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SF-8183

B. E. - II (Sem. - IV) (Comp.) Examination

May/June – 2011

Operating Systems

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 2 (SEM. - 4) (COMP.)**

Name of the Subject :

☛ **OPERATING SYSTEMS**

☛Subject Code No. : **8 1 8 3** ☛Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Use separate answer sheet for each section.

(3) Make assumption whenever required.

(4) Numbers on the right indicate marks.

SECTION - I

1 (a) Do as directed (any **ten**) 8

(i) A state is _____ if it is not deadlocked and there is a way to satisfy all requests currently pending by running the processes in some order.

(ii) A process is in _____ state if it is engaging the processor.

(iii) Define Soft Real Time.

(iv) Define Context switch.

(v) RR scheduling policy stands for _____

(vi) State the functions of Operating System.

(vii) State the states of a Process.

(viii) What is the difference between the idle and blocked state of a process ?

(ix) IPC means _____.

(x) What is the difference between a program and a process ?

(b) State True/False : 4

(i) Shortest remaining time next is a preemptive version of Shortest Job First.

(ii) Time Sharing System is also called Multi user System.

(iii) A thread is sometimes called a light weight process.

(iv) FCFS scheduling policy stands for First Come First Serve.

(c) For the processes listed in table, what is the turn around time of each process using : **10**

(i) FCFS

(ii) Round Robin (Quantum=2)

(iii) SJF

(iv) Shortest Remaining time

(v) Pre-emptive Priority scheduling.

Process	Arrival Time	Processing Time	Priority
A	0	4	1
B	2	7	2
C	3	2	4
D	3	2	3

2 Answer the following : **12**

(i) Explain the different states of Process with proper state diagram.

(ii) What do you mean by pre-emptive and non-preemptive scheduling ? Illustrate with an example.

3 Write short notes on any **four** of the following : **16**

(i) Banker's Algorithm for a single resource.

(ii) Mutex

(iii) Deadlock Prevention

(iv) Direct Memory Access

(v) Types of Operating Systems

(vi) Critical Section Problem

SECTION - II

4 (a) Answer the following : **10**

(i) _____ solves the problem of internal fragmentation.

(ii) What is meant by SWAPPING OUT a process ?

(iii) Segmentation is faster than paging.

(a) True

(b) False

(iv) Explain tail command.

(v) Define fork ( ).

(vi) Where is the MMU located ?

(vii) Define Spooling.

(viii) A virtual address has two parts. What are they ?

(ix) List out the type of file.

(x) Which of the following are the likely causes of thrashing ?

(a) Because there are too many users connected to the system

(b) Because the page size was very small

(c) Because we followed a first in first out policy.

(d) Because we followed a least recently used policy for page replacement.

(b) Enlist various page replacement algorithms. Consider the following page - reference string : 1,0,7,1,0,2,1,2, 3,0,3,2,4,0,3,0,2,1,0,7. How many page - faults would occur for the following replacement algorithms. **10**

(i) FIFO replacement

(ii) LRU replacement

(iii) MRU replacement

(Assume : Three page-frames, all of which are initially empty).

5 Attempt the following (any **three**) **15**

(i) Enlist all disk scheduling algorithm. Explain any one with illustration.

(ii) Explain fragmentation in detail.

(iii) Write a short note on : TLB.

(iv) Explain the continuous, linked and index allocation methods.

6 Attempt the following (any **three**) : **15**

(i) What is an i-node ? Explain in brief.

(ii) Explain Security in Linux.

(iii) What is the computation migration and process migration ?

(iv) Write a short note on DMA.
