Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.TECH(ECE)/SEP.SUPPLE/SEM-7/EC-704A/2012

2012

SYSTEM PROGRAMMING AND OPERATING SYSTEM

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

   i) Assembler requires ..... passes.

   a) 3 b) 2

   c) 4 d) 5.

   ii) In a process state after Ready state if Scheduler dispatch occurs then ..... state occurs.

   a) Terminated b) Waiting

   c) Running d) New.

   iii) Shortest Job First is

   a) Process Algorithm b) Scheduling Algorithm

   c) Memory Algorithm d) all of these.

iv) Fork means

a) creating a process b) terminating a process

c) transferring a process d) none of these.

v) Kernel is

a) full operating system

b) important part of operating system

c) part of process

d) part of thread.

vi) Boot Strap Loader resides in

a) Primary Memory

b) ROM

c) Hard Disk Drive

d) none of these.

vii) Page table resides in

a) Primary Memory b) Registers

c) Cache memory d) Hard Disk Drive.

viii) Deadlock Prevention Technique are 1. Mutual Exclusion, 2. Hold & Wait, 3. Hold and wait 4th condition is

a) Circular wait b) Queue wait

c) Stack wait d) No wait.

ix) Page size will be

a) unequal b) equal

c) equal or unequal d) any size.

x) Operating System is

a) resource allocator b) control program

c) all of these d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is Operating System ? Explain system and user view. 1 + 4
3. Explain the differences between Distributed and Client Server systems. What is Time Sharing system ? 1 + 4
4. What are the characteristics of RTOS ? Differentiate between Hard and Soft RTOS. 1 + 4
5. Explain the main elements of assembly language programming. Briefly explain assembly statement format. What are meant by assembler directives ? 1 + 2 + 2
6. What is meant by Macro ? Explain Macro definition and call. 1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Explain two pass structures of Assemblers (Explain with two block diagrams).
8. What is meant by Deadlock ? What are the necessary conditions for Deadlock ? What is Resource allocation Graph in Deadlock ? Explain Banker's algorithm. Explain Deadlock Detection techniques. 1 + 3 + 3 + 4 + 4

9. What is meant by process ? Explain process states. What is context switch ? Differentiate between cooperative and competitive processes. Explain different scheduling algorithms with examples. 1 + 3 + 2 + 3 + 6

10. What is page fault ? With example explain paging technique. What is segmentation ? How is it different from paging ? What is fragmentation ? How can this problem be overcome ? 2 + 6 + 2 + 2 + 2 + 1

11. Write short notes on any *three* of the following : 3 × 5

    a) Macro assembler

    b) Loaders

    c) Compilers

    d) Projection policies and mechanism

    e) Demand paging and Page replacement algorithms.

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