Short Answer Type Questions

1. What is Interoperability in IoT? Why Interoperability is important in IoT?
2. Explain the four pillars of IoT and how they are interconnected with each other.
3. Explain the advantages and disadvantages of IoT.
4. Describe any three major IoT applications and their significance.
5. Differentiate between Future Internet Technologies and traditional network technologies.
6. Explain the role of networks and communication in IoT infrastructure.
7. Explain the “Zebranet”.
8. What is Wireless Sensor Network? Explain the overview of WSN communication architecture.
9. Explain the different characteristics of Wireless Sensor Network.
10. What are factors that causes energy waste in sensors of WSN while dealing with MAC protocol?
11. What is sensor? Classify the sensor based on output of the sensor and data type.
12. Explain the MAC design issues for WSN.
13. What is the performance measured parameters for designing MAC protocol in WSN.
14. To monitor the physical phenomena/changes in a harsh environmental situation, how WSN can be used.
15. What is Flooding protocol in WSN? What are the disadvantages of Flooding protocol?
16. Explain the differences between CSMA/CA and CSMA.CD
17. Define M2M and IoT, highlighting the key differences between them.
18. Outline the main design principles required for building a robust IoT architecture
19. What is M2M communication? Explain the M2M with block diagram.
20. Explain the RFID working principal with a diagram.
21. For contactless fund transfer, what communication technology can be used effectively?
22. Explain the IoT conceptual framework.
23. Describe how data aggregation contributes to the functionality of IoT in smart cities.
24. Describe how data aggregation contributes to the functionality of IoT in smart cities.
25. Outline four key aspects a business should master to effectively leverage IoT
26. What is IIoT? What is the basic difference between IoT and IIoT?
27. Define IoT governance and explain its significance in smart cities.
28. What is data aggregation in IoT? Why is it important for smart cities?
29. Differentiate between privacy and security issues in IoT.

Long Answer Type Questions

1. Can a daily life object be considered as a part of IoT, if it comprises with sensor, microprocessor and actuator?
2. Compare IoT and Web protocol stack with diagram
3. Waste management is very difficult in the context of smart cities. How to improve traditional waste management so that it becomes smart.
4. Explain the differences between persistence and non-persistence techniques in CSMA MAC
5. Explain different components of WSN with block diagram.
6. Explain the LEACH routing protocol with a diagram.
7. Explain hidden terminal and exposed terminal problem in sensor network.
8. How the above-mentioned problem can be solved? Explain with diagram.
9. The government requires monitoring the presence of tiger in a dense forest. Whenever the tiger will be detected, that information should be sent to the monitoring authority's server hosted in a city. What approach needs to be taken. Also mention the data/information dissemination approach.
10. For the above mention problem, what type/types of MAC protocol requires. Justify your answer.
11. Which MAC protocol may be used to reduce energy waste due to collision, idle listening and overhearing?
12. Explain the geographical routing protocol with diagram.
13. How SPIN routing protocol works. Explain with diagram. How it overcome the problems faced by flooding protocol?
14. Explain LEACH Protocol with diagram.
15. Discuss the evolution from M2M to IoT, providing an architectural overview. Elaborate on the main design principles and needed capabilities for building an effective IoT architecture.
16. "Building an architecture" is a critical step in IoT deployment. Explain the key components of an IoT architecture outline and justify the importance of each component. Also, elaborate on the capabilities that an IoT architecture should possess.
17. Explain the MQTT protocol. Why it is useful in IoT?
18. Explain the different types of CoAP messages and how they work
19. What is AMQP protocol? Explain the working principal of AMQP protocol with an example.
20. What is microcontroller? Explain Arduino UNO board configuration in detail.
21. Discuss the application of IoT in healthcare, focusing on the value it creates for patients and healthcare providers. Provide specific examples and explain the technological aspects involved.

22. Explain how IoT enables the concept of "Future Factory Concepts" in industry. Discuss the role of smart objects, data aggregation, and big data in achieving this vision, and analyze the potential impact on manufacturing processes.
23. Explain how value is created from Big Data and Serialization in IoT applications. Discuss how these concepts are applied in connected vehicles and smart cities, and analyze the challenges and opportunities associated with their implementation.
24. What is Big Data? How it works together along with IoT?
25. Discuss the governance, privacy, and security challenges in IoT-enabled smart cities. Suggest possible solutions to mitigate these issues.
26. Analyze the role of data aggregation in IoT for smart cities. What security measures should be implemented to protect aggregated data?
27. "Trust is a critical factor in IoT data platforms." Justify this statement with respect to smart city applications. How can trust be established and maintained?