QP – 417

III Semester B.C.A. Degree Examination, March/April 2022
(CBCS) (F+R) (Y2K14)
COMPUTER SCIENCE
BCA 305 : Operating Systems

Time : 3 Hours Max. Marks : 100

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

SECTION – A

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

1) Mention any two functions of an OS.
2) List any two differences between batch processing and multi-programming OS.
3) What is spooling ?
4) Define compaction.
5) What is a semaphore ?
6) What is aging ?
7) What is safe state ?
8) Define logical and physical address space.
9) What is page fault ?
10) Define thrashing.
11) What is disk formatting ?
12) Define seek time.

SECTION – B

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

13) Explain process state with a neat diagram.
14) Explain Banker's Algorithm.
15) Write Peterson's algorithm for mutual exclusion problem.
16) Differentiate between contiguous and non-contiguous memory location.
17) Explain the term first-fit, best-fit and worst-fit.
18) Explain linked allocation method.
19) Explain optimal page replacement algorithm.
20) What is virus ? Explain different types of viruses.

P.T.O.

SECTION – C

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

21) a) Explain critical section problem. **7**

b) Explain resource allocation graph. **8**

22) a) Explain types of scheduler. **7**

b) Explain different methods of deadlock prevention. **8**

23) a) Differentiate between paging and segmentation. **7**

b) Explain scan and c-scan disk scheduling. **8**

24) a) Explain user authentication in details. **7**

b) Write a note on various file assess methods. **8**

25) a) Explain the dinning-philospher problem for synchronization. **5**

b) Suppose a system uses priority scheduling where a small integer means a high priority. A set of process with arrival time 0, in the order P1, P2, ... P5. The CPU burst time and priority given by

Process	CPU Burst time	Priority
P1	6	2
P2	12	4
P3	1	5
P4	3	1
P5	4	3

Calculate the average waiting time and turnaround time using SJF, FCFS and priority scheduling. **10**

SECTION – D

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

26) Write short notes on :

a) Time sharing systems. **5**

b) System call **5**

27) Write short notes on :

a) Process control block **5**

b) Swap-space management. **5**