USN | | | | | | | | | | **10EC65**

Sixth Semester B.E. Degree Examination, June/July 2015
Operating Systems

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1   a. Discuss the common tasks performed by an operating system (OS).   (05 Marks)
    b. Explain the resource preemption, resource allocation strategies of an OS.   (07 Marks)
    c. What is a distributed system? Discuss the key concepts, techniques and benefits of distributed OS.   (08 Marks)

2   a. Explain the functions of an OS.   (04 Marks)
    b. Explain the kernel based operating system with a structure of time sharing system. (08 Marks)
    c. Explain the following: i) System generation;   ii) Configuration tools;   iii) Dynamic configuration of supervisor.   (08 Marks)

3   a. Discuss the primary concerns/reasons for process termination.   (05 Marks)
    b. List the events occur during the operation of OS. With a diagram discuss the event handling actions of kernel.   (08 Marks)
    c. With a diagram, explain the relationship between threads and processes. Discuss the advantages of threads.   (07 Marks)

4   a. Explain the lazy buddy allocator and slab allocator.   (08 Marks)
    b. With a diagram, explain the merging of free memory areas using boundary tag.   (08 Marks)
    c. Compare between contiguous and non-contiguous memory allocation.   (04 Marks)

PART – B

5   a. With a diagram explain the following:
        i)   Practical page replacement policy.
        ii) Page replacement policy using clock algorithms.   (09 Marks)
    b. Explain with a diagram, the copy_on_write for shared pages.   (04 Marks)
    c. With a diagram, explain the virtual memory manager's actions in demand loading of a page.   (07 Marks)

6   a. Explain the following write a diagram:
        i)   Linked allocation
        ii) File allocation table
        iii) Indexed allocation.   (10 Marks)
    b. Explain the operations performed on files.   (05 Marks)
    c. Discuss with a diagram the directory trees of a file system.   (05 Marks)

7   a. With a neat diagram, explain the event handling and scheduling.   **(08 Marks)**
    b. Determine the mean turn around time and mean weighted turn around for LCN and STG scheduling for the following table: **(08 Marks)**

Processes	Arrival time (sec.)	Execution time (sec.)	Dead line time (sec.)
P_1	0	03	04
P_2	2	03	14
P_3	3	02	06
P_4	5	05	11
P_5	8	03	12

    c. Discuss the two fundamental techniques of scheduling.   **(04 Marks)**

8   a. Explain the following:
        i)   Inter process message control block.
        ii)   Exceptional conditions on message passing.   **(07 Marks)**
    b. Explain the message queues and sockets for inter process communication in unix.   **(08 Marks)**
    c. Explain a mail box with its features and advantages.   **(05 Marks)**

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