Seventh Semester B.Tech. Degree Examination, July 2019
(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. What are the typical features of an embedded processor?
2. Draw the register structure of an ARM processor.
3. What are the different types of RAM used for Embedded System Design?
4. What is DMA?
5. What is Counting semaphore?
6. What are the functions of a kernel in Linux Operating System?
7. What is the function of a 'linker'?
8. What is the function of a loader?
9. What is meant by asynchronous communication?
10. What is the function of an emulator?

(10 × 2 = 20 Marks)

P.T.O.
PART – B

Module – I

11. With a neat block diagram, explain the architecture of ARM processor. 20

   OR

12. With a neat block diagram, explain the architecture of PIC controller. 20

Module – II

13. (a) Explain the following buses

   (i) ISA bus
   (ii) PCI bus  10

   (b) Explain the various types of memory used in an embedded system. 10

   OR

14. Explain how the following peripherals of a microcontroller work.

   (a) ADC  6
   (b) TIMER/COUNTER  7
   (c) RTC  7

Module – III

15. (a) Distinguish between hard real-time and soft real-time system with example for each. 10

   (b) Explain the Linux OS features. 10

   OR

16. Explain how the inter process communication and synchronization is done in systems. 20
Module – IV

17. Explain a detailed case study on designing a Software modem.  20

OR

18. (a) Explain about JTAG based boundary scan for hardware testing.  10

(b) Distinguish between verification and validation of software.  5

(c) What is the difference between testing and debugging?  5