D 8520 (Pages : 2) Name.................................

Reg. No.................................

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2010

CS/IT 04 503 – OPERATING SYSTEMS

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

I. (a) Explain the function of a device controller.

(b) Explain the hierarchy of storage devices.

(c) Discuss about semaphore for synchronization.

(d) Describe the process address space.

(e) Distinguish between the internal and external fragmentation.

(f) Explain the implementation of paging.

(g) Discuss on FAT.

(h) Explain the file protection mechanism.

(8 × 5 = 40 marks)

Part B

II. (a) Define a thread. State the major advantages of having threads. Provide any programming example of multithreading that improves performance over a single threaded solution.

Or

(b) Discuss the features of various types of operating systems. (15 marks)

III. (a) Explain synchronization mechanisms in detail.

Or

(b) Explain FCFS, SJF a non pre-emptive priority and RR scheduling algorithm by considering five processes with burst time and priority. Compare the turnaround and waiting times of each process for each of the above scheduling algorithms.

(15 marks)

IV. (a) Discuss segmentation with neat diagrams.

Or

Turn over

(b) Write notes on:

(i) Multilevel paging.

(ii) Overlays

(iii) Prepaging. (5 + 5 + 5 = 15 marks)

V. (a) Explain the different authentication mechanism used for protection.

Or

(b) Write short notes on:

(i) Storage abstaction.

(ii) Memory mapped files. (7 + 8 = 15 marks)

(4 × 15 = 60 marks)