(2 ½ 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 ANY FOUR from the following: **(20M)**

(a) State the applications of Wireless Sensor Networks.
(b) In Wireless Sensor Networks, state the three types of Mobility.
(c) Why gateways are needed in WSN?
(d) Explain aggregation in-network processing.
(e) Give the optimization goals of Wireless Sensor Network.
(f) What is a MANET? Give its characteristics.

Q. 2 Attempt ANY FOUR from the following: **(20M)**

(a) Explain SPIN.
(b) Write short note on Self-Organizing Medium Access Control for Sensornets
(c) Give the challenges in designing of middleware for WSNs.
(d) Write short note on:
  i. Flooding
  ii. Gossiping
(e) What is Low Energy Adaptive Clustering Hierarchy(LEACH)? State its advantages and disadvantages.
(f) Explain Middleware Architecture.

Q. 3 Attempt ANY FOUR from the following: **(20M)**

(a) Give different effects of Signal Propagation.
(b) Write short note on GEO.
(c) Explain Mobile services of GSM.
(d) Give the steps for Mobile Terminated Call (MTC).
(e) State and explain application of Satellite.
(f) Explain the Routing mechanism of Satellite.

Q. 4 Attempt ANY FIVE from the following: **(15M)**

(a) List and explain components of basic sensor node.
(b) Explain Periodic and sleep operations of S-MAC
(c) Define Spread Spectrum.
(d) Write short note on
  i. Publish/Subscribe
  ii. Database
(e) Discuss the advantages of Multi-Hop approach.
(f) Write short note on LEO.

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