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.

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

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