



UN – 314

III Semester B.C.A. Degree Examination, November/December 2015
(Y2K14 – CBCS)
COMPUTER SCIENCE
BCA 305 : Operating Systems

Time : 3 Hours

Max. Marks : 100

Instruction : Answer all Sections.

SECTION – A

Answer **any ten** questions.

(10×2= 20)

1. What is an operating system ? Mention any two functions of an OS.
2. List differences between batch processing and multiprogramming OS.
3. Define the terms scheduler and dispatcher.
4. What is inter-process communication ?
5. Explain TEST AND SET () Synchronisation hardware.
6. Mention the methods used to handle deadlocks.
7. What is dynamic loading ?
8. What are overlays ?
9. Define THRASHING.
10. List different types of files.
11. What is disk formatting ?
12. Define encryption.

PROCESS	CPU BURST
P1	10
P2	1
P3	2
P4	10
P5	5

SECTION – B

Answer **any five** questions.

(5×5=25)

13. Explain SPOOLING with a diagram.
14. Explain process control block.

P.T.O.



15. Explain Dining-philosopher's problem.
16. Explain resource-allocation graph.
17. What is fragmentation ? What is external fragmentation ?
18. Explain LRU page replacement algorithm with an example.
19. What are different file accessing methods ? Explain.
20. What is a virus ? Explain different types of viruses ?

SECTION – C

Answer **any three** questions.

(3×15= 45)

21. a) Explain time-sharing and real-time operating systems. 8
- b) Explain various services offered by an OS . 7
22. a) Explain different states of a process with a diagram. 6
- b) Consider the following processes with their CPU burst in milli seconds. 9

PROCESS	CPU BURST
P1	10
P2	1
P3	2
P4	10
P5	5

The processes arrive in the order P1, P2, P3, P4, P5. Draw the Gantt chart illustrating the execution of these processes using FCFS and Round Robin algorithms. Calculate.

- i) Average Working Time
- ii) Average Turnaround Time



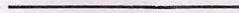
- 23. a) What is a semaphore ? Explain different types of semaphore. 7
- b) Explain different methods of deadlock prevention. 8
- 24. a) Explain paging scheme. 8
- b) What is demand paging ? Explain. 7
- 25. a) Explain various methods used to allocate space to files. 8
- b) Explain any two disk scheduling algorithms. 7

SECTION – D

Answer **any one** question.

(1×10=10)

- 26. Write short notes on :
 - a) Swap space management 5
 - b) Any five objects of windows executive . 5
- 27. Write short notes on :
 - a) Pre-emptive and non-preemptive scheduling. 5
 - b) Security Mechanism used in LINUX. 5



SECTION - 3