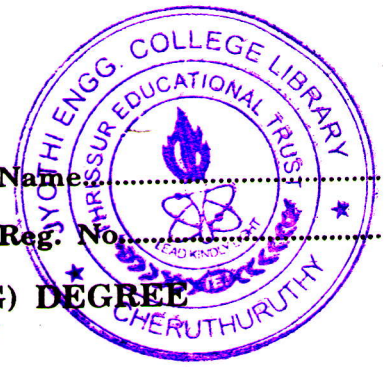D 42200

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FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2007

CS/IT 04 503—OPERATING SYSTEMS

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. (a) What are the functions of Process Manager ? Explain.

   (b) Explain the role of device drivers in computer systems.

   (c) What is a process control block ? What are its components ? Explain.

   (d) What is a semaphore ? How it is implemented ?

   (e) Explain the various swapping policies used in memory management.

   (f) What is Thrashing ? What are the different ways of solving thrashing ?

   (g) What is a capability list ? How it is used in file protection ?

   (h) What is a byte-stream file ? Explain the operations performed on a byte stream file.

   (8 × 5 = 40 marks)

2. (a) Explain the various device management approaches in detail.

   Or

   (b) Describe the characteristics of various types of O.S.

   (15 marks)

3. (a) (i) Explain the different ways of synchronizing processes using hardware.   (8 marks)

      (ii) Explain the role of resource allocation graph in deadlock detection.   (7 marks)

   Or

   (b) Consider the following set of processes with the length of the CPU burst time given in m secs. :—

Process		Burst Time	Priority
P_1	...	8	1
P_2	...	2	3
P_3	...	2	4
P_4	...	3	2
P_5	...	4	3

   Calculate the average turn around time and average waiting time when the following scheduling policies are used :

   FCFS ; SJF ; Priority.

   (15 marks)

Turn over

(15 marks)

4. (a) Explain the design issues of Paging memory management.

Or   (9 marks)

  (b) (i) Explain the principle of operation of segmentation.   (6 marks)

     (ii) What is a working set model ? Explain its usage in memory management.   (15 marks)

5. (a) Explain the Internal access authorization mechanism.

Or   (15 marks)

  (b) Explain the various issues related to Directory Implementation.

[4 × 15 = 60 marks]