

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

**Term-End Examination**

00203

**December, 2018**

**BIEL-024 : EMBEDDED SYSTEMS DESIGN**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted. Any missing data may be suitably assumed.

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1. (a) What is the difference between a switch and a relay ?
- (b) Differentiate between resolution and accuracy of a DAC.
- (c) What is Watchdog Timer ?
- (d) What is the use of ALE, S0, S1 pins ?
- (e) Why is 8051 called system on chip ?
- (f) Explain PSW in 8051.
- (g) Explain the difference between JMP instruction and CALL instruction.  $7 \times 2 = 14$

2. (a) What are the components of an embedded system ?
- (b) What are the challenges of an embedded system ?
- (c) Give some examples for sophisticated embedded systems. 5+5+4
3. (a) Explain about the interrupt routine rules used in RTOS environment.
- (b) Explain the various considerations in embedded system design for RTOS selection. 7+7
4. (a) Explain the RAM memory space allocation in 8051.
- (b) Explain how subroutine calls are executed in 8051.
- (c) Describe serial interface, timer/counters and interrupts in 8051. 4+5+5
5. (a) Explain embedded software development tools in detail.
- (b) Explain how cross-compilers and cross-assemblers are used for host and target machines. 7+7

6. (a) Write a subroutine that checks the contents of accumulator. If it is a negative number, the subroutine finds a two's complement of a number and stores it in the same location and returns.
- (b) Write down salient features of AVR8515 microcontroller.
- (c) Explain LCD interfacing with 8051 microcontroller.  $5+4+5$
7. Write short notes on any *two* of the following :  $2 \times 7 = 14$
- (a) IoT
- (b) Ethernet
- (c) I2C Bus
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