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**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA****(An Autonomous Institute Affiliated to AKTU, Lucknow)****B.Tech****SEM: VI - THEORY EXAMINATION (2022-2023 )****Subject: IoT Protocols & Its Applications****Time: 3 Hours****Max. Marks: 100****General Instructions:****IMP:** Verify that you have received the question paper with the correct course, code, branch etc.**1.** This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.**2.** Maximum marks for each question are indicated on right -hand side of each question.**3.** Illustrate your answers with neat sketches wherever necessary.**4.** Assume suitable data if necessary.**5.** Preferably, write the answers in sequential order.**6.** No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.**SECTION A****20****1. Attempt all parts:-**

- 1-a. What is BLE in IoT? (CO1) 1
- (a) Bluetooth low energy  
(b) Branch low energy  
(c) Bluetooth long Entry  
(d) None of the above
- 1-b. Identify Longest range protocol Among below. (CO1) 1
- (a) Bluetooth  
(b) RFID  
(c) LPWAN  
(d) Wi-Fi
- 1-c. What is CoAP? (CO2) 1
- (a) Constrained Application Protocol  
(b) Constrain Applied Protocol  
(c) Connected Application Protocol

(d) Common Application Protocol

- 1-d. What is work of Brokers in MQTT? (CO2) 1
- (a) Classify sensor data into topics.
  - (b) Run Applications interested in sensor data
  - (c) Works as Lightweight sensors.
  - (d) Find route.
- 1-e. Administrative distance for external EIGRP route is \_\_\_\_\_ (CO3) 1
- (a) 90
  - (b) 170
  - (c) 110
  - (d) 100
- 1-f. In OSPF database descriptor packet, if there are more database descriptor packets in the flow, 'M' field is set to \_\_\_\_\_ (CO3) 1
- (a) 1
  - (b) 0
  - (c) More
  - (d) -1
- 1-g. For high frequency and low frequency RFID tags the working principle is based on \_\_\_\_\_ (CO4) 1
- (a) Inductive coupling
  - (b) Electromagnetic coupling
  - (c) Both inductive and electromagnetic coupling
  - (d) None of these
- 1-h. The Bluetooth technology is also a \_\_\_\_\_ [CO4] 1
- (a) Wired technology
  - (b) Wireless LAN technology
  - (c) Wired LAN technology
  - (d) None of these
- 1-i. \_\_\_\_\_ are designed to send any data from your microcontroller to the Blynk App and back. [CO5] 1
- (a) Virtual pins
  - (b) physical pins
  - (c) Both virtual and physical pins

- (d) None of these
- 1-j. Which is not an usecase of smart cities. [CO5] 1
- (a) Smart Parking
- (b) Smart Grid
- (c) Smart Traffic management
- (d) ) None of the above

**2. Attempt all parts:-**

- 2.a. What do you understand by IoT connectivity? (CO1) 2
- 2.b. Define Constrained meaning in CoAP protocol. (CO2) 2
- 2.c. What is the address size of IPV6? [CO3] 2
- 2.d. What is full form of 6LoWPAN. [CO4] 2
- 2.e. Write name of any two iot cloud platforms. [CO5] 2

**SECTION B**

**30**

**3. Answer any five of the following:-**

- 3-a. Compare IOT protocol usecases with traditional technologies. (CO1) 6
- 3-b. Write two Applications of following IOT protocols: MQTT and AMQP. (CO1) 6
- 3-c. Describe Secure MQTT and its advantage over MQTT. (CO2) 6
- 3-d. Describe AMQP Exchange. (CO2) 6
- 3.e. What are the requirements for Neighborship in EIGRP? [CO3] 6
- 3.f. Describe the various components of RFID. [CO4] 6
- 3.g. Why is virtual pin used in Blynk? Explain with example. [CO5] 6

**SECTION C**

**50**

**4. Answer any one of the following:-**

- 4-a. Draw and explain IoT Layered Architecture in detail. (CO1) 10
- 4-b. Differentiate between Raspberry-pi and Arduino Uno. (CO1) 10

**5. Answer any one of the following:-**

- 5-a. Write Short notes on:- 10
- i) XMPP client - server architecture
- ii) XMPP Applications (CO2)
- 5-b. Explain characteristics and Architecture of DDS. (CO2) 10

**6. Answer any one of the following:-**

- 6-a. Describe the various features and modes of RPL. [CO3] 10

- 6-b. Discuss the working, advantages, disadvantages and applications of IGMP. 10  
[CO3]

**7. Answer any one of the following:-**

- 7-a. Describe the different components of a Zigbee network. [CO4] 10
- 7-b. Describe the working principle, advantages, disadvantages and applications of a Z-wave. (CO4) 10

**8. Answer any one of the following:-**

- 8-a. With the help of a neat diagram and example describe the functioning of a smart health monitoring system. [CO5] 10
- 8-b. "MQTT is used in a large variety of use cases and industries". Justify! this statement with the help of good examples. [CO5] 10

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