BC-2877

BCA (Semester-IV) Exam.–2015

Operating System

Time : Three Hours
Maximum Marks : 75

Note :- **Attempt questions from all the sections.**

SECTION - A

(Short Answer Type Questions)

Note : Attempt **any ten** questions. Each question carries 3 marks. 3×10=30

1. Explain the main purpose of an operating system.

2. What is demand passing?

3. What is Kernal?

4. Describe Real Time System.

5. What is virtual memory?

6. What are advantages of Multiprocessor system?

7. Describe the objective of multi programming.

8. What are time sharing system?

9. What is process? Explain.

10. What are the necessary condition of deadlock?

11. What is context switching?

12. Describe the long term, median term and short term schedular.

13. What is P.C.B.? Explain.

14. Describe the batch processing system.

15. Defferentiate between multiprogramming and multiprocessing system.

SECTION - B

(Long Answer Type Questions)

Note : Attempt **any three** questions. Each question carries 15 marks.   15×3=45

1. What is an operating system? Describe the types of Operating System.

2. Explain Banker's Algorithm in detail with suitable example.

3. What do you understand by pre-emptive and non-preemptive CPU scheduling? Describe with examples and also describe its advantages and disadvantages.

4. Describe deadlock with suitable example.

5. In shortest process first (SPF) consider there

are 4 ready process with their next CPU burst time as follows :

Process	Next CPU Burst Time
P1	6
P2	8
P3	7
P4	3

(a) draw gantt chart

(b) find waiting time of each process

(c) find average waiting time

6. Write short note on any three :

(a) Single user - Single process system

(b) Resource allocation graph

(c) Super Computer

(d) Distributed system

BC-2877

BCA (Semester-IV) Exam.–2016

Operating System

Time : Three Hours
*Maximum Marks : **75***

Note : Attempt questions from all sections.

SECTION - A

(Short-answer Type Questions)

Note : Attempt **any ten** questions. Each question carries 3 marks.   3×10=30

1. What is turnaround time?

2. What is Operating System?

3. What is Time Sharing System?

4. What is segmentation?

5. What is Dispatcher?

6. Write down any four system threats.

7. Differentiate between a trap and an interrupt.

[P. T. O.

8. What is paging and swapping?

9. What is File mounting?

10. What is kernal?

11. Differentiate between multiprogramming and multiprocessing system?

12. When do page fault occur?

13 Differentiate between internal and external fragmentations?

14. What is dead lock?

15. What in Virtual memory?

SECTION - B

(Long Answer type questions)

Note : Attempt **any 3** questions. Each question carries 15 marks.   (15x3=45)

1. Compare a preemptive and non-preemptive scheduling algorithms with example.

2. Consider the following page reference string:
2,3,4,5,3,2,6,7,3,2,3,4,1,2,1,4,3,2,3,4,7

Calculate following page replacement algorithm with frame sizes of 3 and 5,

(i) LRU   (ii) FIFO   (iii) Optimal

3. How can deadlock be detected and recovered? Explain.

4. Following information is given about processes. What is the average waiting time & average turnaround time for FCFS, SJF(preemptive) & SJF (non preemptive)

Process	Arrival time	Burst time
P1	0.0	8
P2	0.4	4
P3	1.0	1

5. Describe different schemes for defining the logical structure of a directory.

6. Write short notes on any three :

(i) Symbolic File System

(ii) Swap space management

(iii) Demand paging

(iv) Disk Management system.

– 0 –

BC - 2877

BCA (Semester-IV) Exam. –2017

Operating System

Time : Three Hours.   *Maximum Marks :* **75**

Note : Attempt questions from all sections.

SECTION - A

(Short-answer Type Questions)

Note : Attempt **any ten** questions. Each question carries 3 marks.   10x3=30

1. What are the activities of the operating system in connection with file management?

2. Give two reasons why caches are useful? What problems do they solve?

3. How is to be performed free space management in any disk management?

4. What is the role of process control block?

5. What is process scheduler?

[P. T. O.

6. What is the naming convention under direct communication of processes?

7. Why we use buffering in OS?

8. Why synchronization is used during message passing?

9. What is starvation problem related to deadlock?

10. What is required to support dynamic memory allocation in the contiguous memory allocation?

11. What is the purpose of paging the page tables?

12. What is demand paging system?

13. What are dedicated devices?

14. What are different storage devices?

15. What is the general model of a file system?

SECTION - B

(Long Answer type questions)

Note : Attempt **any three** questions. Each question carries 15 marks.   15x3=45

1. Explain why implementing synchronization

primitives by disabling interrupt is note appropriate in a single processor system if the synchronization primitives are to be used in user-level program.

2. Write short notes on the following :

(a) Segmentation

(b) Distributed system

(c) Parallel systems

(d) Real Time System.

3. Consider the following set of process with the length of the CPU burst given in milliseconds :

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5 all at time 0.

(a) What is the turn around time of each process for each of the scheduling algorithm FCFS & SJF.

(b) What is the waiting time of each process for each of the scheduling algorithm FCFS & SJF.

(c) Which algorithms resluts in minimum average waiting time.

4. What is classical problem of synchronization? Explain bounded Buffer problem.

5. What are the necessary conditions of deadlock? What are the requirements of deadlock avoidance and deadlock prevention?

– 0 –

BC–2877

B. C. A. (Fourth Semester)

EXAMINATION, 2019

OPERATING SYSTEM

Time : Three Hours

Maximum Marks :75

Note : Attempt questions from both Sections as directed.

Section—A

(Short Answer Type Questions)

Note : Attempt any *ten* questions. Each question carries 3 marks.   10×3=30

1. Explain the advantages of Linux operating system.

2. Define process synchronization.

3. What do you understand by demand paging ?

4. Write a difference between pre-emptive and non-preemptive scheduling.

5. Define wait for graph.

6. Explain ready queue and waiting queue.

7. What is process ? Explain process control block.

8. What do you understand by Partioning algorithm ?

9. Explain Buffering.

10. Define Index Sequential File Access method.

11. What is CPU schedular ? Contrast different types of schedular.

12. What is starvation ?

13. What are the benefits of co-operating process ?

14. Differentiate between scan and C scan disk scheduling algorithm.

15. Consider the following snapshot of a system :

Process	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				
P4	0	0	1	4	0	6	5	6				

Find the need matrix.

Section—B

(Long Answer Type Questions)

Note : Attempt any *three* questions. Each question carries 15 marks. 3×15=45

1. Define page replacement algorithm : FIFO, LRU and Optimal. Find the number of page feult for the following string : 2, 1, 3, 2, 1, 3, 2, 1, 2, 3, 1, 2, 1, 1, 3 using FIFO, LRU and optimal for the frame size 3 and 5.

2. Define semaphores and critical section problem. Also explain consumer-production problem.

3. What is deadlock ? What is the necessary condition for deadlock ? Also explain the algorithm for deadlock detection and avoidance.

4. What is CPU scheduling ? Define different type of CPU scheduling. Calculate Avg turn

Around time and Avg waiting time for the following process :

Process	Arrival Time (MS)	Burst Time (MS)
P_1	2	5 †
P_2	1	4
P_3	1	2 —
P_4	3	6
P_5	2	4

Also show a Gantt chart using FIFO, SJF and pre-emptive SJF algorithm.

5. What is an operating system ? Define Batch systems, Parallel system and Distributed systems.

6. Define File and its attribute. Also explain file directories. Define different type of file directories.