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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