

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA SEM-V Examination- Dec.-2011****Subject code: 650007****Date: 19/12/2011****Subject Name: Wireless Sensor Network (WSN)****Time: 10.30 am-01.00 pm****Total marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Draw the block diagram of typical sensing node and explain its components in brief. **07**

(b) Explain the following terms w.r.t. RFID **07**

1. Active tag
2. Backscatter
3. Inductive Coupling
4. Read rate

Q.2 (a) Write a brief note on different applications of WSN. **07**

(b) Explain in brief the five basic software subsystems of sensors. **07**

OR

(b) Write a brief note on performance requirements of MAC protocol. **07**

Q.3 (a) What do you mean by hidden node? Explain how the hidden node problem is solved in CSMA/CA using collision avoidance. **07**

(b) Write a note on schedule based MAC protocols available for WSN. **07**

OR

Q.3 (a) Explain the following modes of operation w.r.t. IEEE 802.15.4 MAC protocol: **07**

- Beacon mode operation
- Contention-Based Channel Access

(b) Draw block diagram of basic SPIN protocol operations and explain the operations in brief. **07**

Q.4 (a) Differentiate between localized and globalized forwarding approaches of geographical routing. **07**

(b) Explain giving reasons why TCP or UDP are unsuitable for implementation of WSN. **07**

OR

Q.4 (a) Write a note on different data storage schemes used in WSN. **07**

(b) Explain why network management is more important in WSN as compared to traditional networks? **07**

Q.5 (a) List and explain the characteristics that should be satisfied by sensor operating system. **07**

(b) List and explain the performance metrics used to evaluate WSN. **07**

OR

Q.5 (a) Write a brief note on the traffic models used in WSN. **07**

(b) List different operating systems available for WSN. Explain any one of them. **07**
