SUBJECT CODE NO:- P-131
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Operating System
(Revised)

[Time: Three Hours]   **[Max.Marks:80]**

N.B
- i.   Question No 1 and Question No 6 are compulsory
- ii.   Attempt any two questions from Q no 2 to Q no 5 and from Q no 7 to Q no 10 of each section
- iii. Figure to the right indicates full marks

Section A

Q.1   Attempt any five questions from following   10

a) Define system throughput and CPV utilization? Are these two metrics related to one another? Justify your answer
b) What is the drawback of priority scheduling?
c) Give examples of file management system calls.
d) What is the basic idea behind the design of microkernel ?
e) What are the responsibilities of basic I/O supervisor
f) State any 4 requirement from the minimal set of file system.
g) Define critical section
h) What are the states of thread?

Q.2   Explain features of   15
   i.   Multiprogramming o. s.
   ii.   Time sharing o. s.
   iii. Client server model

Q.3   a) How message passing is used in IPC   7
       b) What is dinning philosopher problem? How it is solved.   8

Q.4   a) Define process. Explain its states.   7
       b) Suppose that following process arrive for execution at the times indicated. Each procss has its CPV   8
          burst time. Consider time in ms (use non preemptive policy)

Process	Burst time	Arrival time
P1	8	0.0
P2	4	0.1
P3	1	1.0

   i)   What is average turnaround time using FCFS
   ii)   Calculate average turnaround time using SJF.

Q.5   a) Explain linked file allocation   5
       b) What criteria's are important in choosing file organization?   5
       c) Which are the typical operations performed on directories?   5

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Section-B

Q.6   Attempt any five questions from following   10
       a) Define swapping
       b) Why are page size always power of 2?
       c) If preemption of resources is required to deal with deadlock? What are the three issues needed to
          be addressed
       d) List the functions of device independent I/O software.
       e) What are the advantages of elevator algorithm
       f) If there is cycle in the resource allocation Graph. Does it indicate deadlock. Justify your answer.
       g) Give examples of character and block I/O devices.
       h) Define thrashing.

Q.7   a) Discuss in detail Goals of I/O software consider a disk drive with 500 cylinders   7
       b) Numbers 0 to 499 starting from outermost cylinders. Suppose the read write head is currently   8
          positioned on the miner most cylinder 499 the pending queue is 19, 304, 281, 480, 22, 192, 144.
          Calculate total distance in cylinders that disk arm moves from current position for
       i) SSTF
       ii) SCAN
Q.8   a) Write a note on window-7 registry   7
       b) Explain paging? How address translation mechanism used?   8

Q.9   a) Explain Bankers algorithm for multiple type resources.   10
       b) Explain memory management with bit map.   5

Q.10   a) Explain optimal and LRU page replacement algorithm.   8
       b) Describe clock Hardware.   7

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