Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Engineering
End Sem Examination Dec-2023
CA5EL53 Internet of Things

Programme: MCA / BCA-MCA (Integrated) Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Which of the following is the way in which an IoT device is associated with data? **1**
(a) Internet (b) Cloud (c) Automata (d) Network

ii. Which of the following is not an application of IoT? **1**
(a) Wearable's (b) Smart grid
(c) Arduino (d) Smart city

iii. M2M is mostly _____. **1**
(a) Hardware centric (b) Software centric
(c) Both (a) & (b) (d) None of these

iv. NFV means _____. **1**
(a) Network function vector
(b) Network function virtual machine
(c) Network function virtualization
(d) Network form in virtualization

v. Which of the following is application of IEEE 802.14.5? **1**
(a) Zigbee (b) Wireless HART
(c) Both (a) & (b) (d) None of these

vi. MQTT stands for- **1**
(a) MQ Telemetry Things (b) MQ Transport Telemetry
(c) MQ Transport Things (d) MQ Telemetry Transport

vii. What is the main purpose of WoT (Web of Things) in the IoT? **1**
(a) Improve the usability and interoperability
(b) Reduce the security
(c) Complex the development
(d) Increase the cost

viii. dweet.io provides _____ to send data from IoT devices. **1**
(a) Web API (b) post http (c) JSON (d) HTTP

ix. Which of the following can be considered smart devices? **1**
(a) Devices that are able to communicate with each other without the need of human intervention
(b) Devices that use a number of sensors to gather information from its environment
(c) Devices that can receive a command from another device
(d) All of these

x. What is/are the essential components of a smart factory? **1**
(a) Smart machines (b) People at work
(c) Trained personnel (d) All of these

Q.2 i. Define logical design of IoT. **2**
ii. Describe IoT levels and deployment procedure of IoT. **3**
iii. What are communication models & APIs? **5**
OR iv. What are Arduino and Raspberry Pi? Explain application of Arduino and Raspberry Pi. **5**

Q.3 i. What is SDN? **2**
ii. Differentiate between M2M and IoT with examples. **8**
OR iii. Describe IoT cloud based services with diagram. **8**

Q.4 i. What is ZigBee (IEEE 802.15.4)? **3**
ii. Differentiate between IPv4 and IPv6 in five parameters. **7**
OR iii. Describe following terms- **7**
(a) MQTT (b) XMPP (c) AMQP (d) HTTP

Q.5 i. Differentiate between web of things and internet of things. **4**
ii. Describe the Unified Multitier WoT Architecture. **6**
OR iii. Explain architecture standardization for WoT. **6**

Q.6 Attempt any two:
i. What is future factory concepts? **5**
ii. Describe smart objects and smart applications with example. **5**
iii. Explain with examples all the existing IoT platforms. **5**

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Marking Scheme
CA5EL53 [T]-Internet of Things

Q.1	i.	(b) Cloud		**1**
	ii.	(c) Arduino		**1**
	iii.	(a) Hardware centric		**1**
	iv.	(c) Network function virtualization		**1**
	v.	(d) None of these		**1**
	vi.	(d) MQ Telemetry Transport		**1**
	vii.	(a) Improve the usability and interoperability		**1**
	viii.	(a) Web API		**1**
	ix.	(d) All of these		**1**
	x.	(a) Smart machines		**1**

OR	iii.	WoT layer architecture -2 Marks With explanation -	4Marks	**6**
Q.6		Attempt any two:		
	i.	Definition -	1 Marks	**5**
		Explanation -	4 Marks	
	ii.	Explanation of each with example -	5Marks	**5**
	iii.	Explanation of any With example -	2.5 Marks 5 Marks	**5**

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Q.2	i.	Definition - Diagram -	1Marks 1Marks	**2**
	ii.	IoT levels- description with procedure -	1 Marks 2 Marks	**3**
	iii.	Communication models - APIs -	3 Marks 2 Marks	**5**
OR	iv.	Definition – Application-	2Marks 3 Marks	**5**
Q.3	i.	Definition - Usage -	1 Marks 1 Marks	**2**
	ii.	8 Differentiate-	1 Marks each	**8**
OR	iii.	Explanation Diagram -	6 Marks 2 Marks	**8**
Q.4	i.	Definition with application /example -	3 Marks	**3**
	ii.	7 Differentiate	1 Marks each	**7**
OR	iii.	Explanation with diagram -	1.75 Marks each	**7**
Q.5	i.	Difference-	2 Marks each	**4**
	ii.	Multitier WoT Architecture.- With explanation -	2 Marks 4 Marks	**6**