


Subject Name: Internet of Things
Subject Code: 3171108
Faculties: Prof. Mayur Prajapati
QUESTIONS
UNIT NO- 1 :
Introduction to Internet of Things
TOPIC:1 :
IoT Definition, IoT characteristics, M2M and IoT, End to End IoT Architecture, Physical design of IoT, Logical Design of IoT

Sr. No	DESCRIPTIVE QUESTIONS	Marks
1	What is Internet of Things (IoT). What are components required to design IoT Device and which device we called IoT device explain with example. [LJIET]	7
2	Explain Internet of Things (IoT) with example. [LJIET]	7
3	Give brief overview of IoT. [LJIET]	7
4	Explain different Characteristics of IoT. [LJIET]	7
5	What are different components required for IoT device? [LJIET]	7
6	What is Machine to Machine communication (M2M)? [LJIET]	5
7	Explain layered architecture of IoT. [LJIET]	7
8	What effect will the internet of things (IoT) have on our daily lives? Explain with any one example of smart device. [LJIET]	5
9	Explain in details IoT Architecture layers. [LJIET]	5
10	Explain TCP/IP vs IoT protocol stack. [LJIET]	5
11	Difference between IoT and M2M. [LJIET]	3
12	What do you mean by Thing in IoT. Explain with example. [LJIET]	7
13	Explain IoT Communication model. [LJIET]	5
14	Explain physical design of IoT. [LJIET]	5
15	Define Internet of Things and explain it in brief. [Jun-2022] [LJIET]	3
16	Describe IoT architecture in detail. [Jun-2022] [LJIET]	7
17	Describe the characteristics of IoT. [Jun-2022] [LJIET]	4,4
	Write Various characteristics of IOT. [Dec-2021] [LJIET]	
18	Define IOT. Also few Applications of IOT. [Dec-2021] [LJIET]	3
19	Write about Request – Response and Exclusive Pair Communication model of IOT. [Dec-2021] [LJIET]	7
20	What is M2M? Describe it with few examples. [Dec-2021] [LJIET]	4
21	Discuss Difference between IOT and M2M. [Dec-2021] [LJIET]	7
TOPIC:2 :		
Overview of IoT protocols, IoT levels and deployment templates, Challenges for IoT, Interdependencies of IoT and cloud computing, Web of things		
SR No	DESCRIPTIVE QUESTIONS	Marks
22	Explain Challenges and requirements of IoT device. [LJIET]	5
23	Explain wireless sensor network? [LJIET]	5
24	What is relation between WSN and IoT. Explain with example. [LJIET]	5
25	Explain Big Data Analytics in IoT. [LJIET]	5



26	Explain importance of Cloud computing in IoT. [LJIET]	5
27	What do you mean by WSN? [LJIET]	5
28	Explain Embedded system. [LJIET]	5
29	Explain IoT seven layers in brief. [LJIET]	7
30	List different challenges in IoT. Explain any Four. [LJIET]	7
31	Explain two pillars of web. [LJIET]	5
32	Discuss IoT Levels in details. [Jun-2022] [LJIET]	3
33	Write about IOT Level – 5 and IOT Level – 6. [Dec-2021] [LJIET]	7
34	What is NFV(Network Function Virtualization)? And write key elements of NFV. [Dec-2021] [LJIET]	7
UNIT NO- 2 : Embedded IoT Devices		
TOPIC:1: Sensors and actuators for IoT applications, IoT components and implementation, Programming of NodeMCU and Raspberry PI, Implementation of IoT with Edge devices		
SR No	DESCRIPTIVE QUESTIONS	Marks
1	What is starting point of IoT application. Explain pin diagram, working principle and Arduino interfacing of any two. [LJIET]	7
2	Explain Types of sensor. [LJIET]	7
3	Explain gas sensor with pin diagram and interfacing with Arduino board. [LJIET]	7
4	Explain Obstacle sensor with pin diagram and interfacing with Arduino board and working principle. [LJIET]	7
5	Explain Heartbeat sensor with pin diagram and interfacing with Arduino board and working principle. [LJIET]	7
6	Explain colour sensor with pin diagram and interfacing with Arduino board and working principle. [LJIET]	7
7	Explain GPS sensor with pin diagram and interfacing with Arduino board and working principle. [LJIET]	7
8	Explain LDR sensor with pin diagram and interfacing with Arduino board. [LJIET]	5
9	Explain structure of Arduino. [LJIET]	5
10	What is task of sensor, and explain any 2 sensors [LJIET]	5
11	What do you mean by microcontroller and explain their usage? [LJIET]	5
12	What do you mean by microcontroller and List them. [LJIET]	3
13	What do you mean by microcontroller and explain any one of them. [LJIET]	5
14	Explain edge devices and how will you implement IoT with edge device. [LJIET]	5
15	What is function of Actuator? [LJIET]	5
16	What is the difference between raspberry pi and desktop computers? [LJIET]	5
17	How many type of interfacing you can do with raspberry pi ? Explain them. [LJIET]	7
18	There are three types of interfacing is supported by raspberry pi , explain serial peripheral interface in brief. [LJIET]	7
19	Discuss the IoT Sensors. [Jun-2022] [LJIET]	3
20	Describe Gas Sensors in brief. [Jun-2022] [LJIET]	7
21	Write an arduino code for connecting NodeMCU with temperature and Humidity sensor. And display current temperature and humidity with 5 second delay. [Dec-2021] [LJIET]	4
22	Write various Static Characteristics of Sensors. [Dec-2021] [LJIET]	7
23	Define Sensors, Actuators, Transducers. [Dec-2021] [LJIET]	3
24	Write about any 4 sensors that you know. And their usages. [Dec-2021] [LJIET]	4



