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

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2022

CA5EL53 Internet of Things

Programme: BCA-MCA(Integrated)/MCA 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.

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. Arduino IDE is written in which programming language- **1**
(a) Java (b) C/C++ (c) Java Script (d) Python

iii. In M2M, which of the following is true? **1**
(a) Low-end sensor nodes are always mobile
(b) Both mid- end and high-end sensor nodes are always static
(c) Both low-end and high- end sensor nodes are always mobile
(d) Only High-end sensor nodes are mobile.

iv. Machine-to-Machine (M2M) is designed for- **1**
(a) Cross platform integration
(b) Isolated systems using proprietary solutions
(c) Home automation only
(d) None of these

v. IEEE 802.15.4 standard is used with- **1**
(a) Zigbee (b) Rubee (c) Wibree (d) Z-wave

vi. Which layer is CoAP? **1**
(a) Control layer (b) Transport layer
(c) Service layer (d) Application layer

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

P.T.O.

viii. WoT portal is _____ **1**
(a) Horizontal portals (b) Vertical portals
(c) Marketplace portals (d) Search portals

ix. Which of the following is not an application of IoT? **1**
(a) Wearables (b) Smart Grid (c) Arduino (d) Smart City

x. Identify among the following which is not an IoT platform- **1**
(a) Microsoft Azure (b) AWS (c) Salesforce (d) Flipkart

Q.2 i. Explain about IoT. List out the different features of IoT. **2**

ii. What is the difference between a physical design and a logical design of IoT? **3**

iii. Summarize IoT levels and deployment. How many deployment levels are in IoT? **5**

OR iv. Define Arduino. Discuss in detail about Arduino with neat sketch. **5**

Q.3 i. Write the difference between IoT and M2M? **2**

ii. Analyze the network function virtualization. Write various application of SDN in detail. **8**

OR iii. Describe the IoT cloud-based services. What are the main features of cloud based IoT platform? **8**

Q.4 i. Explain Wi-Fi, a wireless technology used with IoT. **3**

ii. Describe in detail with suitable example CoAP and MQTT protocols used in application Layer. **7**

OR iii. What is MQTT? When is it used? What are the salient features of MQTT? **7**

Q.5 i. Describe in detail about WoT portals and business intelligence. **4**

ii. Explain Web of Things with example. Write the difference between web of things versus internet of things. **6**

OR iii. List out the different platform middleware for WoT. **6**

Q.6 Attempt any two:

i. Compare greenfield and brownfield IoT. **5**

ii. Explain IoT Application and Deployment Scenarios in industry. **5**

iii. Demonstrate in detail about future factory concepts. **5**

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Marking Scheme
CA5EL53 Internet of Things

Q.1	i)	Which of the following is the way in which an IoT device is associated with data? b. **Cloud**	**1**
	ii)	Arduino IDE is written in which programming language **b. C/C++**	**1**
	iii)	In M2M, which of the following is true? **d. Only High-end sensor nodes are mobile.**	**1**
	iv)	Machine-to-Machine (M2M) is designed for **a. cross platform integration**	**1**
	v)	IEEE 802.15.4 standard is used with **a. Zigbee**	**1**
	vi)	Which layer is CoAP? **c. Service layer**	**1**
	vii)	What is the main purpose of WoT (Web of Things) in the IoT? **a. Improve the usability and interoperability**	**1**
	viii)	What is the full form of WoT? **c. Web of Things**	**1**
	ix)	Which of the following is not an application of IoT? c. **Arduino**	**1**
	x)	Identify among the following which is not an IoT platform. **d. Flipkart**	**1**
Q.2	i.	Definition of IoT --1 mark Features of IoT. – 1 mark	**2**
	ii.	Difference between a physical design and a logical design of IoT: physical design of IoT ,logical design of IoT :- 3 Marks	**3**
	iii.	IoT levels and deployment. How many deployment levels are in IoT? Definition : 2 Marks Deployment Level ; 3 Marks	**5**
OR	iv.	Define Arduino with neat sketch. Definition : 2 Marks Diagram :- 3 Marks	**5**
Q.3	i.	Difference between IoT and M2M? IoT : 1 Mark M2M : 1 Mark	**2**
	ii.	Network Function Virtualization (NFV) and application of SDN in detail. Definition NFV: 2 Marks About SDN: 2 Marks Application :- 4 Marks	**8**
OR	iii.	IoT Cloud Based Service and features of cloud based IoT platform? Definition: 2 Marks About Cloud Based IoT: 2 Marks Application & Features :- 4 Marks	**8**
Q.4	i.	Explain Wi-Fi, a wireless technology used with IoT. Definition : 2 Marks	**3**
	ii.	CoAP and MQTT protocols used in application Layer. CoAP used in application Layer: 2 Marks MQTT used in application Layer: 2 Marks Example: 3 Marks	**7**
OR	iii.	MQTT, When is it used, features of MQTT. Definition MQTT: 2 Marks Use of MQTT: 3 Marks Features of MQTT : 2 Marks	**7**
Q.5	i.	WoT Portals and Business Intelligence . WoT Portals : 2 Marks Business Intelligence 2 Marks	**4**
	ii.	Web of Things with example and difference between Web of Things versus Internet of Things. WOT : 2 Makrs Compare : 4 Marks	**6**
OR	iii.	Platform Middleware for WoT Platform Middleware for WoT : 4 Marks	**6**
Q.6		Attempt any two:	
	i.	Compare Greenfield and Brownfield IoT. Greenfield : 2.5 Marks Brownfield IoT : 2.5 Marks	**5**
	ii.	Explain IoT Application and Deployment Scenarios in industry.	**5**

Application : 3Marks
Deployment Scenarios :2 Marks

iii. Describe Future Factory Concepts. **5**
Definition : 3 Marks
Example : 2Marks

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