Code No: 154CJ **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, February -2024
COMPUTER ORGANIZATION AND OPERATING SYSTEMS
(Electronics and Computer Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	Define Effective address.	[2]
b)	List any three program control instructions.	[3]
c)	What is Virtual memory?	[2]
d)	What is the use of ROM in computer system?	[3]
e)	What is PCI?	[2]
f)	List the advantages of Memory mapped I/O.	[3]
g)	Define Mutual Exclusion.	[2]
h)	What do you mean by address binding?	[3]
i)	Outline the operations performed on a directory.	[2]
j)	Define Acyclic-graph directory structure.	[3]

PART – B

(50 Marks)

2. What do you mean by Addressing Mode? Explain various addressing modes with suitable examples. [10]

OR

3.a) Discuss about fixed point and floating-point representations.
b) With neat sketch, explain flowchart for computer operation. [5+5]

4. Explain Micro Instruction Format and Instruction Format of micro programmed control with binary codes and micro operation. [10]

OR

5.a) Compare hardwired control with microprogrammed control.
b) Distinguish between the virtual memory and cache memory. [5+5]

6.a) A DMA controller transfers 16-bit words to memory using cycle stealing. The words are assembled from a device that transmits characters at the rate of 2400 characters per second. The CPU is fetching and executing instructions at an average rate of 1million instructions per second. By how much will the CPU be slowed down because of DMA transfer?
b) Explain how data transfers can be controlled using handshaking technique. [5+5]

OR

7. With a neat sketch, explain the working principle of DMA. [10]

8.a) Explain System call with an example of copying one file to another. List the various types of System call.

b) Explain banker's algorithm for deadlock avoidance with an example. [5+5]

OR

9.a) Explain various types of operating systems with neat sketch.

b) Write in detailed note on Swapping. [5+5]

10.a) Explain the various methods for free-space management.

b) Discuss about single-level, two-level and tree-structured directories. [5+5]

OR

11.a) Write in detail about file attributes, operations and types and structures.

b) How to provide protection to a file system? Explain. [5+5]

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