

Roll No

EI/IC-703 (New)

B.E. VII Semester

Examination, December 2016

Introduction to Microcontroller for Embedded Systems

Time : Three Hours

Maximum Marks : 70

- Note:* i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Give a suitable definition of embedded systems.
b) What are the challenges in design of Embedded systems?
c) Differentiate RISC and CISC architectures.
d) Write features and applications of Tiva-C family microcontrollers.

OR

Differentiate Von Neumann and Harvard architectures.

Unit - II

2. a) Define watchdog timer.
b) What is GPIO? Why it is important?
c) Define Hibernation module on Tiva.
d) What are interrupts? Draw and explain Interrupt vector table.

OR

Explain the working of memory mapped peripherals.

Unit - III

3. a) What is real time clock in a system?
b) What is Analog comparator?
c) Define quadrature Encoder Interface.
d) Explain the process of timing generation and measurements in microcontrollers.

OR

Explain PWM generation using PWM module on Tiva.

Unit - IV

4. a) Differentiate synchronous and Asynchronous interface.
b) Define bit rate and baud rate.
c) What is I2C protocol?
d) Explain the interfacing of digital and analog external devices using EPI and UART protocol.

OR

Explain how Tiva based embedded system communicate with "Sensor Hub Booster Pack".

Unit - V

5. a) What is Zig Bee protocol?
b) Give an overview of wireless sensor network.
c) Explain wireless protocol NFC.
d) Define the architecture of Internet of things and write applications.

OR

Differentiate Bluetooth and WiFi protocol.
