Code No.: CS303PC | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Regular) - February- 2023
OPERATING SYSTEMS
(Common to CSE, IT, CSC, CSD & CSM)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1. a) Define a system call? [2M]
   b) List out the various functions of operating system. [2M]
   c) What actions taken by a kernel to context-switching between processes? [2M]
   d) What is process and its types in OS? [2M]
   e) How deadlocks can be prevented considering the four necessary conditions? [2M]
   f) Is thread an IPC technique? Justify. [2M]
   g) What is the need for page replacement? [2M]
   h) Define virtual memory. [2M]
   i) What is mounting of a file system? [2M]
   j) List out the file Access Mechanisms. [2M]

PART-B **(50 Marks)**

2. Define an Operating System? Explain structure of Operating System. [10M]

OR

3. a) Distinguish between the client server and peer to peer models of distributed systems. [5M]
   b) What systems calls have to be executed by a command interpreter or shell in order to start a new process? Explain. [5M]

4. Discuss about Priority Scheduling with an example and compute average waiting time. [10M]

OR

5. Make a comparison between the Process and Threads. [10M]

6. Explain the Deadlock Prevention mechanism and deadlock avoidance. [10M]

OR

7. a) What is resource allocation graph? How resource allocation graph can be used in the context of deadlocks. [5M]
   b) Which critical section problem satisfies all three conditions of critical section problem to two processes that alternate execution between their critical section and remainder sections. [5M]

8. Briefly explain Demand Paging. List out advantages and disadvantages of Demand Paging. [10M]

OR

9. Explain about FIFO, LRU page replacement algorithms with example. [10M]

10. List and explain the different access methods to access information in files. [10M]

OR

11. Explain briefly the principles of protection. [10M]

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