No. of Printed Pages : 3

BICSE-001

B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

00943

December, 2016

BICSE-001 : EMBEDDED SYSTEM

Time : 3 hours *Maximum Marks : 70*

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

1. (a) What is an Embedded System ? Explain the role of timers in an Embedded System. *5*

(b) Show and explain the interfacing of system buses between the processor, memory and I/O device. *5*

2. (a) Explain the real-time operating system architecture and its advantages. *5*

(b) Draw a diagram showing the three task states in an RTOS environment. *5*

3. (a) Compare semaphores, events and queues for implanting inter-task communication with an example. 5

(b) Compare binary semaphores, mutex and counter semaphores. 5

4. (a) Explain memory management in RTOS. 5

(b) Why do we need timer functions in RTOS ? Briefly discuss how they are provided. 5

5. Write short notes on the following : 10

(a) CISC vs RISC

(b) Architecture of Microprocessors

(c) Hard Time Scheduling Consideration

6. (a) Describe different development processes of an embedded system. 5

(b) Explain in brief various software tools for the development of an embedded system. 5

7. State the scheduling algorithms of RTOS and describe the concept of Round-Robin scheduling. 10

8. Explain how scheduling takes place in preemptive scheduling algorithm. Compare it with non-preemptive scheduling. 10

9. Compare the features in an exemplary family chip on core of each of the following : *10*

(a) Microprocessor

(b) Microcontroller

(c) Digital Signal Processor

10. (a) Explain the role played by PROM programmer, In-circuit emulator and ROM emulator in the embedded system development cycle. *5*

(b) Write notes on any ***two*** of the following : *5*

(i) Hard real-time systems

(ii) Soft real-time systems

(iii) Time-slicing

(iv) Encapsulation