53 (CS 303) OPSY

2017

OPERATING SYSTEM

Paper : CS 303

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* Define the following terms briefly : 2×5=10

   (i) Thread

   (ii) Throughput

   (iii) Semaphore

   (iv) Event

   (v) Deadlock.

   (b) Differentiate between : 2×5=10

   (i) Paging and segmentation

(ii) Preemptive scheduling and non preemptive scheduling

(iii) Kernel level thread and user level thread

(iv) Batch processing and online processing

(v) Turn around time and elapsed time.

2. (a) Mention *five* functions of kernel. 5

(b) What is real time operating system (RTOS) ? Mention *four* advantages of RTOS. 2+4=6

(c) Mention *four* advantages of Threads. 4

(d) Mention *five* events pertaining to a process. 5

3. (a) What is a distributed operating system ? Mention *three* functions of a distributed operating system. 2+3=5

(b) How does inter process commuinication take place between *two* processes ? 5

(c) What is a process ? Describe the process states with a diagram. 1+6=7

(d) Define data synchronization. 3

4. (a) Describe with an algorithm how deadlock can be avoided. 7

(b) What is virtual memory ? How can it be implemented ? 2+2=4

(c) Define the terms worst fit and best fit. 2+2=4

(d) Explain *two* popular strategies of resource allocation. 5

5. (a) What is page fault ? Explain least recently used and optimal page replacement algorithm. 2+2+2=6

(b) Mention a preemptive algorithm. Explain it briefly. 1+3=4

(c) Explain what is a producer/consumer problem. 5

(d) Describe briefly about the structure of an operating system. 5

6. *(a)* Explain control synchronization with a suitable example. 6

(b) What is an interrupt ? Mention *two* situations where interrupt can be used. 2+2×2=6

(c) Briefly explain about garbage collection. 4

(d) Give the FCFS (first come first serve) replacement algorithm. 4

7. Write short notes on : ***(any four)*** 5×4=20

(a) Batch monitor

(b) Demand paging

(c) Memory compaction

(d) Time sharing system

(e) Scheduling

(f) Swapping.
