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.

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

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