BE. 8th Sem.
Feb. 2023.

Exam.Code:0926
Sub. Code: 6550

2023
B.E. (Information Technology)
Eighth Semester
ITE-802: Embedded System Design

Time allowed: 3 Hours Max. Marks: 50

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.*

x-x-x

1a. Give examples of microcontrollers/microprocessors having Harvard Architecture and Von-Neuman Architecture.

b. Which I/O ports are available in the 8051 family of Microcontrollers?

c. Name all the addressing modes in the PIC family of microcontrollers.

d. What is the CCP module in the PIC family of microcontrollers used for?

e. Name all the possible states of a task in RTOS? (2x5)

PART A

2a Which is better, Microprocessor or Microcontroller? Explain with diagrams and examples.

b Compare a CISC device with a RISC device giving examples of both. (5,5)

3a Explain the architecture of 8051 microcontrollers with Block diagram.

b What types of instructions are available in the MCS-51 family of microcontrollers? Explain with examples. (5,5)

4a Explain the operation of Interrupts in 8051 Family of microcontrollers.

b How can the MCS-51 or Atmel 89C51 be used for square wave generation? (5,5)

PART B

5a What is the purpose of the Watchdog Timer in PIC Microcontrollers? How is it used?

b Explain the functionality of all the special function registers in PIC microcontrollers. (5,5)

6a Compare the Round Robin, Round Robin with interrupts and Function Scheduling architectures for Embedded Software with examples, advantages and drawbacks.

b Explain the important considerations to be followed in RTOS Design (5,5)

7 Explain the functionality of the following in RTOS with examples from real time systems

a. Semaphores

b. Message Queues (5,5)

x-x-x