Printed Page:-03 Subject Code:- AEC0403 Roll. No: NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA (An Autonomous Institute Affiliated to AKTU, Lucknow) **B.** Tech SEM: IV - THEORY EXAMINATION - (2024 - 2025) **Subject: Internet of Things 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. Who coined the term "Internet of Things"? (CO1, K1)) Kevin Ashton 20 **SECTION-A** 1. Attempt all parts:-1-a. 1 (a) John Wright (b) (c) **Edward Jameson** George Garton (d) What risks and challenges should be considered in IoT? (CO1, K1) 1-b. 1 Privacy and Security (a) (b) **Energy Consumption** Network Congestion (c) All of the above (d) 1-c. A concrete architecture can be further elaborated and mapped into real world 1 components by the different components of real system. (CO2, K1)

- (a) designing
- (b) building
- (c) engineering and testing
- (d) all of these
- 1-d. Which of the following computing emphasizes proximity to end user? (CO2, K1) 1

	(a)	Mist Computing	
	(b)	Cloud computing	
	(c)	Edge computing	
	(d)	Fog computing	
1-e.	W	Thich of the following is not a sensor in IoT? (CO3, K1)	1
	(a)	BMP280	
	(b)	DHT11	
	(c)	Photoresistor	
	(d)	LED	
1-f.	Which library is used to access I2C in Arduino IoT devices? (CO3, K1)		
	(a)	EEPROM	
	(b)	Wire	
	(c)	DHT11	
	(d)	ArduinoJson	
1-g.	W	Thich of the following is not an IoT communication model?.(CO4, K1)	1
	(a)	Request- Response	
	(b)	Push-Producer	
	(c)	Publish-Subscribe	
	(d)	Push-Pull	
1-h.	Т	he Bluetooth technology operates in the ISM band at (CO4, K1)	1
	(a)	2.4 to 2.485 GHz	
	(b)	1.4 to 2.485 GHz	
	(c)	2.4 to 2.485 MHz	
	(d)	None of the above	
1-i.	Ν	ame the process or action of verifying the identity of a user or process. (CO5,	1
	K	1)	
	(a)	Auditing	
	(b)	Authorisation	
	(c)	Authentication	
	(d)	Accounting	
1-j.	W	That is remote monitoring of patients? (CO5, K1)	1
	(a)	Checking the health issues of patients upon arrival to hospital	
	(b)	Automatic registering of patients who visit the hospital	
	(c) at hi	Monitoring a patient's health by a doctor using an IoT device with the patient beir s or her residence	ng
	(d)	Monitoring a patient's health by a doctor using an IoT device in the hospital	
2. Att	empt a	all parts:-	
2.a.	Ŵ	Vrite any two applications of IoT. (CO1, K1)	2

Page 2 of 3

•

2.b.	Write the name of different layers in the layered architecture of IoT. (CO2, K1)	2
2.c.	What is virtual memory? (CO3, K1)	2
2.d.	Why do we need IoT Protocols? (CO4, K1)	2
2.e.	What is Threat Modelling? (CO5, K1)	2
SECTIO	<u>N-B</u>	30
3. Answe	r any <u>five</u> of the following:-	
3-a.	Differentiate between sensors and actuators with examples. (CO1, K1)	6
3-b.	What are the various key challenges facing by an IoT system? (CO1, K1)	6
3-с.	Discuss the differences between cloud, fog and edge computing paradigms.(CO2, K1)	6
3-d.	Discuss the various functions that are performed by business layer. (CO2, K1)	6
3.e.	Explain the differences between magnetic, solid state and optical memory. (CO3, K1)	6
3.f.	Explain Push-Pull Communication Model with suitable diagram. (CO4, K2)	6
3.g.	What are the needs for edge computing in IoT? (CO5, K1)	6
SECTIO	<u>N-C</u>	50
4. Answe	r any <u>one</u> of the following:-	
4-a.	What is Mbed OS? Write down its features and benefits. (CO1, K2)	10
4-b.	With the help of suitable examples describe the main technologies that enables IoT. (CO1, K2)	10
5. Answe	r any <u>one</u> of the following:-	
5-a.	Explain how gateways are used for data management, local applications and device management in IoT. (CO2, K2)	10
5-b.	Discuss the fog computing IoT architecture in detail. (CO2, K2)	10
6. Answe	r any <u>one</u> of the following:-	
6-a.	With the help of suitable examples discuss the role of input output devices. (CO3, K2)	10
6-b.	Describe the Node MCU with suitable diagram. (CO3, K2)	10
7. Answe	r any <u>one</u> of the following:-	
7-a.	What is E-health? Write down the various characteristics of E-health in detail. (CO4, K2)	10
7-b.	What is RFID? How does it works? Explain the interfacing of RFID with Arduino development board. (CO4, K2)	10
8. Answe	r any <u>one</u> of the following:-	
8-a.	Illustrate the role of Platform Security Architecture in IoT and its different phases. (CO5, K2)	10
8-b.	What does smart city mean? What is the impact of IoT in smart cities? (CO5, K2)	10

•