Seventh Semester B.Tech. Degree Examination, October 2018  
(2013 Scheme)  
13.706.3 : EMBEDDED SYSTEMS (AT) (Elective – IV) 

Time : 3 Hours 

Max. Marks : 100

PART – A

Answer all questions. Each question carries 2 marks.

1. Distinguish between embedded system and general purpose system.
2. List any two challenges in embedded system design.
3. Explain the merits and demerits of SRAM and DRAM.
4. What is the difference between EPROM and EEPROM?
5. What is meant by a kernel?
6. What is hard real-time system?
7. What is meant by pipe?
8. What is the difference between ‘deadlock’ and ‘racing’?
9. What is the difference between synchronous and asynchronous communication?
10. What is the difference between ‘Cross-Assembler’ and ‘Cross-Compiler’?

PART – B 
Module – I

Answer any one full questions from each Module:

11. With a neat block diagram, explain the architecture of PIC controller.

OR

12. Explain the components of a typical embedded system.
Module – II

13. Explain the following:
   i) I²C bus  ii) CAN bus  iii) USB  iv) PCI bus.
   OR

14. a) What is the concept of DMA? Draw the block diagram of a system with a DMA controller with buses and control signals in-between.
   b) Explain the following peripheral devices:
      i) RTC  ii) Timer/Counter.

Module – III

15. a) Explain the following terms:
      i) Process  ii) Task  iii) Threads.
      b) What is semaphore? What are the different types of semaphores?
         OR

16. a) Explain any two types of scheduling algorithms used for process scheduling.
      b) Explain the following terms related to message passing:
         i) Mailbox  ii) Signalling.

Module – IV

17. Explain a detailed case study on designing a telephone answering machine.
   OR

18. a) Explain the following:
      b) Explain the high level to machine language conversion process.