B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

00034   June, 2017

BIEL-024 : EMBEDDED SYSTEMS DESIGN

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Missing data, if any, may be suitably assumed.*

1. (a) Compare and contrast microprocessor and microcontroller.   *4*

   (b) What is the procedure adopted for selection of processors in the design of an embedded system ?   *6*

   (c) List some of the practical applications of an embedded system.   *4*

2. (a) What do you understand by the term "Real-Time Operating System (RTOS)" ?   *6*

   (b) Explain the various tasks and task-states of a RTOS.   *8*

3. Explain different Interrupt Routines used in an RTOS environment. *14*

4. Explain the architecture and the basic concepts of assembly language programming of 8051 microcontroller. *14*

5. Explain the procedure involved in interfacing the following with 8051 microcontroller : $4\times3\frac{1}{2}=14$

   (a) External memory

   (b) Analog-to-Digital Converter

   (c) LEDs

   (d) Relays

6. (a) List the various networks used in the design of an embedded system. *7*

   (b) Explain in detail the properties and functions of any of the two listed networks. *7*

7. Write short technical notes on any *two* of the following : *2×7=14*

   (a) Software Tools for Development of an Embedded System

   (b) Addressing Modes for 8051 Microcontroller

   (c) Compilers and Cross-compilers