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.BCA	**School of Computer Science and Application**	**Department: BCA**
Course Code: BCA105	**Course Title: Operating System**	**Semester :I**
Day and Date:7th May 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)	Explain in detail components of OS.	8	L1	CO1
b)	Differentiate between: i) Multiprogramming OS & Multiprocessing OS ii) Network OS & Distributed OS	8	L2	CO1
c)	What is system call? Explain use of all categories of system call.	8	L2	CO2
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.	8	L2	CO2
b)	Describe process Scheduling & different types of scheduler used on scheduling.	8	L2	CO3
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.	8	L3	CO3

Process Id	Arrival time	Burst time	Process Id
P1	0	4	P1
P2	1	5	P2
P3	2	2	P3
P4	3	1	P4
P5	4	6	P5
P6	6	3	P6

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

a)	Explain Fixed & variable portioning along with advantages & disadvantages.	9	L2	CO4
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..	9	L3	CO4
c)	Describe continuous & Non continuous File Allocation Method with example.	9	L4	CO4

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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**)