Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 86577

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electronics and Communication Engineering

EC 1316 – EMBEDDED SYSTEMS

(Regulations 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Write the real time constraints of embedded systems.

2. Mention the major hardware components used for the design of an embedded system.

3. Give a brief comment on the features of I^2C Bus.

4. Specify the special applications scope of CAN.

5. Define Macro.

6. Why higher level languages are portable?

7. Mention the goals of RTOS.

8. What is a virtual socket? Give the specifications for virtual socket.

9. What are RTOS system level functions? Give examples.

10. Mention the problems related with Memory allocation in RTOS.

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) With an example, explain the classification of embedded systems. (8)

(ii) Discuss the design possibilities of embedded systems on a chip. (8)

Or

(b) (i) Describe the important features of exemplary embedded systems. (10)

(ii) Discuss the concepts and types of software embedding into the system. (6)

12. (a) (i) Explain the design and functions of UART. (8)

(ii) Describe the specifications and use of advanced buses used in embedded systems. (8)

Or

(b) (i) Discuss the need and functions of counting devices used in embedded systems. (8)

(ii) Write the details of I^2 and CAN buses. (8)

13. (a) (i) Compare and contrast the characteristics of assembly language programming and high level language program. (9)

(ii) Discuss the requirements and functions of cross compilers. (7)

Or

(b) (i) With an example explain the use of nested function calls. (8)

(ii) Explain the design details and role of any two interrupt service routines. (8)

14. (a) (i) Explain the RTOS services related to handle file system and interrupt routines. (10)

(ii) Describe how the performance of task scheduling algorithm is evaluated. (6)

Or

(b) Discuss in detail the use of semaphore, message queues and mail boxes with suitable examples. (16)

15. (a) Describe the design details and features of Micro C Real Time Operating System. (16)

Or

(b) For a car cruise control, design an RTOS and analyse its performance for better driver assistance. (16)

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