [3+3+3+3+3]
    i) sensor ii) sensor node iii) network topology iv) date-centric v) state