**Reg. No. :** | | | | | | | | | | | |

## Question Paper Code: U4E05

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Second Semester

Artificial Intelligence & Data Science

21UAD405 - INTERNET OF THINGS AND SENSORS

(Regulations 2021)

Duration: Three hours                                    Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. When was the actual term "Internet of Things" coined?                CO1- U

   (a)1998            (b) 1999            (c)1988            (d) 2002

2. What are the key components of a M2M system?                CO1- U

   (a) Vortex DDS      (b) Smart Homes      (c) Sensors and Wi-Fi      (d) Protocols

3. Which library is used to access I2C in Arduino IoT devices?                CO1- U

   (a) EEPROM          (b)Wire          (c) DHT11          (d) ArduinoJson

4. IoT analytics was proposed by _____                CO1- U

   (a) Syntel          (b) IBM          (c) Accenture          (d) Intel

5. The header size is fixed in _____                CO1- U

   (a) IPV4          (b) IPV6          (c) Both a and b      (d) None of the above

PART B - (5 x 3 = 15 Marks)

6   What are the characteristics of IOT?                                    CO1- U

7   What is IEEE 802.15.4 and its properties                                CO1- U

8   Define Embedded Computing Logic                                        CO1- U

9   Differentiate IOT and M2M                                              CO2- App

10  List out the requirements for security in IoT.                          CO1- U

PART C - (5 x 16 = 80 Marks)

11 (a) Draw and Describe Functional Blocks of IOT      CO1- U   (16)

Or

(b) Explain various types of Sensors used in real time applications    CO1- U   (16)

12 (a) Compare the IPV4 and IPV6 in terms of protocols and Differentiated Services. And also list out the features with neat diagrammatical explanation?    CO3- Ana   (16)

Or

(b) Compare the CoAP and MQTT And also list out the features with neat diagrammatical explanation?    CO3- Ana   (16)

13 (a) How can the Arduino board be used to collect data from sensors and send it to an IoT platform for analysis?    CO2- App   (16)

Or

(b) How can the Raspberry Pi be configured to communicate with other IoT devices using different protocols such as MQTT, CoAP, or HTTP?    CO2- App   (16)

14 (a) Define various application areas of M2M and explain any one of it in detail.    CO1- U   (16)

Or

(b) Briefly Explain about Cloud Service Model    CO1- U   (16)

15 (a) A power utility wants to improve its energy efficiency using IoT. What types of sensors and technologies can it use to monitor power usage, optimize energy production, and reduce costs?    CO2- App   (16)

Or

(b) A manufacturing plant wants to improve its production efficiency using IoT. What are the key components and sensors needed for monitoring equipment, analyzing data, and optimizing processes?    CO2- App   (16)

**U4E05**