

BE SEM VIII (choice based) summer 2026 ECS / ELEC
[3hrs]

[80 marks]

21/5/26

N.B: Question 1 is compulsory and solve any 3 from remaining 5 questions

- 1 **Attempt any FOUR** [20]
 - a Explain Communication models in IOT
 - b Industrial Internet Reference Architecture (IIRA) identifies technology gaps based on the architectural requirements, justify.
 - c Explain the role of edge computing as driver of Industry 4.0.
 - d Explain concept of bridging in IEEE 802.11 standard.
 - e Explain identity and access management methods in IoT.
- 2 a Explain the functionality of each layer in the Three Layer (Tier) IoT Architecture. [10]

b Draw and explain architecture of a typical LoRa systems. [10]
- 3 a Write short note on HART [10]

b Briefly explain an application map for Industrial Cyber Physical System. [10]
- 4 a Explain the use of blockchain to secure IIoT transactions. [10]

b Explain the use of Machine Learning and Data Science in IIoT. [10]
- 5 a Explain in detail LoRaWAN wireless communication technology [10]

b State and explain the stages of threat analysis in IIoT. [10]
- 6 a Explain the IOT Protocol stack. [10]

b Explain IIOT based architecture design pattern for Manufacturing sector [10]
