

Madan Bhandari College of Engineering
Urlabari-3, Morang
Final Internal Examination (Fall 2024)

Level: Bachelor
Programme: B.E Computer
Year/Part: III/I
Subject: - Embedded System

Full Marks: 100
Pass Marks: 45
Time: 3 hrs

- ✓ Candidates are required to give their answers in their own words as far as possible.
- ✓ Attempt all questions

- ✓ 1. A) Define Embedded System. Explain essential components of embedded system. [7]
- ✓ B) List and describe the key application domain of ES [8]
- ✓ 2. A) Draw and explain the AVR architecture. [8]
- B) Write an 8051 C program to get a byte of data from P1, wait $\frac{1}{2}$ second (i.e., 500 ms) and then send it to P2. [7]

OR

- ✓ Explain various Data types in C.
- ✓ 3. A) Define Real Time Operating system. Also describe the major function of real-time kernel. [8]

OR

Explain the execution of interrupt in details.

- ✓ B) Define scheduling? Explain various types of task scheduling techniques in RTOS. [7]
- ✓ 4 A) Write a VHDL code for 2*4 Decoder. [8]
- ✓ B) Write a VHDL code for 4 bit full adder. [7]
- ✓ 5 A) Explain TCP/IP in details. [7]
- B) Write an AVR C programming to interface 16*2 LCD with an AVR microcontroller, the program should initialize LCD in 4 bit mode and display 'HELLO MBMAN'. [8]
- ✓ 6A) Describe the MQTT protocol and explain its key component. [7]
- ✓ B) Explain the basic concept of IoT and roles of ES in IoT. [8]
- 7 Write short notes on any two [5*2=10]
- ✓ A) Bluetooth
- B) GSM
- C) ESP32