(2½ Hours) [Total Marks: 75]

N.B. 1) All questions are compulsory.
2) Figures to the right indicate marks.
3) Illustrations, in-depth answers and diagrams will be appreciated.
4) Mixing of sub-questions is not allowed.

Q. 1 **Attempt All(Each of 5Marks)** **(15M)**

(a) 1. What is the access point (AP) in wireless LAN?

(a) wireless devices itself	(b) device that allows wireless devices to connect to a wired network	(c) both device that allows wireless devices to connect to a wired network and wireless devices itself	(d) none of the mentioned

2. A transceiver that is ready to receive but is not currently receiving anything is said to be in an

(a) idle state (b) sleep state (c) transmit state (d) receive state

3. A GSM system consists of _____ subsystems.

(a) five (b) four (c) three (d) two

4. Sky wave ranges from

(a) above 100 MHz (b) > 30 MHz (c) < 2 MHz (d) 2 MHz–30 MHz

5. TCP is a connection-oriented protocol.

(a) true (b) false

(b) Fill in the blank with the following option
{ structure , Physical, Data gathering, isotropic radiator , mobile }
1. A sensor network is designed to collect information from a _____ environment.
2. The source of an event can be _____.
3. A theoretical reference antenna is the _____.
4. _____is to transmit data that has been collected by the sensor nodes to the base station.
5. Hierarchical routing protocols imposes a_____on the network.

(c) Answer the following in one line.
1. What Tiny Os?
2. What does a gateway node do?
3. What is shadowing?
4. What is Data dissemination?
5. GPRS stands for?

Q. 2   **Attempt the following (Any THREE)(Each of 5Marks)**   **(15M)**
(a)   Define & explain any five tasks of transceivers
(b)   Explain sensor node with its different categories
(c)   What are different optimization goals for Wireless Sensor Networks ?
(d)   List & explain different types of application of WSN
(e)   What are different functionalities that a service interface should provide in WSN?
(f)   Explain the block diagram of a sensor node

Q. 3   **Attempt the following (Any THREE) (Each of 5Marks)**   **(15M)**
(a)   Explain different performance requirements of MAC protocol
(b)   Explain periodic Listen & sleep operation in S-MAC
(c)   List & Explain different routing strategies in WSN
(d)   How Power-efficient gathering in sensor information systems (PEGASIS) routing protocol works?
(e)   What are the issues need to consider to design transport protocols for WSNs
(f)   Explain SPIN protocol

Q. 4   **Attempt the following (Any THREE) (Each of 5Marks)**   **(15M)**
(a)   Explain range for signal propagation in wireless transmission
(b)   What are the Tele services provided by GSM?
(c)   With block diagram Explain System architecture of UMTS
(d)   Write difference between GEO, LEO, MEO?
(e)   Explain is HSCSD(High Speed circuit Switched data)
(f)   Explain features of DECT System

Q. 5   **Attempt the following (Any THREE) (Each of 5Marks)**   **(15M)**
(a)   Discuss Salient features of TinyOS.
(b)   How Congestion Detection and Avoidance works?
(c)   Discuss any 2 Mobile and wireless devices.
(d)   Write a short note on Radio subsystem and its components.
(e)   Discuss the advantages of cellular systems with small cells.

_____