25	Write an arduino code for connecting NodeMCU with moisture sensor, servo motor and water pipe lines for automatic watering a plant when moisture level is decreasing. [Dec-2021] [LJIET]	7
26	Differentiate ESP8266 and ESP32. [Dec-2021] [LJIET]	4
TOPIC:2:		
Reading sensor data and transmit to cloud, Controlling devices through cloud using mobile application and web application, Types and configurations of gateways, Specifications of IoT gateways		
SR No	DESCRIPTIVE QUESTIONS	Marks
27	Explain Cloud computing features. [LJIET]	7
28	Service model of cloud. [LJIET]	7
29	Deployment model of cloud. [LJIET]	7
30	How can you control device through cloud using mobile application and web application? [LJIET]	7
31	Describe IoT Gateway in brief. [Jun-2022] [LJIET]	4
32	Describe how does a sensor data travel from one device to the Cloud? [Jun-2022] [LJIET]	7
33	Explain SDN (Software Define Networking). [Dec-2021] [LJIET]	7
UNIT NO- 3 :		
IOT Protocols		
TOPIC:1 :		
Link layer protocols, Network/internet layer protocols, Transport layer protocols, Application layer protocols: Hypertext transfer protocol (HTTP), Systematic HTTP access methodology, Web Socket, Constrained application protocol CoAP), Message Queue Telemetry Transport Protocol (MQTT), XMPP, DDS, AMQP		
Sr. No	DESCRIPTIVE QUESTIONS	Marks
1	Explain link layer protocols, explain any one. [LJIET]	7
2	Explain network/internet layer protocols, explain any one. [LJIET]	7
3	Explain transport layer protocols, explain any one. [LJIET]	7
4	Explain application layer protocols, explain any one. [LJIET]	7
5	List Messaging protocol; explain any one. [LJIET]	7
6	Explain MQTT protocols. [LJIET]	7
7	Explain COAP protocols. [LJIET]	5
8	Explain BLE protocols. [LJIET]	5
9	Explain DDS protocols. [LJIET]	5
10	Explain XMPP protocols. [LJIET]	5
11	Explain HTTP protocols. [LJIET]	5
12	Explain IPv4 protocols. [LJIET]	5
13	Explain IPv6 protocols. [LJIET]	5
14	Why there is need of IPv6 over IPv4? [LJIET]	3
15	Explain LIFI. [LJIET]	5
16	Explain ULI. [LJIET]	5
17	Explain web socket. [LJIET]	5
18	Different types of HTTP. [LJIET]	5
19	Describe Internet of Things protocols in detail. [Jun-2022] [LJIET]	7
20	Describe Constrained application protocol. [Jun-2022] [LJIET]	4
21	Describe Transport layer protocol. [Jun-2022] [LJIET]	4



