

BACHELOR OF COMPUTER SCIENCE ENGG. EXAMINATION, 2010
(3rd Year, 1st Semester, Supplementary)

SYSTEMS PROGRAMMING

Time: 3 hours

Full Marks: 100

Answer any Five (5) questions from the following

1.

- What is system software?
- Draw and describe Process State Diagram.
- What is direct memory addressing mode? Give a proper example.
- What are the differences between .com and .exe file?
- What do you understand by macro? Explain with the help of an example.

2+6+4+3+5

2.

- Write a program in 8086 assembly language to find (i) length of the string "computer" and (ii) the number of occurrences of "m" in "computer".
- Write a program in 8086 assembly language to find largest among three 16 bit numbers. The numbers should be taken as input from user and stored in an array.

10+10

3.

- How will you write a program in debug?
- Explain with a suitable example how can a procedure be declared, defined and called using 8086 Assembly language. Also mention what happens if the procedure is called from a different file.

8+12

4.

- Write a program in 8086 assembly language to sort a given list of 25 integer numbers using any sorting algorithm.
- Write a program in 8086 assembly language to find (i) length of the string "computer" and (ii) the number of occurrences of "m" in "computer".

10+10

5.

- What is a process? What does the Process Control Block (PCB) contain?
- What are the different types of linking methods?
- Describe First Come First Served (FCFS) scheduling policy. Mention its advantages and disadvantages.

(2+6)+2+10

6.

- a. Calculate turnaround time of each process (from the following information) using First Come First Served (FCFS) scheduling policy.

| Process | Arrival Time | Execution time |
|---------|--------------|----------------|
| P0 | 0 | 12 |
| P1 | 3 | 5 |
| P2 | 4 | 10 |
| P3 | 7 | 8 |
| P4 | 9 | 3 |

(Turnaround time is the total time taken by a process from arrival till end of execution)
(Show the Gantt chart.)

- b. Explain the working of absolute loader. What are its advantages and disadvantages?
12+8

7.

- a. Describe the working of a two-pass assembler.
b. What are the tasks of a compiler?
c. What does a linking loader do?

10+5+5

8. Write short notes on any one of the following:

20

- a. Macro processor, linkage editor
b. One pass assembler and one and a half-pass assembler

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