SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583
QUESTION BANK (DESCRIPTIVE)

Subject with Code: RTOS (20EC4104)

Course & Branch: M.Tech-VLSI

Regulation: R20   **Year & Sem:** I-M.Tech & II-Sem

UNIT –I
OPERATING SYSTEMS

1	Write a short note about a)Time services b) Scheduling Mechanisms	[L1][CO1]	**[12M]**
2	a)	Name the features Real time operating system.	[L1][CO1]	**[5M]**
	b)	Define an operating system? Specify the comparisons between General and Real time systems	[L1][CO1]	**[7M]**
3	a)	Discuss in brief about the Interrupt services.	[L1][CO1]	**[5M]**
	b)	Mention the Importance of Memory management.	[L2][CO1]	**[7M]**
4	a)	What is the need for real time system? Explain with examples.	[L2][CO1]	**[6M]**
	b)	What are the specific requirements in real time system?	[L2][CO1]	**[6M]**
5	Write a short notes on a) reactive system b) time driven c)Deadline driven Real time systems	[L2][CO1]	**[12M]**
6	Explaining the various application areas of real time system with example.	[L4][CO1]	**[12M]**
7	Describe the overview of design process of embedded system a) Message Queue b) Message Priority Inheritance	[L2][CO1]	**[12M]**
8	Explain detail about the typical issues in Real time computing.	[L1][CO1]	**[12M]**
9	Explain in detail about the basic functions in real time computing.	[L2][CO1]	**[12M]**
10	Describe the modeling/verifying design tools in real time operating system.	[L2][CO1]	**[12M]**

UNIT –II
Introduction to UNIX

1	Write the function of the following: i)Lseek ii) Vfork iii) waitpid iv) Close v) wait vi) Exit		[L1][CO2]	[12M]
2	Illustrate three examples for specifying hard time constraints.		[L2][CO2]	[12M]
3	Explain in brief about that overview of Commands in process.		[L2][CO2]	[12M]
4	a)	Explain the Process control phenomenon based on different UNIX commands.	[L2][CO2]	[8M]
	b)	What is meant by semaphore? Mention few advantages of shared memory.	[L2][CO2]	[4M]
5	a)	Explain the salient features of Semaphore.	[L1][CO2]	[7M]
	b)	Write in brief about that Message Queues.	[L1][CO2]	[5M]

6		Discuss in brief about Pipes. i) popen ii) pclose	[L1][CO1]	**[12M]**
7		Write a short note about FIFOs with any related example.	[L1][CO2]	**[12M]**
8		What is meant by File sharing? Explain that with suitable example.	[L1][CO2]	**[12M]**
9		Discuss brief about inter process communication.	[L1][CO2]	**[12M]**
10	a)	Explain what is Shared memory concept.	[L2][CO2]	**[6M]**
	b)	Write about lseek, Read, write functions. .	[L1][CO2]	**[6M]**

UNIT –III

REAL TIME SYSTEMS

1	a)	Differentiate hard vs soft real time systems	[L2][CO3]	**[5M]**
	b)	Illustrate resource parameters of Jobs and Parameters of resources in real time systems.	[L3][CO3]	**[7M]**
2	a)	What are different temporal parameters of real time systems during workload?	[L2][CO3]	**[6M]**
	b)	With a neat sketch, explain periodic task model of real time systems.	[L1][CO3]	**[6M]**
3	a)	What is RTOS? Give one practical example where RTOS is used?	[L1][CO3]	**[7M]**
	b)	Briefly describe the Hard real time systems.	[L2][CO3]	**[5M]**
4	a)	Define: i) Soft real time systems ii) Validation iii) Statistical constraints	[L1][CO3]	**[6M]**
	b)	What are the Data types used in real time systems?	[L3][CO3]	**[6M]**
5	a)	Write about the Periodic task model.	[L2][CO3]	**[6M]**
	b)	Discuss about task and task states in Real time operating systems.	[L2][CO3]	**[6M]**
6		Explain in brief about Scheduling Hierarchy?	[L2][CO3]	**[12M]**
7	a)	Discuss in brief about that Hard and Soft timing constraints.	[L3][CO3]	**[6M]**
	b)	What is meant by Release times, Deadlines and Timing Constraints?	[L1][CO3]	**[6M]**
8		Write a Short note about that Processors and Resources?	[L2][CO3]	**[12M]**
9	a)	Specify Precedence graph and Task graph.	[L2][CO3]	**[7M]**
	b)	Write a few words about Data Dependency.	[L1][CO3]	**[5M]**
10		Elaborately explain the Resource parameters of job and parameters of resources.	[L3][CO3]	**[12M]**

