

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
B.Tech.Sem - IV Computer Science & Engineering : WINTER : 2023
SUBJECT : SYSTEM PROGRAMMING & OPERATING SYSTEM

Day : Tuesday

Time : 02:30 PM-05:30 PM

Date : 21-11-2023

W-24304-2023

Max. Marks : 60

N. B.

- 1) All Questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data if (necessary)

Q. 1 Explain data structure and algorithm required for PASS-II assembler. What is the need of symbol Table (ST) and literal table (LT) in Pass -II assembler? (10)

OR

Explain the different assembly language statement with example.

Q. 2 Explain phases of compiler in brief. Consider input $d=a+b*2$ and show output of each phase of compiler. (10)

OR

Discuss different functions of loaders. Give complete design of absolute loader with suitable example.

Q. 3 Explain Round Robin scheduling in detail. Consider the set of 5 process whose arrival time and burst time are given below- (10)

Process Id	Arrival Time	Burst Time
P ₁	0	5
P ₂	1	3
P ₃	2	1
P ₄	3	2
P ₅	4	3

If the CPU scheduling policy is Round Robin with time quantum =2 unit. Calculate the average waiting time and average turnaround time.

OR

What is operating system? Explain various services offered by OS. Explain different types of system calls in detail.

Q. 4 Write short note on (10)
a) semaphore
b) producer consumer problem

OR

Explain condition under which deadlock occur? Explain Bankers algorithm in detail with suitable example.

Q. 5 Explain different page replacement policies in detail with example (10)

OR

Explain in detail

- a) Segmentation and its advantages
- b) Internal and external fragmentation

Q. 6 Explain the following concepts in details (10)

- a) Types of file organization
- b) various disk space allocation method

OR

Explain directory structure with its types. Also discuss directory implementation in detail.

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