

Exam.Code:1006

Sub. Code: 7363

2023

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 Unit.*

*x-x-x*

- I. Attempt the following:-
- State any two real time applications of Microprocessors and Microcontrollers.
  - Name all the interrupts in PIC microcontrollers?
  - What are the types of instructions available in ARM processors?
  - What is the advantage of I2C BUS?
  - Name the tools in RTOS which enable inter task communication & task synchronization? (5x2)

**UNIT - I**

- II. a) Which is better, Harvard Architecture or Von-Neuman Architecture? Explain with diagrams and examples.
- b) Compare the Microprocessor with a Microcontroller with examples. (5,5)
- III. a) Explain the operation of the ADC unit in the PIC microcontrollers.
- b) Explain the functionality of the OPTION, STATUS & INTCON registers in PIC micro-controllers. (5,5)
- IV. a) Describe the architecture and functioning of an ARM CPU with the help of a diagram.
- b) Explain the following features of MMX microcontroller technology:
- MMX Registers
  - MMX Data types (5,5)

P.T.O.



(2)

**UNIT - II**

- V. a) Compare the RS 232 and RS 485 Serial Communication Interfaces.  
b) State the major applications of Wireless Sensor Networks. (5,5)
- VI. a) How is Controlling of Sensors through a web page achieved?  
b) What are the various classifications of sensors? (5,5)
- VII. a) What are the main features of the RTOS? How is it better than earlier architectures?  
b) Explain the functionality of the following in RTOS:-  
i) Memory Management  
ii) Interrupt Routines (6,4)

x-x-x