

University of Mumbai

Summer Examination 2022

Program: BE Electronics Engineering

Curriculum Scheme: Rev2016

Examination: BE Semester VIII

Course Code: ELX 801 and Course Name: Internet of Things

Time: 2-hour 30 mins

Max. Marks:80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Communication Environments in case of data routing over the Web for connected devices are Classified into which of the following options:
Option A:	CoRE Environment and Unconstrained Environment
Option B:	CoRE Environment and Constrained Environment
Option C:	Casual Environment and Bock Environment
Option D:	Free Space Environment and Atmospheric Environment
2.	SOAP is a protocol for:
Option A:	exchange of objects between applications using XML
Option B:	exchange of objects between applications using text
Option C:	exchange of control information between the sender and receiver
Option D:	exchange of KEYS between the sender and receiver
3.	CoAP-MQ broker :
Option A:	Acts as a firewall
Option B:	senses data from various sensors
Option C:	store only control messages intended to other nodes.
Option D:	enables web client publishing of updates to the endpoints
4.	DHCP facilitates:
Option A:	Static IP Addressing in any networks
Option B:	Dynamic IP Addressing in any network
Option C:	MAC ID allotment to all devices connected in the network
Option D:	The generation of IO port numbers
5.	AMQP is designed for:
Option A:	Control data transfer
Option B:	LANs and WANs
Option C:	Business Messaging
Option D:	Spatial co-ordinate node selection in WSN
6.	UDP protocol is used for:
Option A:	acknowledged data flow
Option B:	unacknowledged data flow
Option C:	Reliable communication
Option D:	full duplex secured communication
7.	Observer nodes can:
Option A:	Process information and use it for various applications but they do not perform any control functions.
Option B:	Process information and performs control Actions.

Option C:	Perform only control Actions whenever required.
Option D:	Cannot perform processing operation but acts as a repeater node.
8.	A Home Automation System Application will have following set of services:
Option A:	Controller service, Mode Service ,State Service
Option B:	Controller Service only
Option C:	Mode Service and State Service only
Option D:	Controller service and State Service only
9.	Which sensors will not be used for weather monitoring system
Option A:	Temperature sensor
Option B:	Pressure sensor
Option C:	Acceleration sensor
Option D:	Relative Humidity Sensor
10.	Online Transaction Processing (OLTP) is used in:
Option A:	Internet of automatic chocolate vending machines
Option B:	Internet of ATMs
Option C:	Internet of RFIDs
Option D:	Internet of streetlights

Q2. (20 Marks)	
A	Solve any Two 5 marks each
i	Draw and explain IoT Level 1, IoT Level 5 and IoT Level 6.
ii	List the various REST Architectural constraints and explain any two in detail
iii	List the features in Xively cloud platform.
B	Solve any One 10 marks each
i	Explain the various design methodology steps in sequence.
ii	Write a short note on i)LPWAN ii) NBIoT

Q3. (20 Marks)	
A	Solve any Two 5 marks each
i	Explain the various Data Categorizations for storage in IoT Systems.
ii	List the semantics followed by NOSQL instead of ACID rules that are followed in normal databases.
iii	Compare the various types of OLTP available.
B	Solve any one 10 marks each
i	Explain the CoAP and AMQP Protocol.
ii	Draw and detail the deployment design of any weather monitoring IoT System.

Q4. (20 Marks)	
A	Solve any Two 5 marks each
i	Explain how the following electrical parameters are used as a part of sensing Technology: a) Capacitance and b) reverse saturation current of PN Junction
ii	What are the Characteristics of IoT?
iii	What are the advantages and Concerns of Cloud Computing?
B	Solve any One 10 marks each
i	Write a short note on i)Server Management ii)Spatial Storage
ii	Explain the MQTT protocol with respect to any one IoT application.