

Roll No .....

**CS-5002 (CBGS)****B.E. V Semester**

Examination, December 2017

**Choice Based Grading System (CBGS)****Operating System***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) Define spooling and the need for it explain its working with necessary diagram.  
b) What are system calls? Explain briefly about various types of system calls provided by an operating system.
2. a) Differentiate between:  
i) Multitasking and Multiprogramming operating system.  
ii) Real time and time sharing operating system.  
b) What is thread and what are the differences between user-level threads and kernel supported threads? Under what circumstances is one type "better" than other.
3. a) Discuss various free space management techniques? Explain them in detail with their advantages and disadvantages.  
b) Explain different types of schedules along with the purpose of each.

4. a) What is average waiting time and average turn around time of all processes for FCFS, SSF and round Robin (Quantum=10ms) scheduling:

Process	Bunt time
P <sub>1</sub>	8
P <sub>2</sub>	12
P <sub>3</sub>	05
P <sub>4</sub>	09
P <sub>5</sub>	14

- b) What is monitor in IPC? Solve the bounded buffer problem using monitor.
5. a) Explain the following:  
i) Resource Allocation graph  
ii) Recovery Form Deadlock  
b) Explain FIFO and LRU page replacement algorithm in detail.
  6. a) What is race condition? Explain the producer consumer problem with fatal race condition.  
b) Differentiate between:  
i) Paging and segmentation  
ii) Virtual memory and Cache memory
  7. a) Discuss various security threats in file system of OS.  
b) What is fragmentation? Why it is needed? Explain differences between external and internal fragmentation.
  8. a) What is distributed operating system? Discuss its types along with design issues?  
b) Write short notes:  
i) Distributed shared memory  
ii) Process management in LINUX.