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

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

OE00058 Internet of Things

Programme: B.Tech. Branch/Specialisation: All

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 IEEE standard provides reference architecture for various IoT domains? **1**
(a) IEEEP2411 (b) IEEEP2412
(c) IEEEP2413 (d) IEEEP2414

ii. Term API with reference to Internet of things is best explained by? **1**
(a) Application Program Interface
(b) Application Pointing Interface
(c) Analytical Printing Interface
(d) Application Programming Inter Connection

iii. IoT Separates from M2M by with of the following **1**
(a) Server (b) Internet (c) Cloud (d) All of these

iv. SDN for IoT stands for **1**
(a) Software defined Network
(b) Software definite Network
(c) Stand Device Networking
(d) None of these

v. Popular development boards for IoT are **1**
(a) Arduino uno
(b) Raspberry Pi Wireless Inventors Kit
(c) Beagle Board
(d) All of these

vi. Select odd out of following related to Wireless Communication **1**
(a) RFID (b) Bluetooth (c) Zigbee (d) UART/ USART

vii. Temperature is sensed by which sensor **1**
(a) LED (b) Photodiode
(c) Thermister (d) None of these

P.T.O.

viii. Pressure can be measured by **1**
(a) Change in Resistance (b) Change in Capacitance
(c) Pizo Electric (d) All of these

ix. For an Arduino to be connected to Wifi requirement is/are **1**
(a) Wi Shield Library (b) WEP Key
(c) SSID (d) All of these

x. IoT system examples is/are: **1**
(a) Smart Irrigation System (b) Smart City
(c) Smart dust bean (d) All of these

Q.2 i. List out major components of IoT System. **2**
ii. Specify software needs of a communication Module in IoT application. **3**
iii. Explain physical design of IoT. **5**
OR iv. Briefly list out levels of IoT. **5**

Q.3 i. Explain Machine to Machine (M2M) Communication. **2**
ii. Explain with Block diagram SDN, Software defined networking. **8**
OR iii. What are Network Function Virtualization (NFV)? **8**

Q.4 i. Explain IP addressing in Internet of Things. **3**
ii. Briefly explain communication protocols for internet of things & Machine to Machine connected devices. **7**
OR iii. Describe the working of SOAP, REST and HTTP Protocol in IoT. **7**

Q.5 i. With block diagram explain application of RFID IoT System. **4**
ii. Briefly explain sensor data communication protocols. **6**
OR iii. Explain with block diagram wireless sensor Network Architecture. **6**

Q.6 Attempt any two:
i. Using Arduino device, design an IoT System of agriculture field management of crop. **5**
ii. Design an IoT system for smart city. **5**
iii. With the help of block diagram design smart home automation system. **5**

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Marking Scheme
OE00058 Internet of Things

Q.1	i.	Which IEEE standard provides reference architecture for various IoT domains? (c) IEEEP2413		**1**
	ii.	Term API with reference to Internet of things is best explained by? (a) Application Program Interface		**1**
	iii.	IoT Separates from M2M by with of the following (d) All of these		**1**
	iv.	SDN for IoT stands for (a) Software defined Network		**1**
	v.	Popular development boards for IoT are (d) All of these		**1**
	vi.	Select odd out of following related to Wireless Communication (d) UART/ USART		**1**
	vii.	Temperature is sensed by which sensor (c) Thermister		**1**
	viii.	Pressure can be measured by (d) All of these		**1**
	ix.	For an Arduino to be connected to Wifi requirement is/are (d) All of these		**1**
	x.	IoT system examples is/are: (d) All of these		**1**
Q.2	i.	Major components of IoT System.		**2**
	ii.	Software needs of a communication Module in IoT application 1 mark for each need	(1 mark *3)	**3**
	iii.	IoT device block diagram Explanation IoT device Communication protocols	2 marks 0.5 mark 2.5 marks	**5**
OR	iv.	List out levels of IoT 1 mark for each level	(1 mark * 5)	**5**
Q.3	i.	Machine to Machine (M2M) Communication.		**2**
	ii.	Software defined networking Block diagram SDN Explanation	 4 marks 4 marks	**8**
OR	iii.	Network Function Virtualization (NFV) Block diagram Explanation	 4 marks 4 marks	**8**
Q.4	i.	IP addressing in Internet of Things IPv4 and IPv6 with example		**3**
	ii.	Internet of things protocols Machine to Machine connected devices protocols	4 marks 3 marks	**7**
OR	iii.	Working of SOAP REST with block diagram HTTP Protocol	1.5 marks 3 marks 2.5 marks	**7**
Q.5	i.	Application of RFID IoT System Explanation Block diagram	 2 marks 2 marks	**4**
	ii.	Sensor data communication protocols 1 mark for each	 (1 mark * 6)	**6**
OR	iii.	Wireless sensor Network Architecture Explanation Block diagram	 3 marks 3 marks	**6**
Q.6		Attempt any two:		
	i.	Diagram of Arduino interface Explanation	2 marks 3 marks	**5**
	ii.	Design an IoT system for smart city. Explanation Block diagram	 3 marks 2 marks	**5**
	iii.	Design smart home automation system. Explanation Block diagram	 3 marks 2 marks	**5**

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