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S.Y. B.Sc. (Computer Science)

ELECTRONICS

**ELC 242 - Wireless Communication and Internet of Things
(2019 Pattern) (Semester - IV) (Paper - II) (24322)**

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates :

- 1) *Q. 1 is compulsory.*
- 2) *Solve any three questions from Q.2 to Q.5.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of calculator is allowed.*

Q1) Attempt **any Five** of the following :

[5 × 1 = 5]

- a) State the technique used to avoid interference between the neighbouring base stations.
- b) Which type of RFID tag uses battery?
- c) State the name of the topology not supported by Zigbee network.
- d) What is full form of IoT?
- e) What do you mean by M2M communication?
- f) State any two challenges faced while implementing IoT.

Q2) Answer the following :

[2 × 5 = 10]

- a) Draw neat diagram and explain architecture of smart home system.
- b) Write comparison between Bluetooth and Zigbee.

P.T.O.

Q3) Answer the following :

[2 × 5 = 10]

- a) Explain three segments of GPS.
- b) i) State the advantages of wireless communication.
ii) What is frequency reuse concept of cellular telephony system.

Q4) Answer the following :

[2 × 5 = 10]

- a) Compare wired and wireless communication.
- b) Differentiate between M2M and IoT.

Q5) Write a short note on any Four of the following :

[4 × 2½ = 10]

- a) Public Cloud.
- b) Secure Connectivity and secure data storage in IoT.
- c) Disadvantages of Zigbee.
- d) The error sources of GPS to locate position.
- e) Classes of GPRS devices.
- f) "Handoff" in cellular telephony system.



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- 4) *Use of calculator is allowed.*

Q1) Answer the following in one or two sentence each.(Any Five), **[5×1=5]**

- a) Define femtocell.
- b) Give any two example of public cloud.
- c) What is full form of MQTT?
- d) Define scalability of IOT system.
- e) What is the use of the RFID module?
- f) Which modulation technique is used in bluetooth?

Q2) Answer the following. **[2×5=10]**

- a) Explain following topologies used in ZigBee
 - i) Star
 - ii) Tree
 - iii) Cluster tree
 - iv) Mesh

What is ZigBee coordinator?

- b) Draw and explain smart irrigation system for agricultural field.

Q3) Answer the following.

[2×5=10]

- a) What is GSM? Give function of following blocks of NSS of GSM.
 - i) Visitor location Register (VLR)
 - ii) Home location Register (HLR)
 - iii) Equipment Identify Register (EIR)
 - iv) Authentication Centre (AUC)
- b) Write in detail transport layer of Z-wave.

Q4) Answer the following.

[2×5=10]

- a) Compare LoRaWAN & Sig fox technologies.
- b) Draw and explain GPRS architecture.

Q5) Write a short notes (Any Four).

[4×2.5=10]

- a) Private cloud
- b) Home Automation using IoT.
- c) Scatternet of Bluetooth.
- d) Draw block diagram of mobile handset.
- e) Limitation of RFID system.
- f) Frequency reuse

