Question Bank
23MCA281 - Internet of Things

Course Type	Course Nature	CA Conduct	System	L	T	P	Credits	CA Total	CA Pass	SEE Total	SEE Pass	Total Pass
Elective	1	End Semester	Mark	3	1	0	4	40	0	60	24	50

Question Bank Summary

Sect. Part A	Sect. Part B	Easy	Med.	Chall.	Th.	Appli.						
58	57	8	90	17	115	0	3	55	51	4	2	0

#	Unit	Question	COS	Categorized
1	1.1	What is meant by Caching technique.	CO1	Easy - Understanding - T
2	1.1	What do you mean by computation offloading?	CO1	Easy - Remembering - T
3	1.1	Define IoT. Briefly explain about various Applications of IOT.	CO1	Easy - Understanding - T
4	1.1	Define Internet of Things.	CO1	Easy - Understanding - T
5	1.1	How Resource Management is performed in IOT.	CO1	Medium - Remembering - T
6	1.1	Describe the framework that enables collaboration between smart mobile devices and cloud.	CO1	Medium - Remembering - T
7	1.1	Describe the taxonomy of Resource Management in IOT.	CO1	Medium - Understanding - T
8	1.1	Describe the state diagram of the open IOT services life cycle.	CO1	Medium - Understanding - T
9	1.1	List the applications of device/cloud collaboration.	CO1	Medium - Understanding - T
10	1.1	How do Cloud computing and Fog computing differ in data analytics?	CO1	Medium - Understanding - T
11	1.1	Compare SOA-based architecture and API-oriented architecture.	CO1	Challenging - Understanding - T
12	2.1	List the Applications of Fog Computing.	CO2	Easy - Understanding - T
13	2.1	List the advantages associated with Fog computing?	CO2	Easy - Understanding - T
14	2.1	Describe TinyOS.	CO2	Medium - Understanding - T
15	2.1	Explain the principles of Fog Computing and how they differ from traditional cloud computing.	CO2	Medium - Understanding - T
16	2.1	Describe the programming framework mentioned for the Internet of Things.	CO2	Medium - Understanding - T
17	2.1	Discuss the applications of Fog Computing in the context of IoT and provide examples.	CO2	Medium - Understanding - T
18	2.1	Explain the role of programming frameworks like TinyOS in the development of IoT solutions.	CO2	Medium - Understanding - T
19	2.1	Explain the basic principles of Fog Computing.	CO2	Medium - Understanding - T
20	2.1	Describe the applications of Fog Computing.	CO2	Medium - Understanding - T
21	2.1	List the key components of Fog Computing architecture.	CO2	Medium - Understanding - T
22	2.1	How does NesC relate to TinyOS?	CO2	Challenging - Understanding - T
23	3.1	Explain stream and stream processing in IOT.	CO3	Medium - Understanding - T
24	3.1	Differentiate between Stream Model and Batch Model.	CO3	Medium - Understanding - T

