

Total No. of Questions : 10]

SEAT No. :

P3532

[Total No. of Pages : 2

[4959] - 1202

**B.E. (Instrumentation and Control)**  
**Sensor Networks (Elective II)**  
**(2012 Pattern) (Semester-I)**

*Time : 3 Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume Suitable data if necessary*

**Q1) a)** With suitable diagram explain wireless sensor networks. **[4]**

b) Write a short note on:

i) Wireless networking **[3]**

ii) Decentralized management **[3]**

OR

**Q2) a)** Explain Inductive loop in traffic control . **[5]**

b) Explain a sensing and sensors in detail. **[5]**

**Q3) a)** Explain single damage detection and multiple damage detection using natural frequencies. **[5]**

b) Explain XYZ node architecture in detail. **[5]**

OR

**Q4) a)** Explain IMote Node Architecture in detail **[5]**

b) Explain global and local inspection techniques in structural health monitoring system in detail. **[5]**

**P.T.O.**

- Q5) a)** Explain digital communication system in detail with basic components. [7]  
b) Explain pulse code modulation and delta modulation with suitable diagrams. [8]

OR

- Q6) a)** Explain quadratic amplitude modulation in detail. [7]  
b) Explain source encoding with calculations of efficiency of a source encoder in detail. [8]

- Q7) a)** Explain the contention free and contention based medium access protocol in detail. [7]  
b) Explain Zebra MAC in detail of hybrid MAC protocols. [8]

OR

- Q8) a)** Explain the five characteristics of MAC protocols in sensor networks. [7]  
b) Write a short note on mobility adaptive hybrid MAC. [8]

- Q9) a)** Explain flooding and Gossiping in detail in network layer. [10]  
b) Write a short note on SPIN-PP of data centric Routing. [10]

OR

- Q10) a)** Explain optimized link state routing of proactive routing. [10]  
b) Explain destination sequenced distanced vector. [10]

