NP – 408

III Semester B.C.A. Examination, January/February 2025
(NEP) (F + R)
COMPUTER SCIENCE
Operating Systems

Time : 2½ Hours Max. Marks : 60

Instruction : *Answer **any four** questions from **each** Section.*

SECTION – A

Answer **any 4** questions. **Each** question carries **2** marks. **(4×2=8)**

1. Define spooling and buffering.
2. Define process and program.
3. What is batch processing ?
4. What is deadlock ? Give an example.
5. What is virtual memory ?
6. List out the advantages of linux operating system.

SECTION – B

Answer **any 4** questions. **Each** question carries **5** marks. **(4×5=20)**

7. What is system call ? Explain the working of system call with a diagram.
8. Explain different states of a process with neat diagram.
9. What is semaphore ? Explain different types of semaphores.
10. Explain the methods of handling deadlock.
11. Explain contiguous memory allocation techniques.
12. Explain different disk scheduling algorithms SCAN, C-SCAN, I/O requests 70, 50, 125, 160, 25. Read/write heads starts at 40.

P.T.O.

SECTION – C

Answer **any 4** questions. **Each** question carries **8** marks. **(4×8=32)**

13. a) Explain any 4 functions of O.S. **4**

    b) Write a note on PCB. **4**

14. a) Explain different types of multi-threading models. **4**

    b) Explain critical section problem in O.S. **4**

15. Consider the following five processes with length of the CPU bust time given in milliseconds.

Process	CPU Bust time	Arrival time
P_1	10	5
P_2	29	2
P_3	3	1
P_4	7	3
P_5	12	4

    Draw the Gantt chart, find average waiting time and turn around time using FCFS. **8**

16. Explain different types of fragmentation. **8**

17. Explain any two page replacement algorithms. **8**

18. a) Explain the types of network operating system. **4**

    b) Mention the applications of distributed file system. **4**