25	3.1	Describe the two dominant IoT architectures	CO3	Medium - Understanding - T
26	3.1	What are the three different categories of anomalies in the data?	CO3	Medium - Understanding - T
27	3.1	List and explain device/cloud collaboration framework.	CO3	Medium - Understanding - T
28	3.1	Explain the categories of protocols in IOT.	CO3	Medium - Understanding - T
29	3.1	Explain CoAP. List out the advantages of CoAP.	CO3	Medium - Understanding - T
30	3.1	List and explain IOT data-transmission requirements.	CO3	Medium - Understanding - T
31	3.1	Explain the Inverse Pyramid for Polyglot Programming.	CO3	Medium - Understanding - T
32	3.1	Explain different forms of timestamps in a streams.	CO3	Medium - Understanding - T
33	3.1	Describe the advantages of distributed anomaly detection technique.	CO3	Medium - Understanding - T
34	3.1	Explain CoAP web-transfer protocol and its advantages when compare it with HTTP.	CO3	Medium - Understanding - T
35	4.1	Explain about obfuscation and diversification techniques.	CO4	Medium - Applying - T
36	4.1	Explain any three IoT routing attacks.	CO4	Medium - Applying - T
37	4.1	What are the reliability challenges faced by IoT?	CO4	Medium - Understanding - T
38	4.1	Illustrate the IoT Security Requirements.	CO4	Medium - Applying - T
39	4.1	With the help of diagram explain types of anomalies considering the topology of a network.	CO4	Medium - Applying - T
40	4.1	Explain all IOT programming approaches.	CO4	Medium - Applying - T
41	4.1	Explain all active threats in IOT Security.	CO4	Medium - Applying - T
42	4.1	Discuss some well-known routing attacks IoT networks.	CO4	Medium - Applying - T
43	4.1	Discuss about various security threats in IoT.	CO4	Medium - Applying - T
44	4.1	Illustrate the basic security properties needed to be implemented in IoT.	CO4	Medium - Applying - T
45	4.1	Illustrate the goals of TinyTO.	CO4	Medium - Applying - T
46	4.1	Illustrate the limitations of Obfuscation and Diversification.	CO4	Medium - Applying - T
47	5.1	Explain Gateway.	CO5	Medium - Applying - T
48	5.1	Explain Inter-Integrated Circuit (I2C) or Two Wire Interface (TWI).	CO5	Medium - Applying - T
49	5.1	Write a note on Constrained Application Protocol (CoAP).	CO5	Medium - Applying - T
50	5.1	Explain about Inter Integrated Circuit (I2C) and 6LoWPAN.	CO5	Medium - Applying - T
51	5.1	Explain the component Gateway Device – Gateway hardware and Gateway software	CO5	Medium - Applying - T
52	5.1	Discuss about the requirements for IoT gateway hardware.	CO5	Medium - Applying - T
53	5.1	Illustrate the key requirements to design a prototype of sensor project.	CO5	Medium - Analysing - T
54	5.1	Explain any three wired gateway interface.	CO5	Medium - Applying - T
55	5.1	Explain any three wireless gateway interface.	CO5	Medium - Applying - T
56	5.1	Explain any three examples of sensors.	CO5	Medium - Applying - T
57	5.1	Explain any three gateway hardware.	CO5	Medium - Applying - T
58	5.1	Explain the list of top IoT data transmission requirements.	CO5	Medium - Applying - T

#	Unit	Question	COS	Categorized
1	1.1	Define Internet of Things. Illustrate the different Applications of IOT.	CO1	Easy - Understanding - T
2	1.1	Explain about Internet of Things. Illustrate the different Applications of IOT.	CO1	Easy - Understanding - T

3	1.1	Explain the role of cloud infrastructure in managing IoT resources. What are the specific advantages of using cloud-based solutions for IoT resource management?	CO1	Medium - Understanding - T
4	1.1	Illustrate the state diagram of the Open IOT Services Lifecycle with the help of relevant diagram.	CO1	Medium - Understanding - T
5	1.1	Summarize Taxonomy of Resource Management in IOT with the help of a suitable diagram.	CO1	Medium - Understanding - T
6	1.1	With the help of a neat diagram Explain the taxonomy of resource management in IoT.	CO1	Medium - Understanding - T
7	1.1	With the help of relevant diagram explain the state diagram of the open IoT service life cycle.	CO1	Medium - Understanding - T
8	1.1	Summarize How Resource Management is performed in IOT.	CO1	Medium - Understanding - T
9	1.1	Neatly sketch the open IOT architecture for IOT/CLOUD convergence.	CO1	Medium - Understanding - T
10	1.1	Describe the key features of a Device/Cloud Collaboration framework. How do these features contribute to the effectiveness of intelligent applications?	CO1	Challenging - Understanding - T
11	2.1	With the help of a Diagram Explain about Fog Computing Reference Architecture.	CO2	Medium - Understanding - T
12	2.1	Define Polyglot Programming. With the help of neat diagram explain about Inverse pyramid for Polyglot Programming.	CO2	Medium - Understanding - T
13	2.1	Explain Fog Computing Reference Architecture with the help of relevant Diagram.	CO2	Medium - Understanding - T
14	2.1	Explain the key principles of Fog Computing and how they enhance data processing in IoT systems. Provide examples to illustrate these principles.	CO2	Medium - Understanding - T
15	2.1	Discuss the role of NesC in programming within the TinyOS framework. How does NesC support the development of efficient and scalable IoT applications?	CO2	Medium - Understanding - T
16	2.1	Explain the role of programming frameworks like TinyOS in the development of IoT solutions.	CO2	Medium - Understanding - T
17	2.1	Describe the process of developing an IoT application using TinyOS. What are the key steps involved, and how does TinyOS simplify the development process?	CO2	Medium - Understanding - T
18	2.1	Describe the role of Fog nodes in the Fog Computing architecture. How do these nodes contribute to the overall performance and efficiency of IoT systems?	CO2	Medium - Understanding - T
19	2.1	Outline the main features of TinyOS and how it facilitates the development of IoT solutions. Compare TinyOS with other IoT programming frameworks in terms of functionality and use cases.	CO2	Medium - Understanding - T
20	2.1	Explain the significance of programming frameworks in IoT development. How do frameworks like TinyOS and NesC contribute to solving the unique challenges of IoT systems?	CO2	Medium - Understanding - T
21	2.1	Outline the principles behind the architecture of Fog Computing and explain how these principles are applied to real-world IoT scenarios. Provide specific examples to support your explanation.	CO2	Challenging - Applying - T
22	3.1	Explain about the characteristics of stream data in IOT.	CO3	Medium - Understanding - T
23	3.1	Compare Stream Management System (DSMS) and Complex Event Processing (CEP).	CO3	Medium - Evaluating - T
24	3.1	Explain anomaly detection and categorize anomalies in the data.	CO3	Medium - Applying - T
25	3.1	Write and explain the algorithm for distributed anomaly detection by clustering ellipsoids.	CO3	Medium - Applying - T

