B.E. ELECTRONICS AND TELE-COMMUNICATION ENGINEERING FOURTH YEAR SECOND SEMESTER SUPPLEMENTARY EXAM – 2024
INTRODUCTION TO INTERNET OF THINGS (IOT)

Time: Three Hours   Full Marks: 100

Answer all the questions and write down all the sub-parts of a question altogether

1. a)   What is connectionless service? How does it differ from connection-oriented service? What is tunneling? What does multi-homing mean in the context of IoT networks?   5+5+5+5 = 20 (CO1)

Or

b) What is a digital signature? Explain IPSec. Describe the CPS paradigm. How does CPS differ from WSN?   5+5+4+6 = 20 (CO1)

2. a) What is smart dust? How does IoT differ from WoT? Explain the working of MQTT with a diagram.   5+6+9 = 20 (CO2)

Or

b) What is CoAP? Describe how CoAP works. How do sensors differ from transducers? What are soft actuators?   5+5+5+5 = 20 (CO2)

3. a) What is Jingle? Explain in detail. What is Pub–Sub? Explain in detail. What is CORE? Explain in detail.   6+7+7 = 20 (CO3)

Or

b) What are the pros and cons of on-site versus off-site processing? How do structured and unstructured data differ? What is BOSH? Explain in detail.   6+6+4+4 = 20 (CO3)

4. a) What is LonTalk? What is an Amazon Machine Image? What is a sensor-cloud and why is it used? What are the different types of interoperability encountered in IoT environments? Provide an example to briefly explain how Software-as-a-Service differs from Platform-as-a-Service.   2+3+2+3+5+5 = 20 (CO4)

Or

b) Differentiate between semantic and syntactic interoperability. How can fog computing be utilized in a smart city? What is the role of the "protocol abstraction layer" in a fog node? What is a community fog node?   6+4+6+4 = 20 (CO4)

5. a) How does cloud-based storage differ from regular offsite storage in IoT networks? Develop a case study for creating an IoT-based agricultural planter. Create a use case for an IoT-based driver sleep detection system, listing all the necessary sensors.
                                                              6+6+8 = 20 (CO5)

Or

b) Explain two use cases for using drones in agricultural IoT. Describe an idea for developing an IoT-based healthcare system that incorporates a fingerprint sensor. How does EnOcean utilize energy harvesting for its operations?   8+8+4 = 20 (CO5)