22	Write short note on Network layer protocols. [Jun-2022] [LJIET]	3
23	Write short note on Message Queue Telemetry Transport protocol. [Jun-2022] [LJIET] Discuss MQTT protocol in Detail. [Dec-2021] [LJIET]	3,7
24	Describe Bluetooth and BLE. [Dec-2021] [LJIET]	3
25	What is REST? Write various methods of REST. [Dec-2021] [LJIET]	4
26	Write functionality of XMPP. [Dec-2021] [LJIET]	3
27	Write Names of various protocols that are used at Network Layer of IOT. [Dec-2021] [LJIET]	3
28	Write Names of Protocols that are used at Link Layer of IOT. [Dec-2021] [LJIET]	4
29	Write about LoraWan. [Dec-2021] [LJIET]	3
30	Write about Encapsulation Protocol 6LowPan. [Dec-2021] [LJIET]	7
31	Briefly write about CARP protocol. [Dec-2021] [LJIET]	3
32	Discuss Zigbee. [Dec-2021] [LJIET]	4

UNIT NO- 4 :

IoT Security and challenges

TOPIC:1

IOT Security, Dangers, Assigning values to Information, Security Components, Key Management, Update Management, Challenges in IoT security

Sr. No	DESCRIPTIVE QUESTIONS	Marks
1	Explain Security architecture. [LJIET]	5
2	What are the security requirement? [LJIET]	5
3	What are the methods for assigning values? Explain any one. [LJIET]	5
4	Explain risk assessment. [LJIET]	5
5	List component of information system. [LJIET]	5
6	List challenges in IoT Security. [LJIET]	7
7	What do you mean by key management? [LJIET]	5
8	What do you mean by patch management (Update management). [LJIET]	5
9	Explain security goals: Confidentiality, Integrity, availability. [LJIET]	5
10	What do you mean by Integrity of data? [LJIET]	5
11	What are the security issues related to IoT? [LJIET]	5
12	Discuss vulnerabilities of Internet of Things. [Jun-2022] [LJIET]	4
13	Explain access control and message integrity of Internet of Things in detail. [Jun-2022] [LJIET]	7
14	Determine the challenges in IoT Security. [Jun-2022] [LJIET]	4
15	Describe Security components in IoT Security. [Jun-2022] [LJIET]	3
16	Write various Security concerns dealing with IOT. [Dec-2021][LJIET]	3

UNIT NO- 5 :

IoT Applications and case study

TOPIC:1

Broad categories of IoT applications: Consumer IoT, Commercial IoT, Industrial IoT, Infrastructure IoT, Military Things (IoMT)

Sr. No	DESCRIPTIVE QUESTIONS	Marks
1	According to you which is the category of IoT application? List them and explain. [LJIET]	5
2	Explain consumer IoT. [LJIET]	5
3	Explain commercial IoT. [LJIET]	5
4	Explain Industrial IoT. [LJIET]	5



5	What are the challenges you face while working in Industrial IoT application? [LJIET]	5
6	Explain Infrastructure IoT. [LJIET]	5
7	Explain IoMT. [LJIET]	5
8	Determine the applications of Internet of Things. [Jun-2022] [LJIET]	4
9	Write applications of Internet of Things for Medical field. [Jun-2022] [LJIET]	3
10	Explain Commercial IoT with an example. [Jun-2022] [LJIET]	7
TOPIC:2		
IoT Case studies: Home automation with IoT, River water pollution monitoring, Smart city street light control and monitoring, Health care monitoring, Voice Apps on IoT device		
11	How IoT has changed home to smart home, explain in brief. [LJIET]	5
12	How can we improve river water pollution system with the help of IoT [LJIET]	5
13	In the mega cities , street lights are turning off and on by itself, so how IoT has changed the way traditional lights , explain in detail. [LJIET]	5
14	IoT has drastically changed Health care sector, discuss each and every parameter. [LJIET]	5
15	Currently you are enjoying voice over apps like apple siri and google assistant, how it works? [LJIET]	5
16	Explain Smart Home Automation in detail. [Jun-2022] [LJIET]	7
17	Explain how Smart City and IoT are associated with each other? [Jun-2022] [LJIET]	7
18	Write applications of Internet of Things for Smart Parking in Smart City. [Jun-2022] [LJIET]	3
19	Describe recent developments and future aspects of IoT in brief. [Jun-2022] [LJIET]	7
20	Define the roles of IoT in Health Care Monitoring. [Jun-2022] [LJIET]	4