

B.TECH. DEGREE EXAMINATION, MAY 2015**Seventh Semester**

Branch : Electronics and Communication Engineering

EC 010 705—EMBEDDED SYSTEMS (EC)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 3 marks.*

1. Define an embedded system. Write a block diagram showing different units of the same.
2. Mention the advantages of writing embedded firmware in C.
3. What is bus arbitration ? Explain how bus arbitration is done in CAN.
4. Mention the use of watch dog timer in embedded systems.
5. Differentiate between counting semaphore and binary semaphore with an example.

(5 × 3 = 15 marks)

Part B*Answer all questions.**Each question carries 5 marks.*

6. Explain characteristics of embedded systems used bio-medical applications.
7. What is code optimization ? Explain any common method to optimize the code.
8. Write 8051 C program to transmit a string "Examination" serially through 8051 UART at 4800 baud.
9. Explain how the speed of DC motor is controlled using L293 motor driver IC.
10. Differentiate between process, task and threads with examples.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each question carries 12 marks.*

11. Mention the advantages of developing embedded system on SoC. Give an example for SoC embedded system with diagram.

(12 marks)

Or

Turn over

12. (a) Give detailed classification of embedded system. (6 marks)
(b) Write short notes on Processors in complex embedded systems. (6 marks)
13. (a) Illustrate different elements embedded C program with an example. (6 marks)
(b) Explain different activities in embedded system development process. (6 marks)

Or

14. Briefly explain embedded software development environment. (12 marks)
15. With timing diagram, explain how data transmitted between master and slave in I2C. Write diagram to show the connection between master and slave using I2C signals. (12 marks)

Or

16. (a) Write frame format of CAN. Explain different fields in the same. (8 marks)
(b) Write short notes on timer and counting devices. (4 marks)
17. (a) Describe different activities to be followed to interface ADC. (6 marks)
(b) With C program explain stepper motor interfacing. (6 marks)

Or

18. (a) With block diagram, explain interfacing of DAC. (6 marks)
(b) With block diagram, explain parallel port interfacing with LCD controller. (6 marks)
19. (a) With state transition diagram, explain different states of a task. (6 marks)
(b) What is the use of Pipe ? Describe the use of pipes in multi-tasking applications. (6 marks)

Or

20. (a) What is the use of message queue? Describe the use of message queues in multi-tasking applications. (6 marks)
(b) Write short notes on interrupt routines in RTOS environment. (6 marks)

[5 × 12 = 60 marks]