University of Mumbai

Examinations Commencing from May 2022

Program: Computer Engineering

Curriculum Scheme: Rev2019

Examination: TE   Semester VI

Course Code: CSDLO6011and Course Name: Internet of Things

Time: 2.30 hour   Max. Marks: 80

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Q1 (20 Marks)	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Identify which is not TRUE about IoT
Option A:	An IoT network is a collection of interconnected devices.
Option B:	IoT stands for Interconnection of Things.
Option C:	IoT technology uses sensors and actuators.
Option D:	IoT technology uses cloud storage to store data.
2.	The layers in IoT Reference Model by IoTWF occurs in the sequence -
Option A:	Physical devices- Data Accumulation- Application- Edge Computing
Option B:	Physical Devices- Data Accumulation- Edge Computing- Application
Option C:	Physical Devices- Edge Computing-Data Accumulation- Application
Option D:	Application - Physical Devices- Edge Computing-Data Accumulation
3.	The standardized architecture of M2M IoT does not achieve
Option A:	Decompose IoT problem to smaller part
Option B:	Identify different technologies at each layer and how they relate to one another
Option C:	Have a process of defining interfaces that leads to interoperability
Option D:	Define a tiered security model that does not enforce the transition points between levels
4.	The following protocol is used to link all devices in IoT-
Option A:	UDP
Option B:	HTTP
Option C:	TCP/IP
Option D:	COAP
5.	MQTT stands for _____
Option A:	Message Queue Telemetry Transport
Option B:	Message Query Telemetry Transport
Option C:	Meta Query Telemetry Transport
Option D:	Multiple Query Telemetry Transport
6.	Following is NOT an IoT Board-
Option A:	Arduino Uno
Option B:	Beagle Bone Black
Option C:	Particle Photon
Option D:	Microsoft Azure
7.	Which of the following Access network sublayer works in least range
Option A:	HAN
Option B:	FAN
Option C:	PAN
Option D:	LAN

8.	REST API is used in IoT applications for-
Option A:	Developing web applications
Option B:	Managing network devices
Option C:	Programming IoT boards
Option D:	Protocol management
9.	When SCADA is deployed in LLN which technology is used
Option A:	TCP
Option B:	UDP
Option C:	MAP-T
Option D:	RTU
10.	Which of the following is not part of Layer 2 communication network layer
Option A:	Access Network Sublayer
Option B:	Gateways and Backhaul Sublayer
Option C:	IoT Network Management Sublayer
Option D:	Application and analytics layer

Q2 (20 Marks)	Solve any FOUR Questions 5 marks each
A	Define sensors in IoT? Give Classification of sensors and explain any 4 types of sensors.
B	Explain in brief- The IoT World Forum (IoTWF) Standardized Architecture.
C	Compare and contrast: Wired and Wireless Sensor Networks. Explain the different network topologies for WSN.
D	Write short note on- Micro Electro-Mechanical Systems (MEMS)
E	Discuss in brief- Gateways and Backhaul Sublayer in Core IoT Functional Stack.
F	Explain Characteristics and Trends in Smart object.
Q3 (20 Marks)	Solve any FOUR Questions 5 marks each
A	Compare and contrast: Application Layer protocols.
B	Elaborate the working model of smart city.
C	Explain features of ESP32.
D	Write Short Note on- JSON-LD
E	Compare different IoT Boards in terms of connectivity.
F	Explain IoT Application Transport Methods in brief.
Q4 (20 Marks)	Solve any FOUR Questions 5 marks each
A	Write Short Note on- SCADA.
B	Explain following Access Technologies with application area of each- 1. Zigbee 2. BLE 3. RFID 4. Cellular (3G/4G/5G) 5. LPWANs
C	What is IoT? What is its impact? How it is different from Digitization.
D	Compare and contrast :Arduino and Raspberry Pi
E	Explain an IoT Software platform - REST.
F	Discuss Clustered architecture of Wireless Sensor Networks.