CBCS SCHEME

USN | | | | | | | | | | **17EC553**

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Operating System

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions. choosing ONE full question from each module.*

od ole-1

I a. Define operating system. Explain the key concern and of an operating system. **(07 Marks)**
   b. Explain the various resource allocation and resource sharing strategies. **(08 Marks)**
   c. What are the common tasks performed by an operating system? **(05 Marks)**

OR

2 a. Explain briefly, the different classes of operating system with primary concern and key concepts. **(10 Marks)**
  b. With a neat diagram explain the turnaround time in batch processing system. **(06 Marks)**
  c. Discuss various computations in an operating system. **(04 Marks)**

Module-2

3 a. Define process, process states and with a state transition diagram explain the state transition for a process. **(10 Marks)**
  b. Discuss the different fields of the process control block (PCB). **(06 Marks)**
  c. What are the differences between threads and processes? **(04 Marks)**

OR

4 a. For a given set of processes perform FCFS and SRN scheduling and compare their performance interms of mean turnaround time and weighted turn around. **(10 Marks)**

Process	P_1	P2	P3	P4	P5
Arrival time	0	2	3	5	9
Service time	3	3	2	5	3

  b. With a neat sketch, explain long, medium and short term schedulers. **(06 Marks)**
  c. Compare non-preemptive and preemptive scheduling concepts. **(04 Marks)**

Module-3

5 a. Define the following terms with necessary sketches :
   i)   Internal and external fragmentation
   ii) Paging and segmentation
   iii) Logical address and physical address.
   iv) Page and page frame. **(12 Marks)**
  b. With a neat diagram explain the working of address translation in non-contiguous memory allocation. **(08 Marks)**

OR

6 a. With a neat sketch, explain demand paging preliminaries. **(12 Marks)**
  b. Consider the page reference string 0, **1,** 2, 1, 3, 0, 4, 1, 2, **1,** 3, 7, 4, 5, 7. Calculate the page faults. Using FIFO and LRU page replacement policies with a frame size 3. **(08 Marks)**

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Module-4

7 a. Explain file system and IOCS with necessary sketches. **(08 Marks)**

   b. Explain any three allocation methods of disk space for files and mention advantages and disadvantages of each. **(12 Marks)**

OR

8   a. What is a directory? Discuss typical directory entry fields and explain different directory structures. **(12 Marks)**

   b. Discuss the working of file system action at file close. **(08 Marks)**

Module-5

9 a. Write a note on :

    i)   Issues in message passing

    ii) Direct and indirect naming in message passing

    iii) Blocking and non-blocking sends in message passing. **(12 Marks)**

   b. Explain mailboxes, give the advantages of mail boxes. **(08 Marla**

OR

10   a. With necessary sketches, explain the different deadlock prevention approaches. (10 **Marks)**

   b. Using deadlock detection algorithm for the following example of system check, whether the deadlock exist in the system or not.

(10 Marks)

	R1	R2	R3
P1	2	I	0
P2	1	3	1
P3	1	1	1
P4	1	2	2

Allocated Resources

	R1	R2	R3
P1	2	1	3
P2	1	4	0
P3	0	0	0
P4	1	0	2

Requested Resources

R1	R2	R3
0	0	1

Free Resources

R1	R2	R3
5	7	5

Total resources