

Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2022
CS3EL06 / IT3EL06 Internet of Things
Programme: B.Tech. Branch/Specialisation: CSE

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 one out of these is not a data link layer technology? **1**
 (a) Bluetooth (b) UART
 (c) WiFi (d) HTTP
- ii. What is the standard length of MAC address? **1**
 (a) 16 bits (b) 32 bits (c) 48 bits (d) 64 bits
- iii. MQTT is mainly used for _____. **1**
 (a) M2M communication
 (b) Device communication
 (c) Internet communication
 (d) Wireless communication
- iv. Which management functional block facilitates running multiple virtual machines/VNFs on the same hardware. **1**
 (a) Virtualized Network Function Manager (VNFM)
 (b) Virtualization Infrastructure Manager (VIM)
 (c) Element Manager (EM)
 (d) Network functions virtualization Orchestrator (NFVO)
- v. What process prevents someone from denying that the accessed a resource? **1**
 (a) Accounting (b) Non-repudiation
 (c) Sniffing (d) Authorisation
- vi. What type of authentication method identifies and recognises people based on physical traits such as fingerprints? **1**
 (a) WEP (b) Digital certificates
 (c) Biometrics (d) RADIUS

[2]

- vii. IPSec provides security at: **1**
 (a) Physical layer (b) Network layer
 (c) Transport layer (d) Session layer
- viii. What is the function for reading humidity from DHT sensor from Arduino? **1**
 (a) dht.readHumidity() (b) dht.readTemperature()
 (c) dht.begin() (d) dht(pin, DHT22)
- ix. Which of these devices can be used to remotely control your security system? **1**
 (a) Smart Phone (b) Tablet
 (c) Computer (d) All of these
- x. Which of the following can you do remotely with smart home technology? **1**
 (a) Read your kids a bedtime story
 (b) Check to see if you left the television on
 (c) Turn on the shower
 (d) None of these
- Q.2 i. What is IoT and applications of IoT? **2**
 ii. Explain physical design of IoT. **3**
 iii. Brief explanation about any four IoT communication models. **5**
 OR iv. Explain WebSocket based communication API. **5**
- Q.3 i. What is SDN and its advantages? **2**
 ii. Differentiate between machines in M2M and things in IoT also Explain network function virtualization? Discuss its architecture. **8**
 OR iii. Explain data storage in IoT? **8**
- Q.4 i. Write the steps involved in IoT design methodology also give advantages of using design methodology. **3**
 ii. Discuss process specification and domain model specification with suitable example. **7**
 OR iii. What is functional view specification and operational view specification? Justify your answer with suitable example. **7**

[3]

- Q.5 i. Explain security requirements and threat analysis of IoT. **4**
 ii. What is access control? Discuss vulnerabilities in IoT applications/services. **6**
 OR iii. Discuss layered attacker model and their solution. **6**
- Q.6 Attempt any two:
 i. Give importance of IoT in smart parking system. **5**
 ii. How IoT is useful for home automation? **5**
 iii. How weather monitoring system can be used using IoT? **5**

Marking Scheme

CS3EL06 / IT3EL06 Internet of Things

Q.1	i.	Which one out of these is not a data link layer technology? (d) HTTP	1
	ii.	What is the standard length of MAC address? (c) 48 bits (d) 64 bits	1
	iii.	MQTT is mainly used for _____. (a) M2M communication	1
	iv.	Which management functional block facilitates running multiple virtual machines/VNFs on the same hardware. (b) Virtualization Infrastructure Manager (VIM)	1
	v.	What process prevents someone from denying that the accessed a resource? (b) Non-repudiation	1
	vi.	What type of authentication method identifies and recognises people based on physical traits such as fingerprints? (c) Biometrics	1
	vii.	IPSec provides security at: (b) Network layer	1
	viii.	What is the function for reading humidity from DHT sensor from Arduino? (a) dht.readHumidity()	1
	ix.	Which of these devices can be used to remotely control your security system? (d) All of these	1
	x.	Which of the following can you do remotely with smart home technology? (b) Check to see if you left the television on	1
Q.2	i.	Each point 0.5 Mark each (0.5 Mark*4)	2
	ii.	Description Example 1.5 Marks 1.5 Marks	3
	iii.	Each point 1 Mark each (1 Mark*5)	5

	iv.	Diagram	1 Mark	5
		Description	1.5 Marks	
		IoT service	2.5 Marks	
Q.3	i.	Explanation	1 Mark	2
		List of advantages	1 Mark	
		For machine	1 Mark	
	ii.	For things	1 Mark	8
		Its architecture	3 Marks	
		For virtualizing IoT device	3 Marks	
OR	iii.	Ares	4 Marks	8
		Explanation	4 Marks	
Q.4	i.	Description	2 Marks	3
		Advantages	1 Mark	
		Definition process specification	1 Mark	
	ii.	Description with example	2.5 Marks	7
		Definition domain model specification	1 Mark	
		Description with example.	2.5 Marks	
OR	iii.	Functional view specification	2 Marks	7
		Example	1.5 Marks	
		Operational view specification	2 Marks	
	Example.		1.5 Marks	4
Q.5	i.	Explain security requirements	2 Marks	6
		Threat analysis	2 Marks	
		Access control	1 Mark	
	ii.	Vulnerabilities in IoT applications/services.	5 Marks	6
OR	iii.	Layered attacker model	3 Marks	6
		Their solution.	3 Marks	
Q.6	i.	Attempt any two:		5
		IoT applications	1 Mark	
		Uses of IoT in smart parking system.	4 Marks	
	ii.	IoT applications	1 Mark	5
		Built home automation using IoT	4 Marks	
	iii.	IoT applications	1 Mark	5
		Uses of IoT in weather monitoring system	4 Marks	

