Question Bank (K scheme)

Name of Subject: Embedded Systems (ESY) **Unit Test: I**

Subject Code: 315338 **Course: EJ5I**

Semester: V

Chapter 1: Overview of Embedded Systems (12 marks)

2 Marks

1. Define Embedded System & Give any two examples of embedded system.

2. Compare Harvard and Von Neumann Architecture. (any four points)

3.List any four applications of Embedded system.

4. State any four selection criteria of embedded system.

5.Define RISC and CISC.

4. Marks

6. Compare RISC and CISC Architecture.

7.Draw block Diagram of Embedded System & Explain its hardware components.

8.State and Describe any four design metrics (characteristics) of an embedded system.

9. Classify embedded system and explain embedded system based on performance of microcontroller

Chapter 2: Microcontroller Architecture (16 marks)

2 Marks

10. State any four features of PIC microcontroller.

11.List any four applications of PIC microcontroller.

12. State any four features of ARM microcontroller.

13.List any four Applications of ARM microcontroller.

14.State Types of AVR microcontroller.

4. Marks

15.State features and applications of ATmega 8 AVR microcontroller.

16.State the functions of following pins of ATmega 8 AVR microcontroller.

i) RESET ii) TXD iii) SCK iv) MISO

17.Draw neat internal Architecture of ATmega 8 AVR microcontroller.

18.State features of Arduino specific AVR microcontroller ATmega 168/328.

19.Compare ATmega8 & ATmega 328 AVR microcontrollers.

20.Write an AVR program to perform addition and subtraction on two 8 bit numbers.

21.Write an AVR program to toggle all bits of port B continuously with some delay. Assume that system is ATmega 8 with XTAL=8 MHz

22.Write AVR program to perform logical AND & OR operations.

23.Write AVR program to toggle all bits of port B continuously with some delay. Use Timer 0, Normal mode & no Prescaler options to generate delay.

Chapter 3: Communication Standards and Protocols (14 marks)

2 Marks

24.State any four features of Bluetooth Technology.

25.Draw frame format of I2C serial communication protocol.

26.State features of USB serial communication protocol.

27.State any four Applications of Wi-Fi wireless protocol.

28.State any four Applications of IEC 61850 GOOSE communication protocol.

4 Marks

29.Compare synchronous and asynchronous communication.

30. Describe serial peripheral interface (SPI) protocol with suitable diagram.

31.Describe CAN Bus protocol with the frame Structure.

32.Draw and explain USB protocol.

33.Describe ZigBee with suitable diagram.

34.Describe LoRA (Long Range) Wireless serial communication protocol.

35. State any four important features of following advanced serial protocol

i) IrDA ii) ZigBee iii) Wi-Fi

36.Compare between CAN & I2C protocols.

37.Compare Bluetooth & Wi-Fi.