



**M.E DEGREE EXAMINATIONS: APRIL/MAY 2024**

(Regulation 2018)

Second Semester

**EMEDDED SYSTEM TECHNOLOGIES**

P18EST2001: Real Time Operating Systems

**COURSE OUTCOMES**

**CO1:** Familiarize with key Real-Time Operating System terms and concepts.

**CO2:** Comprehend and use tools to build an embedded real-time system.

**CO3:** Design and implement a simple embedded system.

**CO4:** Understand the concepts of various RTOS for Embedded system.

**CO5:** Apply RTOS concepts to design for real time application.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Operating System CO1 [K<sub>1</sub>]
  - a) Corrupts the various application programs. b) Won't coordinate the use of resources among various application programs.
  - c) Controls and coordinates the use of resources among various application programs. d) Is an application programs.
  
2. Multitasking OS CO1 [K<sub>2</sub>]
  - a) Presence of multiple programs for execution. And secondly the concept of time-sharing. b) Presence of multiple programs for execution.
  - c) The concept of time-sharing. d) Single task program.
  
3. In distributed system, each processor has its own CO2 [K<sub>3</sub>]
  - a) Local memory b) Both local memory and clock
  - c) Clock d) Both are not used



9. Choose the best example of Digital Image Processing CO5 [K<sub>3</sub>]
- a) Computer Graphics b) CAD  
 c) Mobile Phone d) Object detector
10. Operating system is placed in, CO5 [K<sub>2</sub>]
- a) Either low or high memory b) Low memory  
 c) High memory d) Cache Memory

**PART B (10 x 2 = 20 Marks)**

11. What is OS Review? CO1 [K<sub>1</sub>]
12. List out some of the Operating Systems. CO1 [K<sub>2</sub>]
13. Classify the objectives of networks in distributed operating system. CO2 [K<sub>2</sub>]
14. How the nodes are called with various names? CO2 [K<sub>1</sub>]
15. Define: Real-time Model CO3 [K<sub>1</sub>]
16. Write briefly about the real time languages used in OS. CO3 [K<sub>2</sub>]
17. Define: Real-time Kernel. CO4 [K<sub>1</sub>]
18. What are the design issues of real time kernel in OS? CO4 [K<sub>1</sub>]
19. Recommend some RTOS application domains. CO5 [K<sub>2</sub>]
20. Identify some uses of RTOS for Image Processing. CO5 [K<sub>2</sub>]

**PART C (6 x 5 = 30 Marks)**

21. Identify and brief about the features of OS. CO1 [K<sub>2</sub>]
22. Classify in detail about Design strategies in distributed OS. CO2 [K<sub>3</sub>]
23. Explain about event based programming languages. CO3 [K<sub>2</sub>]
24. Explain briefly how to RTOS Porting to a Target? CO4 [K<sub>2</sub>]
25. Explain briefly about VX works OS. CO4 [K<sub>2</sub>]

26. Explain about Embedded RTOS for voice over IP. CO5 [K<sub>2</sub>]

**Answer any FOUR Questions**  
**PART D (4 x 10 = 40 Marks)**

27. Recall the details of OS structures in detail. CO1 [K<sub>1</sub>]

28. Explain in detail about RPC. CO2 [K<sub>2</sub>]

29. Discuss in detail about RTOS Tasks. CO3 [K<sub>2</sub>]

30. Discuss about polled loop systems in real time kernel OS. CO4 [K<sub>3</sub>]

31. Contrast briefly about RTOS for Control Systems with illustrations. CO5 [K<sub>3</sub>]

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