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16IS665

Sixth Semester B.E. Makeup Examination, May/June 2018-19

INTERNET OF THINGS – A PRACTICAL APPROACH

Time: 3 Hours

Max. Marks: 100

Instructions:
1. *Unit I and II are compulsory.*
2. *Assume suitable data if necessary.*
3. *Answers must be precise and to the point.*
4. *Draw diagrams / illustrations when necessary.*

			L	CO	PO	M
		UNIT – I (Compulsory)				
1	a.	Why embed microprocessor in a computer system? Explain Characteristics of Embedded Computing Applications.	(2)	(1)	(1)	(06)
	b.	Explain embedded system design process with example of a GPS Moving Map taking all (4 phases) software engineering development process, with illustrative diagrams.	(2)	(1)	(1)	(06)
	c.	Develop and Explain with sketch & schematic to put heater ON for 2 minutes and OFF for 1 minute..	(3)	(2)	(3)	(08)
		UNIT – II (Compulsory)	L	CO	PO	M
2	a.	Explain any three IoT communication models.	(2)	(1)	(1)	(06)
	b.	Explain IoT protocols for link layer.	(2)	(1)	(1)	(06)
	c.	Develop an Arduino system with sketch & schematic that blinks 2 separate LEDs, red & blue, with delay of 2 seconds and 0.5 second respectively.	(3)	(2)	(3)	(08)
		UNIT - III	L	CO	PO	M
3	a.	Illustrate IoTcommunication through Bluetooth and Wi-Fi,	(2)	(1)	(1)	(06)
	b.	Describe the Platforms for Makingthe IoT Design.	(2)	(1)	(1)	(06)
	c.	Develop a sketch and schematic,toturns on and off a light emitting diode connected to digital pin 12, using a pushbutton attached to pin 2 , for Arduino Uno.	(3)	(2)	(3)	(08)
		OR				
4	a.	How we can read from Sensors, explain with any three sensors.	(2)	(1)	(1)	(06)
	b.	DemonstrateWorking principles of sensors and actuators.	(2)	(1)	(1)	(06)
	c.	Develop a sketch and schematic, with Bluetooth Module, to control an LEDfor Arduino Uno, and a android app.	(3)	(2)	(3)	(08)
		UNIT - IV	L	CO	PO	M
5	a.	Demonstrate the process of generation of concreate architecture for IoT System Design.	(2)	(1)	(1)	(06)
	b.	Illustrate the relation of an architectural reference model, best practice and concrete architecture.	(2)	(1)	(1)	(06)

Note: L (Level),CO (Course Outcome), PO (Programme Outcome), M (Marks)

c. Develop and explain with sketch & schematic to control the intensity of an led with IoT device, Arduino Uno. (3) (2) (3) (08)

OR

6 a. Explain high-level representation of IoT-reference-Model and IoT-Reference-Architecture dependencies and model influences. (2) (1) (1) (05)

b. Explain IoT-A architectural reference model building blocks. (2) (1) (1) (06)

c. Develop and explain with sketch & schematic,Arduino UNO,to detect objects using ultrasound module and buzzer. (3) (2) (3) (08)

L CO PO M

UNIT -V

7 a. Explain Django Architecture. (2) (1) (1) (06)

b. Illustrate Device Deregister process, using request-response formats. (2) (1) (1) (06)

c. Develop and explain, forRaspberry Pi and Python Program,with circuit diagram to LED on & off, using 1 second delay in between. (3) (2) (3) (08)

OR

8 a. Illustrate WAMP – AutoBahn for IoT, with session between Client and Router. (2) (1) (1) (06)

b. Demonstrate Device Registration logical flow on a user self-service portal. (2) (1) (1) (06)

c. Develop and explain with sketch & schematic,for Texas Instruments IOT device CC3200, to put the LEDs ON & OFF, the following LEDs, with delay: red for (0.5s), green for (1s),red for (2s), yellow for (2s),green for (1s), yellow for (0.5s). (3) (2) (3) (08)

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16IS665

Sixth Semester B.E. Semester End Examination, May/June 2018-19

INTERNET OF THINGS – A PRACTICAL APPROACH

Time: 3 Hours

Max. Marks: 100

Instructions:
1. *Unit I and II are compulsory.*
2. *Assume suitable data if necessary.*
3. *Answers must be precise and to the point.*
4. *Draw diagrams / illustrations when necessary.*

			L	CO	PO	M

UNIT – I (Compulsory)

1 a. Why to embed microprocessor in a computer system? Explain Characteristics of Embedded Computing Applications. (2) (1) (1) (06)

b. Explain embedded system design process with example of a GPS Moving Map and illustrative diagrams. (2) (1) (1) (06)

c. Develop a system with sketch & schematic to switch on Electric Oven for only 15 minutes. (3) (2) (3) (08)

			L	CO	PO	M

UNIT – II (Compulsory)

2 a. Explain four communication models. (2) (1) (1) (06)

b. Explain IoT protocols, for link layer, IEEE and mobile communication. (2)) (1) (1) (06)

c. Develop and Explain with sketch & schematic blink an LED for 2 minutes ON and 1 minute OFF. (3) (2) (3) (08)

			L	CO	PO	M

UNIT - III

3 a. Illustrate IoT communication through Bluetooth and Wi-Fi. (2) (1) (1) (06)

b. Describe the Platforms for IoT Design. (2) (1) (1) (06)

c. Develop an Arduino system with sketch and schematic that turns on and off a light emitting diode (LED) connected to digital pin 13, when pressing a pushbutton attached to pin 2. (3) (2) (3) (08)

OR

4 a. Explain how sensor can be used for reading the data. Explain any three sensors. (2) (1) (1) (08)

b. Demonstrate working principles of actuators. (2) (1) (1) (04)

c. Develop an Arduino system with sketch & schematic to control an LED, using Bluetooth. (3) (2) (3) (08)

			L	CO	PO	M

UNIT - IV

5 a. Explain with a neat schematic working of RPL protocol. (2) (1) (1) (06)

b. Illustrate the architecture reference model. (2) (1) (1) (06)

c. Develop an Arduino system with sketch & schematic to fade an led using analog signal function. (3) (3) (3) (08)

Note: L (Level),CO (Course Outcome), PO (Programme Outcome), M (Marks)

6	a.	Explain high-level representation of IoT-reference-Model and IoT-Reference-Architecture dependencies and model influences.	(2)	(1)	(1)	(06)
	b.	Explain with a neat schematic working of CoAP protocol.	(2)	(1)	(1)	(06)
	c.	Develop an Arduino system with buzzer interface for detecting obstacles.	(3)	(2)	(3)	(08)
			L	CO	PO	M
		UNIT -V				
7	a.	Explain Django Architecture.	(2)	(1)	(1)	(06)
	b.	Illustrate Device Deregister process, using request-response formats.	(2)	(1)	(1)	(06)
	c.	Develop a python code to interface blinking of LED with Raspberry Pi.	(3)	(2)	(3)	(08)
		OR				
8	a.	Illustrate WAMP – AutoBahn for IoT, with session between Client and Router.	(2)	(1)	(1)	(06)
	b.	Demonstrate Device Registration logical flow on a user self-service portal.	(2)	(1)	(1)	(06)
	c.	Develop a system to put the LEDs ON & OFF for Texas Instruments IoT device CC3200, with following sequence of LEDs and specified delay. Red for (1s), green for (0.5s), red for (1s), yellow for (1s), green for (0.5s), yellow for (1s).	(3)	(2)	(3)	(08)