KUMARAGURU
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B.TECH DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Sixth Semester

INFORMATION TECHNOLOGY

U18ITT6002: Internet of Things - Architecture and Protocols

COURSE OUTCOMES

CO1: Explain the architectural overview of IoT
CO2: Describe the IoT Reference Architecture and real-world design constraints
CO3: Discuss the various protocols for IoT
CO4: Explain the Security constraints behind IoT
CO5: Analyze IoT applications in real time scenario.
CO6: Describe the relationship of IoT with other domains

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	What is M2M Communication?	CO1	[K2]
2.	Differentiate Reference Architecture and Applied architecture.	CO1	[K2]
3.	Write a short note about device management.	CO2	[K2]
4.	List out the features of the ETSI M2M architecture	CO2	[K2]
5.	Differentiate between TLS and DTLS.	CO3	[K2]
6.	What is DNS?	CO3	[K2]
7.	Write a short note about RPL Routing.	CO4	[K2]
8.	Differentiate SNMP and SNTP.	CO4	[K2]
9.	List the features of cloud analyst.	CO5	[K2]
10.	Define Quantitative analysis.	CO6	[K2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Explain the functionalities used in the IoT architecture and represent the diagrammatic view of the IoT architecture layers and its functionalities	8	CO1	[K2]
	b)	Explain in detail about the IETF task force architecture fragments.	8	CO1	[K2]

| 12. | What is IoT Information model? With the neat diagrammatic representation explain the functionalities of the Information Model. | 16 | CO2 | [K₂] |

12. What is IoT Information model? With the neat diagrammatic representation explain the functionalities of the Information Model. — 16 — CO2 [K₂]

13. a) Explain the network layer protocols, IPV4 and IPV6 with the addressing modes and its packet structure. — 8 — CO3 [K₃]

   b) This is the protocol used in the session layer and designed by the IETF constrained RESTful environment working group to provide the lightweight RESTful (HTTP) Interface. Identify the type of protocol and explain in detail. — 8 — CO3 [K₃]

14. Explain the follwing security protocol: — 16 — CO3 [K₂]
   a) 6LoWPAN
   b) MAC 802.15.4

15. This architecture uses the M2M service layer defined by ITU-T-FG-M2M. And it provides functions that M2M applications across different industry segments commonly needed. Identify the architecture and explain its functionalities. — 16 — CO5 [K₃]

16. The XYZ company plans to redesign the Employee parking lot as the smart parking system. The features of the smart parking — 16 — CO6 [K₃]
   1. Reduce of traffic congestion
   2. Reduce pollution and unnecessarily lingering vehicles on the roads.
   3. Shorter parking search time.
      For the given scenario, illustrate a solution for the smart parking systems using IoT.

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