St. Philomena's College Autonomous, Mysore			
PG Department OF COMPUTER SCIENCE			
Question Bank (Revised Curriculum 2020 onwards)			
First Year- First Semester (2020 -22 Batch)			
Course Title (Paper Title): OPERATING SYSTEM(HC)			QP CODE: 86122
Unit	Sl.no	Question	Marks
1	1.	Define Operating system. Give an example.	2
1	2.	Differentiate between program and process.	2
1	3.	Define Process.	2
1	4.	What is shell?	2
1	5.	What is kernel?	2
1	6.	What is system call?	2
1	7.	What is real time operating system?	2
1	8.	Differentiate between thread and process	2
1	9.	What is the use of fork() system call?	2
1	10.	What is pre-emptive and non pre-emptive scheduling?	2
1	11.	Differentiate between long term and short term scheduler.	2
1	12.	Differentiate between hard real time and soft real time systems	2
1	13.	Differentiate distributed and network operating system	2
1	14.	What is inter-process communication?	2
1	15.	Define throughput.	2
1	16.	What are different types of Process schedulers?	2
1	17.	Define turnaround time.	2
1	18.	Draw process state diagram.	2
2	19.	What is semaphore?	2
2	20.	What is Resource Allocation Graph? Give an example.	2
2	21.	What is critical section?	2
2	22.	Write any two benefits of multithreading	2
2	23.	Define safe state.	2
2	24.	What is the use of synchronization?	2
3	25.	What is swapping?	2
3	26.	Differentiate between logical and physical addresses.	2
3	27.	What is external fragmentation?	2
3	28.	Define virtual memory	2
3	29.	What is demand paging	2
3	30.	What is internal fragmentation?	2
3	31.	What is degree of multiprogramming?	2
3	32.	What is the use of paging?	2
3	33.	What is meant by context switch?	2
3	34.	What is segmentation	2
3	35.	What is thrashing?	2
3	36.	Differentiate between paging and segmentation	2
3	37.	Explain Best fit and First fit with example	2
3	38.	What is meant by compaction	2
3	39.	Differentiate between page and frame	2
3	40.	What is a page table?	2
4	41.	Differentiate between sequential and direct file access methods	2

4	42.	What is meant by seek time?	2
4	43.	List the various file attributes	2
4	44.	Differentiate between sector and track	2
4	45.	What is disk scheduling? Name any two scheduling algorithm.	2
4	46.	Define File.	2
4	47.	What is a directory	2
4	48.	What is Rotational latency?	2
1	49.	What is starvation and how is it removed?	5
1	50.	Explain Round Robin scheduling. Give example.	5
1	51.	What is priority scheduling? Explain with an example	5
3	52.	Explain swapping.	5
3	53.	Write a note on demand paging	5
3	54.	What is segment table? Draw the structure of segment table.	5
4	55.	Write a note on file system structure	5
4	56.	Write a short note on directory	5
4	57.	List and explain different file attributes	5
1	58.	Explain Process life cycle.	7
1	59.	Explain different functions of an operating system.	7
2	60.	State the critical section problem with the help of an example.	7
3	61.	Write a note on thrashing with the help of a graph.	7
3	62.	Write a short note on segmentation.	7
	63.	Explain page table structure and page table entry with suitable diagram.	7
3	64.	Differentiate between external and internal fragmentation with the help of an example.	7
4	65.	Draw and explain disk structure.	7
4	66.	Explain free space management.	7
1	67.	Explain interprocess communication using shared memory.	8
1	68.	Write a note on Process Control Block (PCB)	8
2	69.	What is critical section? Specify the requirements for a solution to critical section problem.	8
2	70.	What are the four necessary conditions for deadlock to occur? Explain.	8
3	71.	Explain the working of virtual memory	8
3	72.	Explain different contiguous allocation methods	8
3	73.	What is fixed size partitioning? What are the disadvantages of fixed size partitioning	8
3	74.	Consider a reference string: 4, 7, 6, 1, 7, 6, 1, 2, 7, 2. the number of frames in the memory is 3. Find out the number of page faults in Optimal Page Replacement Algorithm	8
4	75.	Explain operations associated with file	8
4	76.	Write a short note on single level and tree structured directory systems	8
1	77.	Explain FCFS and SJF scheduling with example.	10
1	78.	Explain the operations on processes.	10
1	79.	Discuss Message passing in inter process communication.	10
3	80.	Write in detail about Segmentation with Paging.	10
3	81.	Explain segmentation with the help of a diagram	10
3	82.	Explain segmentation with paging with the help of a diagram	10

