Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

T 3172

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Fourth Semester

(Regulation 2004)

Computer Science and Engineering

CS 1252 — OPERATING SYSTEMS

(Common to B.E. (Part-Time) Third Semester Regulation 2005)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Specify the critical factor to be strictly followed in real–time systems.

2. List out the three main advantages of multiprocessor system.

3. What is co–operating process?

4. What is bounded waiting in critical section?

5. What are the four necessary conditions a system should possess in order to be termed as deadlock?

6. What is segmentation?

7. Why should we use virtual memory?

8. What is meant by thrashing?

9. Name the entries that makes up a File Control Block (FCB).

10. State any two distinguishing features of UNIX and Windows.

11. (a) (i) Explain the facilities provided by the following operating systems (10)

    (1) Clustered system and

    (2) Real–time system.

    (ii) List out the services provided by operating system to programs and to the users of program. (6)

Or

(b) (i) Explain the process creation and process termination process on process. (8)

    (ii) Write short notes on co–operating processes and schedulers. (8)

12. (a) Describe the following scheduling algorithms (16)

    (i) Shortest–job–first scheduling

    (ii) Round–robin scheduling

    (iii) Real–time scheduling

    (iv) Priority scheduling.

Or

(b) What is the important feature of critical section? State the dining philosophers problem and show how to allocate the several resources among several processes in a deadlock and starvation free manner. (16)

13. (a) (i) How can deadlock be detected? Explain. (10)

    (ii) Write short notes on swapping. (6)

Or

(b) Discuss the advantages of paging memory management and the conversion of logical address into physical address with necessary hardware (16)

14. (a) Discuss the following page replacement algorithms, giving a suitable page reference string (i) LRU (ii) FIFO and (iii) Optimal. (5 + 5 + 6)

Or

(b) (i) State the various attributes of a file and their purpose. Discuss the various file operations. (10)

    (ii) Discuss about demand paging. (6)

15. (a) Describe in detail any three methods of implementing the file system. (16)

Or

(b) Write short notes on :

(i) Disk structure (5)

(ii) Indexed allocation (5)

(iii) Shortest–Seek–Time–First (SSTF) scheduling. (6)