

**UE18CS313 – INTERNET OF THINGS**

Time: 3 Hrs	Answer All Questions	Max Marks: 100
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1	a)	Bring out the differences between the four phases of Internet evolution with examples.	4
	b)	Safety, Mobility and Environment are the current challenges being addressed by Connected Roadways. Explain any one of the challenge with example.	4
	c)	Compare the Operational Technology (OT) Network and Enterprise Information Technology (IT) Network.	6
	d)	Explain the Core IoT Functional Stack of the Simplified IoT Architecture.	6
2	a)	Explain the Characteristics of a Smart Object.	4
	b)	Among the most used devices are the Smart Phones. Tabulate the following aspects of different sensors in a Smart Phone. (a) Sensor Name (b) Sensor Type (c) Description	4
	c)	Explain ZigBee PHY format with a neat diagram.	6
	d)	Explain how security is provisioned in LoRaWAN with a neat diagram.	6
3	a)	Explain the key advantages of IP suite for the Internet of Things.	4
	b)	Explain the 6LoWPAN Fragmentation Header with a neat diagram.	4
	c)	Explain the MQTT Message format with a neat diagram.	6
	d)	Explain the CoAP protocol Message Format and fields with a neat diagram.	6
4	a)	Explain the “three Vs” of Big Data.	4
	b)	Explain the Apache Kafka Data Flow with a neat diagram.	4
	c)	List and Explain the Vulnerabilities found in the following protocols, (a) Modbus (b) DNP3	6
	d)	Explain the Steps and Phases of OCTAVE Allegro risk assessment framework.	6
5	a)	Discuss IoT Smart City architecture.	5
	b)	Discuss IoT Smart City Security architecture.	5
	c)	Provide an overall architecture for the Smart Surveillance System.	5
	d)	Provide a High-Level Architecture of the Home Automation System.	5