Sixth Semester B.E. Degree Examination, June/July 2016
Operating Systems

Time: 3 hrs.

Max. Marks: 100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1. a. Define OS. What are the common tasks performed by an operating system? (08 Marks)
   b. Explain briefly, the different classes of operating system, with primary concern and key concepts. (08 Marks)
   c. What are the operations performed by Kernel when an interrupt occurs? (04 Marks)

2. a. Explain : (i) Monolithic OS and (ii) Microkernal OS
      Specifying advantages and dis-advantages in each case. (08 Marks)
   b. Define the following with respect to an operating system:
      (i) Policies and mechanisms. (ii) Portability and Extensibility (08 Marks)
   c. Briefly explain the concept of VMOS, with an example. (04 Marks)

3. a. Briefly explain four kinds of process interaction. (06 Marks)
   b. With state transition diagram, explain the state transition for a process. (06 Marks)
   c. What are the advantages of threads? Explain briefly Kernel-level and user-level threads, specifying advantages and disadvantages. (08 Marks)

4. a. Explain Kernel memory allocator methods. (10 Marks)
   b. What are the key features in static and dynamic memory allocation? (06 Marks)
   c. Explain briefly memory compaction with an example. (04 Marks)

PART – B

5. a. With reference to virtual memory, explain the following:
      (i) Demand paging (ii) Page replacement policies. (10 Marks)
   b. Explain UNIX virtual memory. (10 Marks)

6. a. Explain file operations performed by processes. (08 Marks)
   b. What are the facilities provided by file-system and IOCS? Write the layered architecture of the system. (06 Marks)
   c. Explain (i) Sequential file organization (ii) Direct file access organization. (06 Marks)

7. a. Define Turn-around-time. Compare average Turn-Around-Time, for the following set of process for FCFS and SRN scheduling. (08 Marks)

Process	P_1	P_2	P_3	P_4	P_5
Arrival time	0	2	3	5	9
Service time	3	3	2	5	3

   b. Briefly explain process scheduling methods for real time applications. (06 Marks)
   c. Explain briefly, scheduling in UNIX. (06 Marks)

8. a. How interprocess communication is achieved through mail-box? What are its advantages? (08 Marks)
   b. Explain the following:
      (i) Synchronous and asynchronous message passing.
      (ii) Data – access synchronization.
      (iii) Control synchronization. (12 Marks)

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