INSTITUTE OF AERONAUTICAL ENGINEERING

(AUTONOMOUS)

Dundigal, Hyderabad -500 043

INFORMATION TECHNOLOGY

ASSIGNMENT

Course Name	:	**OPERATING SYSTEMS**
Course Code	:	A50510
Class	:	III B. Tech I Semester
Branch	:	Information Technology
Year	:	2016 – 2017
Course Faculty	:	Mrs.B.Dhanalaxmi, Assistant Professor, IT

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

S. No.	Question	Blooms Taxonomy Level	Course Outcome
	UNIT - I		
1.	**List** and discuss various services provided by the operating system.	Remember	1
2.	**Classify** the modules of the operating system.	Understand	1
3.	**Differentiate** between distributed systems and multiprocessor system	Understand	1
4.	**List** the responsibilities of the Operating system in connection with Disk management?	Remember	1
5.	**Differentiate** between tightly coupled systems and loosely coupled systems	Understand	1
6.	**Outline** the three main advantages of multiprocessor system	Understand	1
7.	**What** are the main purposes of Operating Systems?	Remember	1
8.	**Explain** how layered approach of designing an OS is different from	Understand	1

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	microkernel approach.		
9.	**Why** spooling is necessary for batch multiprogramming? Is it needed for time shared system?	Remember	1
10.	**What** is a System call? Explain how a user application invoking the open() system call is handled.	Remember	1
	UNIT - II		
1.	**What** is IPC? Explain two models of IP	Remember	9
2.	**Define** a thread. State the major advantages of having a thread.	Remember	9
3.	**What** is a Scheduler? Explain various types of Schedulers	Remember	3
4.	**Demonstrate** the Critical section problem. List and discuss the three requirements that a solution to the critical section problem must satisfy.	Understand	2
5.	**Explain** the structure of a semaphore, wait and signal to overcome busy waiting.	Remember	5
6.	**Explain** about Critical section problem solving the Dining Philosophers problem using semaphores	Understand	5
7.	**Explain** How to overcome producer consumer problem using semaphores	Remember	5
8.	**Demonstrate** the concept of Monitors	Understand	5
9.	**Outline** the attributes of the process. Describe the typical elements of the process control block.	Understand	9
10.	Assume that the following jobs are to be executed on a single processor system ---------- Job-Id CPU-BurstTime ---------- p 4 q 1 r 8 s 1 t 2 ---------- The jobs are assumed to have arrived at time 0 and in the order p, q, r, s, t. **Calculate** the departure time (completion time) for job p if scheduling is round robin with time slice 1.	Apply	3
	UNIT – III		
1.	**Define** the terms logical address and physical address space	Remember	8
2.	**Explain**: first fit, best fit and worst fit memory allocation strategies	Understand	8
3.	**Explain** the difference between external and internal fragmentation? How to solve fragmentation problem using paging.	Understand	8
4.	**Explain** one page replacement algorithm and list out the advantages of that algorithm.	Understand	8
5.	**Interpret** the hardware support required to support demand paging.	Understand	8
6.	**Compare** the segmented paging scheme with the hash table scheme for handling large address spaces. Under what circumstances one is preferable over the other.	Understand	9
7.	**What** is virtual memory? Explain in detail about the virtual memory with a neat diagram.	Remember	9

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8.	**What** is required to support dynamic memory allocation in contiguous memory allocation?	Remember	9
9.	**Explain** the demand paged memory management in detail with an example.	Understand	8
10.	**Illustrate** dynamic partitioning and fixed partitioning	Understand	8
	UNIT – IV		
1.	**What** do you mean by file management and explain about various access and allocation methods of files in detail.	Remember	7
2.	**What** is file system? Explain file protection and allocation methods.	Remember	7
3.	**List** and discuss the various methods for implementing a directory.	Apply	7
4.	**Explain** about the most common schemes for defining the logical structure of a directory.	Understand	9
5.	**Explain** various methods for the allocation of files.	Understand	7
6.	**Why** disk scheduling is necessary? Explain the different seek optimization techniques.	Remember	7
7.	**Explain** how to choose the best disk scheduling algorithm that increases the performance of disk I/O	Understand	7
8.	**List** various disk storage accessing methods with its merits and demerits	Apply	9
9.	**What** are the various disk performance parameters? Explain briefly.	Remember	9
10.	In disk scheduling algorithms the successive requests are likely to be from the same cylinder". **What** does this simply about the excepted performance of the FCFS and SSTF disk scheduling algorithms	Remember	9
	UNIT – V		
1.	**Define** deadlock and explain four necessary conditions for dead lock to occur.	Remember	9
2.	**Explain** various strategies to deal with deadlocks.	Understand	9
3.	**What** difficulties may arise when a process is rolled back as a result of deadlock? Explain.	Remember	9
4.	**Explain** the Banker's algorithm for dead -lock avoidance.	Understand	9
5.	**Compare** and **contrast** Public key cryptography technique with Conventional cryptography technique	Understand	10
6.	**What** are the advantages of encrypting data stored in the computer system?	Remember	10
7.	**Explain** protection mechanism used for protection	Understand	10
8.	**Outline** why authentication is important for file protection	Understand	10
9.	**List** the merits and demerits of performing file protection checks at the time of file open and at the time of every read and write operation on files containing programs and data.	Apply	10
10.	**Explain** the security features and methods in Window Operating System.	Understand	11

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