

2072  
M.E. (Information Technology)  
Second Semester  
MEIT-2102 Embedded System Design

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Part.

x-x-x

1. Attempt the following:-

- a. Name a microcontroller/microprocessor having Harvard Architecture and Von-Neuman Architecture.
- b. Name all the addressing modes in the PIC family of microcontrollers?
- c. Name the basic operating modes of ARM processors?
- d. What is the classification of sensors based on the principle of operation?
- 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. 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)
- 4a. What is pipelining? How is it implemented in ARM processors?
- b. What is special about the registers and data types available in the MMX series? (5,5)

PART-B

- 5 - Explain the main features of
  - a. USB (v2.0).
  - b. I2C(5,5)
- 6 - How is the interfacing of sensors done with an Embedded controller? Explain with an example. (10)
- 7 - Compare the four architectures for Embedded Software with examples, advantages and drawbacks. Explain where they can be applied and why? (10)

x-x-x