

19.11.18 (E)

K. J. Somaiya College of Engineering, Mumbai-77
(Autonomous College Affiliated to University of Mumbai)

End Semester Examinations
Nov – Dec 2018

Max. Marks: 100

Class: Third Year B.Tech.

Name of the Course: OPERATING SYSTEMS

Course Code: UCEC501

Duration: 3 Hours

Semester: V

Branch: COMP

Instructions:

- (1) All Questions are Compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Question No.		Marks
Q 1 (a)	What is a Monolithic structure? What is a Microkernel? Draw neat diagrams and give example for each.	10
Q 1 (b)	Write a short note on – Shell. OR Write a short note on – Android Operating System.	10
Q2 (a)	What is a thread? What are types of threads? Draw and explain multithreaded process model.	10
Q2 (b)	What is a process? Draw and explain five-state process model. OR What is a PCB? Draw and explain components of PCB.	10
Q3 (a)	Describe short term, medium term and long term scheduling with neat diagram.	10
Q3 (b)	What is preemptive and non-preemptive scheduling? Compare different process scheduling algorithms. OR There are 5 processes A to E which are waiting to be scheduled. Their arrival times are 0,1,3,9 & 12 Second respectively and their processing times are 3,5,2,5 and 5 Seconds respectively. What is the average turn-around time using FCFS, SJF and Round-Robin (with a quantum of 1 Second) scheduling?	10
Q4 (a)	Explain Producer Consumer problem. and Solve it using any one method.	10

Q4 (b)	<p>Explain deadlock avoidance strategy for system having single instance of all resources and for system having multiple instances of all resources.</p> <p>OR</p> <p>What is inter-process communication? With the help of neat diagrams explain shared memory and message passing techniques.</p>	10
Q5 (a)	<p>What are the categories of I/O devices? Explain operating system I/O design issues.</p>	10
Q5 (b)	<p>What criteria should be adopted for choosing type of file organization? Describe the implementation of file allocation techniques.</p> <p>OR</p> <p>Suppose that a disk drive has 200 tracks, numbered 0 to 199. The head of moving disk is currently serving a request at track 143, The queue of pending requests in FIFO order is 86, 147, 91, 177, 94, 150, 102, 175, 130. What is the total number of head movement needed to satisfy all the pending requests for following disk scheduling algorithm viz. FCFS, SSTF and SCAN (direction \rightarrow increasing order) ?</p>	10