

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)****Term-End Examination****December, 2015****BICSE-001 : EMBEDDED SYSTEM***Time : 3 hours**Maximum Marks : 70*

Note : Answer any **seven** questions. All questions carry equal marks.

1. (a) Discuss the role of timers in an embedded system. 5
- (b) Explain the data transfer using direct memory access in an embedded system. 5
2. (a) Explain the features of USB and CAN buses. 5
- (b) (i) Differentiate between RISC and CISC. 2
- (ii) List the basic process scheduling states. 3
3. (a) How does an embedded system differ from other computing systems ? What are the challenges in designing such a system ? 6
- (b) Give two examples of embedded systems and illustrate any one of them. 4

4. (a) In what respect does a real time operating system differ from conventional operating systems, such as Windows or UNIX ? 5
- (b) What problem might occur in a shared memory process ? How can you overcome that problem ? Illustrate your answer with an example. 5
5. (a) State the scheduling algorithms of RTOS and describe the concept of Round-Robin scheduling. 6
- (b) Describe the need of RTOS in an embedded system and state any two specifications of RTOS. 4
6. (a) Write the steps carried out by a microcontroller on the activation of an interrupt. 5
- (b) Compare the advantages and disadvantages of data transfer using serial and parallel ports. 5
7. Explain the use of various software tools for the development of an embedded system. 10
8. (a) What is the advantage of running a processor at reduced clock speed in certain sections of instruction and at full speed in other sections of instruction ? 6
- (b) Why does a processor system always need an interrupt handler ? 4

9. (a) What are the advantages and disadvantages of disabling an interrupt during the running of a critical section of a process? 6
- (b) Define semaphore and describe its applications. 4
10. Write short notes on the following :
- (a) Role of RAM in Embedded Systems 5
- (b) Architecture of Microprocessor 5
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