26	3.1	With the help of relevant diagram explain the general architecture of a stream processing system in IOT.	CO3	Medium - Applying - T
27	3.1	Explain in detail distributed anomaly detection and hyper ellipsoidal anomaly detection.	CO3	Medium - Applying - T
28	3.1	Explain anomaly detection and categorize anomalies in the data based on its behavior.	CO3	Medium - Applying - T
29	3.1	With the help of diagram explain CLPS.	CO3	Medium - Applying - T
30	3.1	With the help of diagrams explain different categories of anomalies.	CO3	Medium - Applying - T
31	3.1	Explain the general architecture of a stream-processing system in IOT using a diagram.	CO3	Challenging - Understanding - T
32	3.1	Describe hyper ellipsoidal model for anomaly detection.	CO3	Challenging - Understanding - T
33	3.1	Which are the challenges faced by stream-processing systems?	CO3	Challenging - Applying - T
34	4.1	Explain about IoT Security Requirements.	CO4	Medium - Applying - T
35	4.1	Explain what is meant by IOT routing attacks.	CO4	Medium - Applying - T
36	4.1	Describe the error detection techniques which are applicable in the context of an IOT.	CO4	Medium - Applying - T
37	4.1	How can you nullify the impact of fault in high-availability cluster?	CO4	Medium - Analysing - T
38	4.1	Explain Code Obfuscation and Diversification.	CO4	Medium - Applying - T
39	4.1	What is error detection in IOT? Explain different techniques for error detection in IOT.	CO4	Medium - Applying - T
40	4.1	Explain different methods for evaluation of TinyTO.	CO4	Medium - Applying - T
41	4.1	Summarize Security Frameworks for IoT.	CO4	Challenging - Evaluating - T
42	4.1	List the different ways that an IOT gateway can extend connectivity to nodes.	CO4	Challenging - Analysing - T
43	4.1	Explain the Station-to-Station protocol (STS) and the two main shortcomings of STS.	CO4	Challenging - Applying - T
44	4.1	Explain the BCK with pre-shared keys for TinyTO.	CO4	Challenging - Applying - T
45	4.1	How Station-to-Station protocol provides end-to-end security in IoT devices?	CO4	Challenging - Analysing - T
46	5.1	Write a short note on Zigbee.	CO5	Medium - Applying - T
47	5.1	Explain about the Three key components of an IOT architecture.	CO5	Medium - Applying - T
48	5.1	Give an overview on the Wired Gateway Interfaces.	CO5	Medium - Applying - T
49	5.1	List the features to select the gateway hardware.	CO5	Medium - Applying - T
50	5.1	Explain the backend process of the sensor project.	CO5	Medium - Applying - T
51	5.1	Explain the key decisions of the backend services.	CO5	Medium - Applying - T
52	5.1	Explain the AMQP.	CO5	Medium - Applying - T
53	5.1	Explain about the sensors required to build the environmental-sensing IoT gateway device for weather monitoring.	CO5	Challenging - Applying - T
54	5.1	List and explain the six steps for the development of a sensor project.	CO5	Challenging - Applying - T

55	5.1	List the steps to prepare Raspberry Pi for the execution.	CO5	Challenging - Applying - T
56	5.1	Explain about Gateway hardware and software. What are the requirements for selecting gateway hardware?	CO5	Challenging - Applying - T
57	5.1	Explain the data transmission process of the sensor project.	CO5	Challenging - Applying - T