BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-III INFORMATION TECHNOLOGY : SUMMER : 2025
SUBJECT: OPERATING SYSTEM

Day : Friday
Date : 16/05/2025

S-29245-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.
4) Draw neat diagrams **WHEREVER** necessary.

Q.1 Enlist and explain the components of operating system with suitable example. **(10)**

OR

Q.1 Describe evolution of operating system with reference to suitable example. **(10)**

Q.2 What are the advantages of inter-process communication? How communication takes place in a shared memory environment? Explain. **(10)**

OR

Q.2 With neat diagram, explain states of process with a transition diagram and process control block. **(10)**

Q.3 What is deadlock? Explain deadlock prevention and deadlock avoidance with an example. **(10)**

OR

Q.3 Describe with suitable example FCFS scheduling algorithm. **(10)**

Q.4 Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page fault occurs for optional page replacement algorithm, assuming three frames and all frames are initially empty? **(10)**

OR

Q.4 Define virtual memory. Describe its concept and management with suitable example. **(10)**

Q.5 Describe file concept, attributes, operation, types and file system structure in detail. **(10)**

OR

Q.5 Explain directory structure, single level, two levels and tree structured directory. **(10)**

Q.6 What do you mean by running one operating system on top of another? Enlist and explain the methods to implement this. **(10)**

OR

Q.6 Elaborate in detail how to optimize the performance of virtualization system. **(10)**

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