4	83.	Explain FCFS, SSTF disk scheduling algorithms with examples	10
4	84.	Explain the various file directory structures.	10
4	85.	Explain the different file access methods in detail	10
1	86.	Explain different types of operating systems in detail.	15
2	87.	Explain the Banker's algorithm for deadlock avoidance in detail with an example.	15
2	88.	Discuss bounded buffer problem.	15
2	89.	Explain Dining Philosophers problem with algorithm.	15
2	90.	Discuss various multithreading models	15
2	91.	Explain Readers Writers problem with algorithm.	15
3	92.	Consider a page reference string 7 0 1 2 0 3 0 4 2 3 0 3 1 2 0 1 7 of frame size 3.Find the number of page faults in LRU and optimal page replacement algorithm. Also calculate the hit ratio and miss ratio	15
3	93.	Given page reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6 . Compare the number of page faults for FIFO and Optimal page replacement algorithm	15
3	94.	Assume that there are 3 page frames which are initially empty. If the page reference string is 1, 2, 3, 4, 2, 1, 5, 3, 2, 4, 6, the number of page faults using LRU and optimal replacement	15
4	95.	Explain any three disk space allocation methods	15
4	96.	Explain any three disk scheduling algorithms	15
4	97.	Consider a disk with 200 tracks and the queue has random requests from different processes in the order: 55, 58, 39, 18, 90, 160, 150, 38, 184.Initially arm is at 100. Find the Average Seek length using SSTF and C-SCAN	15
4	98.	Consider a disk with 200 tracks and the queue has random requests from different processes in the order: 55, 58, 39, 18, 90, 160, 150, 38, 184.Initially arm is at 100. Find the Average Seek length using FIFO and SCAN	15

Question Paper Pattern- Blue Print

Department: PG Computer Science			
Subject Name: Operating System			
Duration: 03 Hrs			**Total marks=70**
PART A			
1	**Answer any FIVE of the following**		**5x2=10**
a	Unit 1		
b	Unit 1		
c	Unit 2		
d	Unit 3		
e	Unit 4		
f	Unit 4		
g	Unit 4		
PART B			
Answer any ONE FULL question from the following			**4x15=60**
2	a	Unit 1	15
	b	Unit 1	
OR			
3	a	Unit 1	15
	b	Unit 1	
4	a	Unit 2	15
	b	Unit 2	
OR			
5	a	Unit 2	15
	b	Unit 2	
6	a	Unit 3	15
	b	Unit 3	
OR			
7	a	Unit 3	15
	b	Unit 3	
8	a	Unit 4	15
	b	Unit 4	
OR			
9	a	Unit 4	15
	b	Unit 4	

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I Semester MSc. Computer Science Examination Model Question Paper

Subject: COMPUTER SCIENCE

Title: OPERATING SYSTEM(HC)

Duration: 03 Hrs **Total marks=70**

PART A

1		**Answer any FIVE of the following**	**5x2=10**
a		What is kernel ?	
b		Differentiate between program and process.	
c		What is semaphore?	
d		What is Resource Allocation Graph? Give an example.	
e		What is thrashing?	
f		What is internal fragmentation?	
g		Define latency time.	

PART B

Answer any ONE FULL question from the following **4x15=60**

2	a	Write a note on Process Control Block (PCB)	8
	b	Explain different functions of an operating system.	7
		OR	
3	a	Explain different types of operating systems in detail.	15
4	a	Explain Dining Philosophers problem with algorithm.	15
		OR	
5	a	What are the four necessary conditions for deadlock to occur? Explain.	8
	b	State the critical section problem with the help of an example.	7

6	a	Explain segmentation with paging with the help of a diagram.	10
	b	What is segment table? Draw the structure of segment table.	5

OR

7	a	Consider a page reference string 7 0 1 2 0 3 0 4 2 3 0 3 1 2 0 1 7 of frame size 3.Compare the number of page faults in LRU and optimal page replacement algorithm.	15
8	a	Explain disk structure with the help of a diagram.	7
		Explain any four operations associated with file.	8

OR

9	a	Consider a disk with 200 tracks and the queue has random requests from different processes in the order:55, 58, 39, 18, 90, 160, 150, 38, 184 .Initially arm is at 100. Find the Average Seek length using FIFO and SSTF	15