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

QUESTION BANK (DESCRIPTIVE)

Subject with Code :RTOS(19EC4104) **Branch & Specialization**: ES

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

UNIT –I

OPERATING SYSTEMS

1. Write a short note about [6+6M]
   a) Timeservices b) SchedulingMechanisms

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

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

4. Discuss the Communication andSynchronizationissues. [12M]

5. a) Describe the Threads and Tasks functionality [8M]
   b) NamesomeoftheSchedulingmechanismswithanexample. [4M]

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

7. Write a short note about [6+6M]
   a)MessageQueue b) Message PriorityInheritance

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

9. a) Name the Features Real time operatingSystems. [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 ofthefollowing: [12M]
   i) Iseek ii) Vfork iii) waitpid iv) pend v) fwrite vi) OSSempost
2. Illustrate three examples for specifying hard timeconstraints [12M]
3. Explain in brief about that overviewofCommands [12M]
4. a) Explain the Process control phenomenon basedon different UNIXcommands [8M]
   b) What is meant by semaphore? Mention few advantages ofsharedmemory. [4M]
5. a) Explain the salient featuresofSemaphore [7M]
   b) Write in brief about that MessageQueues [5M]
6. Discuss in briefaboutPipes [12M]
   i) popen ii) pclose
7. Write a short note about FIFOs with any relatedexample [12M]
8. What is meant by File sharing? Explain that with suitableexample [12M]
9. Discussbrief about inter process communication? [12M]
10. a) Explain what is Sharedmemoryconcept [12M]
    b) Write about lseek, Read, write functions

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UNIT –III

REAL TIME SYSTEMS

1. a) Differentiate hard vssoft 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 systemsduringworkload? [6M]
   b) Withaneatsketch,explainperiodictaskmodelofrealtimesystems [6M]
3. a)WhatisRTOS?GiveonepracticalexamplewhereRTOSisused? [7M]
   b) Briefly describe the Hard real timesystems [5M]
4. a) Define: i) Soft real time systems ii) Validation iii)Statistical constraints. [6M]
   b) WhataretheDatatypesusedinrealtimesystems?Howconcurrencyissupported [6M]
5. a) Write about the Periodic taskmodel [6M]
   b) Discuss about task and task states in Real timeoperatingsystems [6M]
6. Explain in brief about Scheduling Hierarchy? [12M]
7. a) Discuss in brief about that Hard andSoft timingconstraints [6M]
   b) What is meant by Release times, Deadlines andTimingConstraints? [6M]
8. WriteaShortnoteaboutthatProcessorsandResources? [12M]
9. a) Specify Precedence graph andTaskgraph [7M]
   b) Write a few words about DataDependency [5M]
10. Elaborately explain the Resource parameters of job and parametersofresources [12M]

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UNIT –IV

APPROACHES TO REAL TIME SCHEDULING

1.	a)Howeffectivereleasetimesanddeadlinesareusefulinrealtimescheduling?	[6M]
	b) Write a short note on Clock driven, weighted round robin and priority driven.	[6M]
2.	a)ExplainSchedulemechanismofrealtimeoperatingsystems.	[6M]
	b) What is meant by time services? How those are helpful in operatingfunction?	[6M]
3.	a) Explain Fault causes and different fault typesinRTOS	[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 atask	[4M]
	b) Briefly explain priority driven approach and weighted roundrobinapproach.	[8M]
5.	DefineSoftwareredundancy,timeredundancyandInformationredundancy	[12M]
6.	a) Describe Hardware and software interrupt priorities.	[6M]
	b) Write short note on Precedence constraints anddatadependency	[6M]
7.	a) Explain about the Round robin scheduling algorithms?	[7M]
	b) Differentiate weighted roundrobin and priority drivenapproaches	[5M]
8.	Compare and Contrast the offline and online scheduling?	[12M]
9.	a) Explain Offline and onlineschedulepolicies	[6M]
	b) Explain Transaction processing in real time systems, Lay emphasisonpriority	[6M]
10.	a) Explain Memory management inRTOSenvironment	[7M]
	b) Write the Salient features of Preemptive Priority	[5M]

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UNIT –V

CASE STUDIES-VX WORKS

1.	Distinguish between the features of MUCOS and vxworks RTOS	[12M]
2.	a) Write a note on integrated failurehandling	[6M]
	b) Explain in brief about thatMemorymanagement	[6M]
3.	a) With suitable example explain about pre emptive scheduling in VXworks	[5M]
	b) Explain the significance of context switches in an I/Osystem	[7M]
4.	a) Compare Process, Scheduling and Interrupt Managements inRTLinux	[6M]
	b) WithaneatblockdiagramexplainprocessmanagementinRTLinux	[6M]
5.	a)FortaskPriorityfunctiondefine3optionsonspawning	[4M]
	b) Describe memory related functionsofMUCOS	[8M]
6.	a) Explain how process management will be done inRTLinux	[8M]
	b) Explain the Salient featuresofSemaphore	[4M]
7.	a) Compare Process, Scheduling and Interrupt Managements inRTLinux	[6M]
	b) With a neat block diagram explain process management inRTLinux	[6M]
8.	Write in short about StateTransitiondiagram	[12M]
9.	a) Write a note on integrated failurehandling	[5M]
	b) Explain in brief about that Memorymanagement	[7M]
10.	a)FortaskPriorityfunctiondefine3optionsonspawning	[6M]
	b) Describe memory related functionsofMUCOS	[6M]

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