Scheme – G

Sample Test Paper -I

Course Name : Computer Engineering Group
Course Code : CO/CD/CM/CW/IF
Semester : Fifth **17512**
Subject Title : Operating System
Marks : 25 Marks **Time : 1 Hour**

Q1. Attempt Any <u>Three</u>: (3*3=9)

a) Differentiate between multiprogramming and multitasking system w.r.t. following points:
   i. Definition
   ii. Diagram
   iii. Throughput.
b) Describe any three operating system services provided for user.
c) Describe any three advantages of third generation operating system
d) Write any three activities of memory management component.

Q2. Attempt any <u>Two</u>: (4*2=8)

a) Describe working of cluster system with suitable diagram
b) Describe working of system call with suitable diagram
c) With suitable diagram explain Process Control Block.

Q3. Attempt any <u>Two</u>: (4*2=8)

a) Differentiate between Long term scheduler and Short term scheduler w.r.t. following points:
   i. Diagram
   ii. Working principle
   iii. frequency of execution
b) Describe working of Layered structure of operating system with diagram.
c) With queuing diagram of process scheduling explain scheduling queues.

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Sample Test Paper -II

Course Name : **Computer Engineering Group**
Course Code : **CO/CD/CM/CW/IF**
Semester : **Fifth** **17512**
Subject Title : **Operating System**
Marks : **25 Marks** **Time : 1 Hour**

Q1. Attempt Any <u>Three</u>: (3*3=9)

a) Draw many to many multithreading model and state its any two advantages
b) State any three benefits of interprocess communication .Give reasons for each.
c) Describe Multilevel queue scheduling with labeled diagram .
d) Define following terms:
   i. Paging
   ii. Segmentation
   iii. page fault

Q2. Attempt any <u>Two</u>: **(4*2=8)**

a) With suitable example describe how to use bit map method for free space management.
b) Describe CPU burst cycle and I/O burst cycle with labeled diagram.
c) Describe critical section problem.

Q3. Attempt any <u>Two</u>: **(4*2=8)**

a) With suitable diagram explain file system of UNIX.
b) Describe working of contiguous file allocation method.
c) Calculate average waiting time with SJF for following table:

Process	Burst time
P1	6
P2	8
P3	7
P4	3

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Sample Question Paper

Course Name : Computer Engineering Group
Course Code : CO/CD/CM/CW/IF
Semester : Fifth **17512**
Subject Title : Operating System
Marks : 100 Marks **Time : 3 Hours**

Instructions

1. All questions are compulsory
2. Illustrate your answer with neat sketches wherever necessary
3. Figures to the right indicates full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q.1 (a) Attempt any THREE of the following **(12 Marks)**

a) List different generation of Operating system. Describe any one with its advantages and disadvantages.

b) State and describe services provided by an Operating System.

c) Draw two level directory structures and describe its use.

d) State any three advantages of multiprocessor system. Give reason for each advantage.

Q.1 (b) Attempt any ONE of the following **(06 Marks)**

a) With labeled diagram explain how memory partitioning is done with fixed partitioning techniques.

b) Differentiate between Monolithic and Microkernel system w.r.t. following points:

Structure (diagram)

Working

Example of Operating system.

Q.2 Attempt any FOUR of the following **(16 Marks)**

a) Compare UNIX and LINUX w.r.t. following points:

User interface, number of shells, providers, processing speed.

b) With suitable diagram describe working of distributed system.

c) State type of file access method. Explain any one with diagram.

d) Describe stepwise booting process of Unix along with diagram.

e) How context switching is done with help of diagram.
f) State and explain four scheduling criteria.

Q.3 Attempt any FOUR of the following (16 Marks)

a) Describe any four activities of memory management and file system management
b) List six basic operations on file. Explain any two with required steps.
c) Explain with suitable example how semaphore helps to overcome critical section problem.
d) Differentiate between preemptive and non preemptive scheduling with respect to following points:
Scheduling algorithm, throughput, waiting point
e) State and describe necessary condition for deadlock

Q.4 a) Attempt any THREE of the following (12 Marks)

a) List any four system calls for device management and communication
b) Draw process state diagram with label. Explain each state.
c) Describe any four secondary storage management activities.
d) State and describe types of schedulers. Describe how each of them schedule the job.

Q.4 b) Attempt any ONE of the following (06 Marks)

a) Describe many to one and one to one multithreading model with diagram and advantages.
b) With suitable diagram explain how linked allocation is performed.

Q.5 Attempt any TWO of the following (16 Marks)

a) List types of interprocess communication models with suitable diagram. Explain any one Model. Also state ant two advantages of explained model.
b) Calculate average waiting time for FCFS and SRTN for following table:

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

c) Write steps for Banker's algorithm to avoid deadlock. Also give one example showing working of Banker's algorithm.

Q.6 Attempt any FOUR of the following (16 Marks)

a) What is system call? With the help of diagram explain open() system call.
b) Draw structure of UNIX operating system. Explain role of each layer.
c) What is real time system? Describe its types.
d) Differentiate between segmentation and paging w.r.t. diagram and working
e) Describe any four benefits of Multithreaded programming.