Code No.: 22CSPC43 | R22 | B.T.No. 23R01A0545 | SET - 01

CMR INSTITUTE OF TECHNOLOGY: HYDERABAD

UGC AUTONOMOUS

B.Tech. IV – Semester- I - Mid Term Examinations – April – 2024

OPERATING SYSTEMS

(Common to CSE/CSE (AI&ML)/CSE(DS)/AI&ML/CSE(CS))

[Time: 120 Minutes] [Max. Marks: 30]

Note: 1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 5 marks. Answer all questions in Part A.
3. Part B consists of 5 questions. Answer all 5 questions. Each question carries 5 marks.
4. Illustrate your answers with NEAT sketches wherever necessary.

PART-A

5 x 1M=5M

S. No.		Question	BTL	CO	PO
1	a	What is the main purpose of an Operating System?	1	1	1,2,12
	b	Define: Real-time system.	1	1	1,2,12
	c	Differentiate Process and Thread.	2	2	1,2,12
	d	What is Semaphore?	1	2	1,2,12
	e	List the four necessary and sufficient conditions behind the deadlock.	1	3	1,2,12

PART-B

5 x 5M=25M

S. No.	Question	BTL	CO	PO
2	Explain the various objectives and functions of the Operating Systems.	2	1	1,2,12
3	Summarize the essential properties of the following types of operating systems. A) Batch b) interactive c) time sharing d) real time	2	1	1,2,12
4	Explain the different types of schedulers and scheduling queues.	2	2	1,2,12
	OR			
5	Distinguish between process and thread? Explain the different states of process.	2	2	1,2,12
6	Semaphores and monitors are effective mechanisms for process synchronization. Justify your answer.	5	2	1,2,12
	OR			
7	Illustrate PCB in detail.	2	2	1,2,12
8	Explain the classical problems of synchronization.	2	2	1,2,12
	OR			
9	Illustrate about process scheduling algorithms. With an examples.	3	2	1,2,12
10	Define: deadlock. Illustrate a deadlock state with a real time example.	2	3	1,2,12
	OR			
11	Explain how a deadlock is evaluated by resource allocation graph (RAG).	2	3	1,2,12

SET -1

Code No:20-CS-PC-225 | R20 | H.T.No. | | | R | 0 | | | | | |

CMR INSTITUTE OF TECHNOLOGY: HYDERABAD

UGC AUTONOMOUS

II–B.Tech. II–Semester- I - Mid Term Examinations – April – 2022

OPERATING SYSTEMS

(Common to CSE,CSM & CSD)

Time: 90 Minutes] **[Max. Marks: 25]**

Note:
1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 3 questions. Answer all 3 questions. Each question carries 5 marks and may have sub questions.
4. Illustrate your answers with NEAT sketches wherever necessary.

PART-A

5 x 2M=10M

S. No.		Question	BTL	CO	PO
1	a	Define OS . List its objectives.	1	1	1,2,12
	b	Label the computer system architecture.	1	1	1,2,12
	c	List and explain different schedulers.	1	2	1,2,12
	d	Compare a process and thread.	1	2	1,2,12
	e	What are different handling methods of deadlock?	1	3	1,2,12

PART-B

3 x 5M=15M

S. No.	Question	BTL	CO	PO
2	Explain various functions of OS.	II	1	1,2,12
	OR			
3	Classify the diffferent operating system structures	II	1	1,2,12
4	Illustrate PCB in detail.	IV	2	1,2,12
	OR			
5	Explain in detail about IPC mechanism.	II	2	1,2,12
6	Write different solutions for critical section problem.	III	2	1,2,12
	OR			
7	How deadlock state is evaluated by resource allocation graph.(RAG)	II	3	1,2,12

SET -1

Code No.:20-CS-PC-225 | R20 | H.T.No. | | | 1 | 9 | | | | | |

CMR INSTITUTE OF TECHNOLOGY: HYDERABAD

UGC AUTONOMOUS

II–B.Tech. II–Semester- I - Mid Term Examinations – April – 2022

OPERATING SYSTEMS

(Common to CSE,CSM & CSD)

[Time: 90 Minutes] [Max. Marks: 25]

Note: 1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 3 questions. Answer all 3 questions. Each question carries 5 marks and may have sub questions.
4. Illustrate your answers with NEAT sketches wherever necessary.

PART-A 5 x 2M=10M

S. No.		Question	BTL	CO	PO
1	a	Define OS . List its objectives.	I	1	1,2,12
	b	Label the computer system architecture.	1	1	1,2,12
	c	List and explain different schedulers.	I	2	1,2,12
	d	Compare a process and thread.	I	2	1,2,12
	e	What are different handling methods of deadlock?	1	3	1,2,12

PART-B 3 x 5M=15M

S. No.	Question	BTL	CO	PO
2	Explain various functions of OS.	II	1	1,2,12
	OR			
3	Classify the diffferent operating system structures	II	1	1,2,12
4	Illustrate PCB in detail.	IV	2	1,2,12
	OR			
5	Explain in detail about IPC mechanism.	II	2	1,2,12
6	Write different solutions for critical section problem.	III	2	1,2,12
	OR			
7	How deadlock state is evaluated by resource allocation graph (RAG)	II	3	1,2,12

Code No.: 20-CS-PC-225

R20 H.T.No. | | | R | 0 | | | | | | |

SET-2

CMR INSTITUTE OF TECHNOLOGY: HYDERABAD

UGC AUTONOMOUS

II–B.Tech. II–Semester- II - Mid Term Examinations – June – 2022

OPERATING SYSTEMS

(CSE,CSE(AI & ML) &CSE(DS))

[Time: 90 Minutes] [Max. Marks: 25]

Note:
1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 3 questions. Answer all 3 questions. Each question carries 5 marks and may have sub questions.
4. Illustrate your answers with NEAT sketches wherever necessary.

PART-A

5 x 2M=10M

S. No.		Question	BTL	CO	PO
1	a	Define fragmentation in memory allocation	I	1	1,2,12
	b	Define file. List out different file types.	I	1	1,2,12
	c	Describe single level directory structure.	I	2	1,2,12
	d	List out different disk scheduling algorithms	I	2	1,2,12
	e	What are the different Security violations categories?	I	3	1,2,12

PART-B

3 x 5M=15M

S. No.	Question	BTL	CO	PO
2	Demonstrate the functioning of Segmentation with a suitable example.	III	1	1,2,12
	OR			
3	Consider the following reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. Assume there are three frames. Apply FIFO, LRU and Optimal page replacement algorithms to the reference sting above and find out how many page faults are produced.	III	1	1,2,12
4	Write short notes on efficiency and performance of file system.	III	2	1,2,12
	OR			
5	Explain linked and indexed file allocation methods.	II	2	1,2,12
6	Explain the different ways of ensuring protection in system	V	2	1,2,12
	OR			
7	Consider the following disk queue with requests for I/O to blocks on cylinders 98,183,37,122,14,124,65,67 in that order, with the disk head initially at cylinder 53, using SSTF, LOOK algorithms find the total head movement in cylinders. Also provide the necessary diagram to show the head movement for the above queue.	III	3	1,2,12

*****