SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : RTOS (16EC5506) **Branch & Specialization**: ECE & ES,VLSI

Year & Sem: I-M.Tech & II-Sem

UNIT –I

OPERATING SYSTEMS

1. Write a short note about [6+6M]
   a) Time services b) Scheduling Mechanisms

2. a) Explain the overview of Threads and Tasks. [6M]
   b) Draw the structure of Micro kernel and explain in brief. [6M]

3. a) Discuss in brief about the Interrupt services. [5M]
   b) Mention the Importance of Memory management [7M]

4. Discuss the Communication and Synchronization issues. [12M]

5. a) Describe the Threads and Tasks functionality [8M]
   b) Name some of the Scheduling mechanisms with an example. [4M]

6. Discuss how kernel plays an important role in the Operating systems [12M]

7. Write a short note about [6+6M]
   a) Message Queue b) Message Priority Inheritance

8. Describe the Capabilities of commercial real time operating systems [12M]

9. a) Name the Features Real time operating Systems. [5M]
   b) Define an Operating system? Specify the comparisons between General and Real time [7M]

10. Write in brief about I/O and Networking functionalities? [12M]

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UNIT-II

Introduction to UNIX

1. Write the function of the following: [12M]
   i) Iseek ii) Vfork iii) waitpid iv) pend v) fwrite vi) OS Sempost
2. Illustrate three examples for specifying hard time constraints [12M]
3. Explain in brief about that overview of Commands [12M]
4. a) Explain the Process control phenomenon based on different UNIX commands [8M]
   b) What is meant by semaphore? Mention few advantages of shared memory. [4M]
5. a) Explain the salient features of Semaphore [7M]
   b) Write in brief about that Message Queues [5M]
6. Discuss in brief about Pipes [12M]
   i) popen ii) pclose
7. Write a short note about FIFOs with any related example [12M]
8. What is meant by File sharing? Explain that with suitable example [12M]
9. Discuss the following [12M]
   i) creat ii) open iii) close
10. a) Explain what is Shared memory concept [12M]
    b) Write about lseek, Read, write functions

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UNIT –III

REAL TIME SYSTEMS

1. a) Differentiate hard vs soft real time systems [5M]
   b) Illustrate resource parameters of Jobs and Parameters of resources in real time systems [7M]
2. a) what are different temporal parameters of real time systems during workload? [6M]
   b) With a neat sketch, explain periodic task model of real time systems [6M]
3. a) What is RTOS? Give one practical example where RTOS is used? [7M]
   b) Briefly describe the Hard real time systems [5M]
4. a) Define: i) Soft real time systems ii) Validation iii) Statistical constraints. [6M]
   b) What are the Data types used in real time systems? How concurrency is supported [6M]
5. a) Write about the Periodic task model [6M]
   b) Discuss about task and task states in Real time operating systems [6M]
6. Explain in brief about Scheduling Hierarchy ? [12M]
7. a) Discuss in brief about that Hard and Soft timing constraints [6M]
   b) What is meant by Release times, Deadlines and Timing Constraints? [6M]
8. Write a Short note about that Processors and Resources? [12M]
9. a) Specify Precedence graph and Task graph [7M]
   b) Write a few words about Data Dependency [5M]
10. Elaborately explain the Resource parameters of job and parameters of resources [12M]

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UNIT –IV

APPROACHES TO REAL TIME SCHEDULING

1.	a) How effective release times and deadlines are useful in real time scheduling?	[6M]
	b) Write a short note on Clock driven, weighted round robin and priority driven.	[6M]
2.	a) Explain Schedule mechanism of real time operating systems.	[6M]
	b) What is meant by time services? How those are helpful in operating function?	[6M]
3.	a) Explain Fault causes and different fault types in RTOS	[7M]
	b) Describe Redundancy in terms of hardware, software and time management.	[5M]
4.	a) Define task and explain with diagram all the five states of a task	[4M]
	b) Briefly explain priority driven approach and weighted round robin approach.	[8M]
5.	Define Software redundancy, time redundancy and Information redundancy	[12M]
6.	a) Describe Hardware and software interrupt priorities.	[6M]
	b) Write short note on Precedence constraints and data dependency	[6M]
7.	a) Explain about the Round robin Scheduling algorithms?	[7M]
	b) Differentiate weighted round robin and priority driven approaches	[5M]
8.	Compare and Contrast the offline and online scheduling?	[12M]
9.	a) Explain Offline and online schedule policies	[6M]
	b) Explain Transaction processing in real time systems, Lay emphasis on priority	[6M]
10.	a) Explain Memory management in RTOS environment	[7M]
	b) Write the Salient features of Pre emptive Priority	[5M]

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UNIT –V

CASE STUDIES-VX WORKS

1.	Distinguish between the features of MUCOS and vx works RTOS	[12M]
2.	a) Write a note on integrated failure handling	[6M]
	b) Explain in brief about that Memory management	[6M]
3.	a) With suitable example explain about pre emptive scheduling in VX works	[5M]
	b) Explain the significance of context switches in an I/O system	[7M]
4.	a) Compare Process, Scheduling and Interrupt Managements in RT Linux	[6M]
	b) With a neat block diagram explain process management in RT Linux	[6M]
5.	a) For task Priority function define 3 options on spawning	[4M]
	b) Describe memory related functions of MUCOS	[8M]
6.	a) Explain how process management will be done in RT Linux	[8M]
	b) Explain the Salient features of Semaphore	[4M]
7.	a) Compare Process, Scheduling and Interrupt Managements in RT Linux	[6M]
	b) With a neat block diagram explain process management in RT Linux	[6M]
8.	Write in short about State Transition diagram	[12M]
9.	a) Write a note on integrated failure handling	[5M]
	b) Explain in brief about that Memory management	[7M]
10.	a) For task Priority function define 3 options on spawning	[6M]
	b) Describe memory related functions of MUCOS	[6M]

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