SS – 681

III Semester B.C.A. Degree Examination, Nov./Dec. 2018
(CBCS) (F + R) (2015-16 and Onwards)
COMPUTER SCIENCE
BCA 305 : Operating System

Time : 3 Hours Max. Marks : 100

Instruction : *Answer* ***all*** *the Sections.*

SECTION – A

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

1. Mention the different operating system components.
2. What is concurrent execution ?
3. What is the difference between multi-tasking and multi-user system ?
4. What is semaphore ?
5. Explain contiguous memory management techniques.
6. What is fragmentation ?
7. Differentiate between logical and physical address space.
8. What is the difference between absolute path and relative path name ?
9. Explain overlays.
10. What are the two necessary condition for a deadlock ?
11. Mention any four attributes of file.
12. What is an access matrix ?

P.T.O.

SECTION – B

II. Answer **any five** questions : **(5×5=25)**

13. What is an operating system ? Give four functions of operating system.

14. What is multi-programming ? Differentiate between multi-programming, multi-processing and distributed processing.

15. What is process ? Draw a process state transition diagram and explain.

16. Explain the requirements to critical section problems.

17. Explain the resource allocation graph.

18. Compare first fit, best fit and worst fit allocation of memory.

19. Describe the unix system process scheduling algorithm.

20. What is computer virus ? Explain briefly any four types of viruses.

SECTION – C

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

21. Define, compare and contrast each of the following terms :
    a) Batch processing.
    b) Time sharing.
    c) Real time processing.

22. When do you run deadlock detection algorithm ? Explain with an example.

23. Explain the different types of disk scheduling algorithm with one example.

24. Consider the following set of processes with the length of the CPU burst time given in millisecond.

Process	Burst Time	Priority
P1	5	2
P2	1	4
P3	2	3
P4	6	1
P5	8	3

The processes are assumed to have arrived in the order P1, P2, P3, P4 and P5 all at time 0.

i) Draw four gantt chart illustrating the execution of these processes using FCFS, SJF a non preemptive priority and RR scheduling (time slice = 3ms).

ii) What is the turn around time and waiting time of each process in the entire scheduling algorithm mentioned above ?

25. a) Explain user differentiation in detail. **7**

b) Write a note on fragmentation. **8**

SECTION – D

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

26. Explain the layered structure of WINDOWS operating system.

27. Write a short note on :

i) PCB **5**

ii) Dining – philosophers problem. **5**