

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022

Seventh Semester

Electronics and Communication Engineering

EC8791 - EMBEDDED AND REAL TIME SYSTEMS

(Regulations 2017)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,</i>
<i>K-Level, CO</i> |
|--|-------------------------------------|
| 1. Distinguish between requirements and specifications. | 2,K2,CO1 |
| 2. Draw the block diagram of a generic consumer electronic device. | 2,K1,CO1 |
| 3. Why stack is used in the processor architecture? | 2,K1,CO2 |
| 4. List some of the features of the LPC214X family processors. | 2,K1,CO2 |
| 5. What is a symbol table? | 2,K1,CO3 |
| 6. Point out any four ways to optimize a program size. | 2,K2,CO3 |
| 7. Differentiate general purpose and real time operating system. | 2,K2,CO4 |
| 8. Describe scheduling. | 2,K1,CO4 |
| 9. State the formula for CPU utilization. | 2,K1,CO5 |
| 10. Compare rate and period. | 2,K2,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

- | | |
|--|-----------|
| 11. a) Explain the Quality assurance techniques in detail. | 13,K2,CO1 |
| OR | |
| b) Explain in detail about any two computing platforms for embedded system design. | 13,K2,CO1 |
| 12. a) Explain the instruction set of ARM processor with examples. | 13,K2,CO3 |
| OR | |
| b) With neat diagrams, explain ARM9 MCU. | 13,K2,CO3 |
| 13. a) Explain the compilation techniques in detail. | 13,K2,CO4 |

OR

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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b) How to measure the energy consumption for a piece of code and analyze the ways to optimize power. 13,K2,CO4

14. a) Discuss the structure of a real time system in detail. 13,K2,CO5

OR

b) With necessary diagrams, explain the different task assignment methods and scheduling in detail. 13,K2,CO5

15. a) Explain the inter process communication mechanisms between the processes. 13,K2,CO6

OR

b) Explain the working of a Engine control unit. 13,K2,CO6

PART - C (1 × 15 = 15 Marks)

16. a) Explain various design flow models. 15,K2,CO2

OR

b) Explain the requirement of designing a GPS in embedded system design process. 15,K2,CO2