Sanjay Ghodawat University, Kolhapur

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2020-21

EXM/P/09/00

Year and Program: F.Y.MCA	**School of Computer Science and Application**	**Department: MCA**
Course Code: MCA105	**Course Title: Operating System**	**Semester : I**
Day and Date:9th June 2021	**End Semester Examination**	**Time: 2 Hrs.** **Max Marks:50**

Instructions: 1) All Questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (any Two)**–			
a)	Write different services provided by operating system..	8	L1	CO1
b)	What is process? What is PCB? Explain the different process state with the help of state diagram.	8	L2	CO2
c)	What is system call? Explain use of all categories of system call.	8	L2	CO1
Q.2	**Answer the following (any two)** –			
a)	What is Deadlock? What are different necessary & sufficient conditions for Deadlock?	8	L3	CO3
b)	What is Paging? Explain the structure of Page table in detail.	8	L2	CO4
c)	Consider the set of 5 processes whose arrival time and burst time are given below If the CPU scheduling policy is Preemptive SJF then calculate the Average waiting time and Average Turnaround time. And also state advantages & disadvantages for the same.	8	L4	CO3

Process Id	Arrival time	Burst time
P1	2	6
P2	5	2
P3	1	8
P4	0	3
P5	4	4

Q.3 **Answer the following (any two)** –

a)	Describe the concept of File and write a note on file types & access methods.	9	L2	CO5
b)	Explain the disk structure & disk management in detail.	9	L3	CO5
c)	What are the goals of protection? Explain different security violation categories in detail.	9	L4	CO5

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EXM/P/09/00

Year and Program: F.Y.BCA	**School of Computer Science and Application**	**Department: BCA**
Course Code: BCA105	**Course Title: Operating System**	**Semester : I**
Day and Date: 5th May 2021	**End Semester Examination**	**Time: 2 Hrs.** **Max Marks: 50**

Model Answer

Q.1 **Answer the following (any Two)**–

a) Explain in detail components of OS. Each component carries 2M **(2*4=8)**

b) Differentiate between:
   i) Multiprogramming OS & Multiprocessing OS (**Each correct difference carries 1M**)
   ii) Network OS & Distributed OS (**Each correct difference carries 1M**)

c) What is system call? Explain use of all categories of system call. (**Definition 2M**) (**Categories2M**) (**Use : 4M**)

Q.2 **Answer the following (any two)** –

a) What is process? What is PCB? Explain the different process state with the help of state diagram. (**Definition of process & structure** carries: **2M**, **PCB diagram & description** carries : **2M**, **state transition diagram& explanation** carries **4M**)

b) Describe process Scheduling & different types of scheduler used on scheduling.(**Definition** : **1M** , **Diagram : 1M** , **Each scheduler role** carries **2M**)

c) Consider the set of 6 processes whose arrival time and burst time are given below If the CPU scheduling policy is Round Robin with time quantum = 2, calculate the Average waiting time and Average Turnaround time.

(**Gantt Chart : 2M** , Each **Correct calculation step** carries **1M**, correct **AWT=1M**, correct **TAT= 1M**)

Q.3 **Answer the following (any two)** –

a) Explain Fixed & variable portioning along with advantages & disadvantages. (**Fixed partitioning :4.5 M, Variable partitioning: 4.5M**)

b) Explain concept of page fault with respect to paging & calculate Hit & Miss ratio using Optimal, LRU page replacement algorithm for the reference string **7,0,1,2,0,3,0,4,2,3,1,0,3.**List drawbacks of each algorithm. (**Paging definition :1M ,Page fault : 1M, Drawback : 1M, Optimal :3 M. LRU : 3M)**

c) Describe continuous & Non continuous File Allocation Method with example. (**Continuous File Allocation: 3M, Non Continuous : Linked :3M, Indexed: 3M**)