

12 JUN 2023

Reg. No.

Question Paper Code

11858

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Sixth Semester

Electronics and Instrumentation Engineering

(Common to Instrumentation and Control Engineering)

20EIPC602 – EMBEDDED SYSTEMS

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|--|-------------------------------|
| 1. List the characteristics of an embedded system. | 2,K1,CO1 |
| 2. What is the need for memory management in Embedded Systems? | 2,K1,CO1 |
| 3. State the advantages & disadvantages of UART. | 2,K1,CO2 |
| 4. What is the network's importance in an embedded system? | 2,K1,CO2 |
| 5. What are the goals of design process? | 2,K1,CO3 |
| 6. Give an example of Object Oriented data model. | 2,K1,CO3 |
| 7. What is priority inheritance? | 2,K1,CO4 |
| 8. Differentiate counting semaphore and binary semaphore. | 2,K2,CO4 |
| 9. Sketch the different network topologies. | 2,K2,CO5 |
| 10. What are the common built-in data types in Python? | 2,K1,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

- | | |
|---|-----------|
| 11. a) Explain the need for memory management .Discuss in detail about the different memory management methods. | 13,K2,CO1 |
| OR | |
| b) Explain the processor selection for an embedded system with the help of an example. | 13,K2,CO1 |
| 12. a) What is OSI standard and explain its layers in detail. | 13,K2,CO2 |
| OR | |
| b) Explain in detail about SPI communication protocol and its interfacing techniques. | 13,K2,CO2 |
| 13. a) Explain in detail about Waterfall model. Also mention how it is different from other models. | 13,K2,CO3 |
| OR | |
| b) Enumerate state machine model for the seat belt alarm system. | 13,K2,CO3 |

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

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14. a) Discuss about preemptive and non-preemptive multitasking. 13,K2,CO4
OR
b) (i) What is dead lock? Explain the deadlock situation with an example. 7,K2,CO4
(ii) Explain Round-Robin scheduling algorithm. 6,K2,CO4
15. a) What are different layers of the IoT protocol stack? Also explain each layer in detail. 13,K2,CO5
OR
b) Explain in detail about application of IOT in Smart home automation. 13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) (i) Explain in detail about context switching. 7,K2,CO4
(ii) Discuss on Security and privacy risk in IOT applications. 8,K2,CO5
OR
b) (i) What is shared data problem? How to prevent shared data problem? Explain with an example. 7,K2,CO4
(ii) Explain about Raspberry Pi in detail. 8,K2,CO5