SN – 454

36

III Semester B.C.A. Degree Examination, November/December 2014
(Y2K8 (F+R))
COMPUTER SCIENCE
BCA 304 : Operating Systems

100 – 2012-13 & Onwards
90 – Prior To 2012-13

Time : 3 Hours Max. Marks : 90/100

Instructions : *i) Answer **all** Sections.*

*ii) Section **D** is applicable only to students who have taken admission in **2011-12** and onwards.*

SECTION – A

Answer **any 10** questions. **(10×2=20)**

1. Define operating system. Mention any two operating systems.
2. Define time sharing systems.
3. Differentiate program and process.
4. Define critical section problem.
5. Define deadlock with an example.
6. What is safe and unsafe state ?
7. Define Hit ratio.
8. Define compaction.
9. Define thrashing.
10. Define virtual memory.
11. Define file and a directory.
12. Explain seektime.

P.T.O.

SECTION – B

Answer **any 5** questions. **(5×5=25)**

13. Explain multi-programming system. Mention its advantages.

14. Explain states of a process with neat diagram.

15. Explain the characteristics of deadlock.

16. Explain First fit, Best fit and Worst fit memory allocation algorithms with example.

17. Define page fault. Explain the procedure to handle page fault.

18. Explain File attributes.

19. Explain free space management.

20. Explain C-SCAN disk scheduling algorithm. Write C-SCAN disk scheduling with requests for I/O to the tracks :

    40, 64, 70, 85, 100, 130, 190, 20, 40, 55

    Calculate total head movement with current track is 40 and total number tracks is 200.

SECTION – C

Answer **any 3** questions. **(15×3=45)**

21. a) Explain process and file management. Mention their functions. **8**

    b) Explain FCFS CPU scheduling algorithm. Draw Gantt chart for the following processes. **7**

Process	Burst time
P_1	25
P_2	10
P_3	8
P_4	7

Calculate average waiting time and average turn around time.

22. a) Define semaphore. Explain operations on semaphores. **8**

    b) Explain deadlock prevention. **7**

23. a) Explain data structures required to implement Banker's algorithm. **8**

    b) Write the safety algorithm. **7**

24. a) Explain Internal Fragmentation. Mention its advantages. **8**

    b) Explain single level and two level directory. **7**

25. a) Differentiate paging and segmentation. **8**

    b) Explain FIFO page replacement algorithm with example. **7**

SECTION – D

Answer **any one** question. **(10×1=10)**

26. Write short notes on :

    i) Non-pre-emptive Scheduling. **5**

    ii) Single contiguous memory allocation. **5**

27. Write short notes on :

    i) Overlays **5**

    ii) Types of viruses. **5**
