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**BTECH**  
**(SEM VI) THEORY EXAMINATION 2023-24**  
**IOT ARCHITECTURE AND PROTOCOLS**

**TIME: 3 HRS****M.MARKS: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

a.	What is XaaS in the context of IoT?	02
b.	What does M2M stand for?	02
c.	Why is hardware becoming popular again in IoT design?	02
d.	Give an example of data representation in IoT?	02
e.	What is the primary use of Bluetooth Low Energy (BLE) in IoT?	02
f.	What is Zigbee Smart Energy designed for?	02
g.	What is the main difference between TLS and DTLS?	02
h.	What does CoAP stand for and what is its primary use in IoT?	02
i.	Identify a protocol associated with the Broadband Forum (BBF) for IoT?	02
j.	What is the purpose of 6LoWPAN in IoT?	02

**SECTION B****2. Attempt any three of the following:****3 x 10 = 30**

a.	Analyze the role of local and wide area networking in IoT, providing examples of technologies used for each?	10
b.	Identify and explain the technical design constraints commonly encountered in IoT development?	10
c.	Explain the role of the PHY/MAC layer in IoT communication. How do protocols like 3GPP MTC and IEEE 802.11 support IoT devices?	10
d.	Analyze the Extensible Messaging and Presence Protocol (XMPP) and its use cases in IoT. What are its strengths and weaknesses?	10
e.	Discuss the contributions of the Open Mobile Alliance (OMA) to IoT. What are some of the key protocols and standards it has developed?	10

**SECTION C****3. Attempt any one part of the following:****1 x 10 = 10**

a.	Discuss the importance of standards considerations in IoT and provide examples of commonly used standards?	10
b.	Explain the significance of M2M and IoT analytics. How do these analytics tools contribute to the overall value of IoT implementations?	10

**4. Attempt any one part of the following:****1 x 10 = 10**

a.	Evaluate how real-world design constraints can influence the architecture and deployment of IoT systems. Provide examples to illustrate your points?	10
b.	Discuss the importance of interaction and remote control in IoT systems?	10

**5. Attempt any one part of the following:****1 x 10 = 10**

a.	Discuss the features and applications of DASH7. How does it differ from other IoT communication protocols?	10
b.	Compare and contrast IPv4 and IPv6 in the context of IoT. Why is IPv6 preferred for modern IoT applications?	10

**6. Attempt any one part of the following:****1 x 10 = 10**

a.	Discuss the role of the Hypertext Transfer Protocol (HTTP) in IoT. What are its advantages and limitations for IoT applications?	10
b.	Describe the Message Queuing Telemetry Transport (MQTT) protocol and its advantages for IoT?	10

**7. Attempt any one part of the following:****1 x 10 = 10**

a.	Describe the security mechanisms implemented at the application layer in IoT protocols?	10
b.	Discuss the role of the service layer in IoT architecture. How do protocols like oneM2M and ETSI M2M facilitate service integration and management?	10