53 (IT 502) OPSY

2017

OPERATING SYSTEM

Paper : IT 502 (Back)

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1. Answer in short : 2×10=20

   (a) Define operating system.

   (b) What is safe state ?

   (c) What is process control block ?

   (d) Define 'monitor'. What does it consist of ?

   (e) What are the disadvantages of single cantiguous memory allocation ?

   (f) What is demand paging ?

(g) What is semaphore ?

(h) What is a process ?

(i) What is race condition ?

(j) What are the functionalities of reincarnation server and init processes ?

2. (a) Discuss the various structures of operating systems. 10

(b) What is system call ? Write the function and syntax of *any five* processes and I/O related system call. 2+8=10

3. (a) How does deadlock avoidence differ from deadlock prevention ? Write about a deadlock avoidance algorithm in detail. 4+6=10

(b) Why should page replacement be performed ? Compare FIFO, Optimal and LRU page replacement algorithms. 4+6=10

4. (a) Write about FCFS and Round Robin scheduling algorithm. 10

(b) Given the following information : 10

Process	Arrival Time	Burnt Time
P1	0	10
P2	1	2
P3	2	3
p4	3	1

Find the turnaround time and waiting time for each of the processes using FCFS, SJF and Round Robin (Time quantum=2) scheduling algorithms.

5. (a) Discuss the *three* basic I/O techniques involved in various I/O operations. 10

(b) What is Mutex ? State and explain how the Dining Philosophers problem is solved using mutex. 10

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

(a) Preemptive *Vs* Non Preemptive scheduling.

(b) Thread scheduling

(c) Process state

(d) Translation lookaside buffer

(e) Virtual memory.
