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Question Paper Code	12751
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Sixth Semester

**Electronics and Communication Engineering**

**20CSOE908 – INTERNET OF THINGS**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

	<i>Marks</i>	<i>K- Level</i>	<i>CO</i>
1. Summarize the evolutionary phases of IoT.	2	K2	CO1
2. Define IoT ecosystem. Name the functional blocks of it.	2	K1	CO1
3. Compare ZigBee and ZigBee IP.	2	K2	CO2
4. Name the three levels of QoS supported by MQTT.	2	K1	CO2
5. Mention the different modules of IoT SoC.	2	K2	CO3
6. Discuss the use of GPIO pins in an IoT device.	2	K2	CO3
7. Differentiate Structured vs Unstructured Data.	2	K2	CO4
8. Discuss on Apache spark.	2	K2	CO4
9. List the six pillars/components of Cisco IoT Systems.	2	K1	CO5
10. Explain the three stages of power supply-chain in power utility industry.	2	K2	CO5

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

11. a) Draw the layered structure of IoT data management and compute stack with fog layer. Explain why fog layer is introduced in it. Also comment about Edge computing.	13	K2	CO1
<b>OR</b>			
b) List out and explain the communication criteria that must be considered in connecting smart objects.	13	K2	CO1
12. a) Illustrate the security header format of IEEE 802.15.4g/e and also specify the improvements in physical and MAC layers for IoT use cases.	13	K2	CO2
<b>OR</b>			
b) Extend the IETF working group 6LoWPAN and its successor 6Lo to optimize the transmission of IPv6 packets over constrained networks.	13	K2	CO2

13. a) Demonstrate the key steps involved in IoT Design methodology. 13 K3 CO3

**OR**

b) Explain in detail Programming Raspberry Pi with python by giving suitable example. Also elaborate on Raspberry Pi interfaces. 13 K3 CO3

14. a) Describe in detail about Hadoop ecosystem and the two key components with suitable illustration. 13 K2 CO4

**OR**

b) Identify the purpose of Amazon Web service for IoT. 13 K3 CO4

15. a) Predict the Features of IBM Watson IoT platform, and brief on the services provided in it. 13 K3 CO5

**OR**

b) Examine the challenges faced for parking in cities, and explain how smart parking provides a solution to these challenges. 13 K3 CO5

**PART - C (1× 15 = 15 Marks)**

16. a) i) Discuss any one use case example of smart city examples. 7 K2 CO6

ii) Describe the smart city security architecture. 8 K2 CO6

**OR**

b) i) Summarize an IoT strategy for smart city. 7 K2 CO6

ii) Outline smart city layered architecture and explain how security is provided. 8 K2 CO6