UNIT –IV

APPROACHES TO REAL TIME SCHEDULING

1	a)	How effective release times and deadlines are useful in real time scheduling?	[L2][CO4]	**[6M]**
	b)	Write a short note on Clock driven, weighted round robin and priority driven.	[L1][CO4]	**[6M]**
2	a)	Explain Schedule mechanism of real time operating systems.	[L2][CO4]	**[6M]**

	b)	What is meant by time services? How those are helpful in operating function?	[L1][CO4]	**[6M]**
3	a)	Explain Fault causes and different fault types in RTOS.	[L3][CO4]	**[7M]**
	b)	Describe Redundancy in terms of hardware, software and time management.	[L2][CO4]	**[5M]**
4	a)	Define task and explain with diagram all the five states of a task.	[L1][CO4]	**[4M]**
	b)	Briefly explain priority driven approach and weighted round robin approach.	[L2][CO4]	**[8M]**
5	Define Software redundancy, time redundancy and Information redundancy.		[L2][CO4]	**[12M]**
6	a)	Describe Hardware and software interrupt priorities.	[L3][CO4]	**[6M]**
	b)	Write short note on Precedence constraints and data dependency.	[L2][CO4]	**[6M]**
7	a)	Explain about the Round robin Scheduling algorithms?	[L2][CO4]	**[7M]**
	b)	Differentiate weighted round robin and priority driven approaches	[L2][CO4]	**[5M]**
8	Compare and Contrast the offline and online scheduling?		[L1][CO4]	**[12M]**
9	a)	Explain Offline and online schedule policies.	[L2][CO4]	**[6M]**
	b)	Explain Transaction processing in real time systems, Lay emphasis on priority.	[L2][CO4]	**[6M]**
10	a)	Explain Memory management in RTOS environment.	[L2][CO4]	**[7M]**
	b)	Write the Salient features of Pre emptive Priority.	[L1][CO4]	**[5M]**

UNIT –V

CASE STUDIES-VX WORKS

1	Distinguish between the features of MUCOS and vx works RTOS.		[L3][CO5]	**[12M]**
2	a)	Write a note on integrated failure handling.	[L1][CO5]	**[6M]**
	b)	Explain in brief about that Memory management.	[L2][CO5]	**[6M]**
3	a)	With suitable example explain about pre emptive scheduling in VX works.	[L4][CO5]	**[7M]**
	b)	Explain the significance of context switches in an I/O system.	[L2][CO5]	**[5M]**
4	a)	Compare Process, Scheduling and Interrupt Managements in RT Linux.	[L3][CO5]	**[6M]**
	b)	With a neat block diagram explain process management in RT Linux.	[L2][CO5]	**[6M]**
5	a)	Explain the task Priority function 3 options on spawning.	[L2][CO5]	**[4M]**
	b)	Describe memory related functions of MUCOS.	[L3][CO5]	**[8M]**
6	a)	Explain how process management will be done in RT Linux.	[L2][CO5]	**[8M]**
	b)	Explain the Salient features of Semaphore.	[L3][CO5]	**[4M]**
7	a)	Compare Process, Scheduling and Interrupt Managements in RT Linux.	[L2][CO5]	**[6M]**
	b)	With a neat block diagram explain process management in RT Linux	[L2][CO5]	**[6M]**
8	Write in short about State Transition diagram.		[L1][CO5]	**[12M]**
9	a)	Write a note on integrated failure handling.	[L1][CO5]	**[5M]**
	b)	Explain in brief about that Memory management.	[L2][CO5]	**[7M]**
10	a)	Explain the task Priority function 3 options on spawning.	[L2][CO5]	**[6M]**
	b)	Describe memory related functions of MUCOS.	[L2][CO5]	**[6M]**

Prepared by: Dr.R.Premkumar