

**015604****May 2023****B.Tech. EnC VI SEMESTER  
Internet of Things (PEC-CS-S-703)****Time: 3 Hours****Max. Marks:75**

- Instructions:**
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
  2. Answer any four questions from Part -B in detail.
  3. Different sub-parts of a question are to be attempted adjacent to each other.

**PART -A**

- Q1 (a) Give the important classes of MAC protocols in sensor networks (1.5)
- (b) Differentiate between IoT and M2M. Justify the reasons for using M2M and IoT. (1.5)
- (c) What are the protocols needed in web connectivity in IoT applications? (1.5)
- (d) With an example explain programming of OS multithreading functions. (1.5)
- (e) Discuss the role of communication protocols and embedded systems in IoT. (1.5)
- (f) How is cloud used as a database in IoT applications? (1.5)
- (g) What are the advantages and disadvantages of contention-free and contention-based medium access strategies? Can you think of scenarios where one would be preferable over the other? (1.5)
- (h) Why RIP is not used in internet service? What is the purpose of RIP? (1.5)
- (i) Why we need of IoT Security. Explain issues in IoT security. (1.5)
- (j) What is the main purpose of the MAC layer and why is this challenging in networks with shared media? (1.5)

**PART -B**

- Q2 (a) Explain role of APIs in IoT with example. Explain different networking and communication model in IoT. (10)
- (b) What is the difference between server, broker, cloud middleware, or gateways used to resolve device level interoperability in IoT? (5)
- Q3 (a) What do you understand by WEB of Things? Differentiate between WEB of Things and Internet of Things. (5)
- (b) Describe Physical and MAC layers Topology and Security of IEEE 802.15.4 IEEE 802.15.4 & tabulate the protocol stacks utilizing IEEE 802.15.4. (10)

- Q4. What is the role of things and internet in IoT? Briefly explain about components (15)  
in Internet of Things along with its architecture. What are architectural layers  
in a modified OSI model for internet of things applications?
- Q5 (a) Give examples of IoT open source frameworks for implementation tools, web (5)  
services, middleware and cloud computing.
- (b) Explain the following i) Cloud Platform for IoT/M2M Applications/Services ii) (10)  
Cloud Service Models
- Q6 (a) Explain TCP/IP vs IoT protocol stack Explain with example MQTT Protocol. (10)  
What is role of MQTT protocol in IoT?
- (b) What are the protocols needed in web connectivity in IoT applications? What (5)  
are the functions of communication gateway?
- Q7 Describe the application of securities and industrial automation in an IoT (15)  
application.
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