AA/2013

Reg. No.
(To be filled by the candidate)

09CS51

(2009 Onwards)

COIMBATORE INSTITUTE OF TECHNOLOGY
(Government Aided Autonomous Institution)
COIMBATORE 641 **014**

B.E. DEGREE EXAMINATIONS, **APRIL 2013 (**Fifth Semester)

COMPUTER SCIENCE AND ENGINEERING BRANCH

09CS51 **OPERATING SYSTEMS (**Common **to** B.Tech. IT V Sem. 09/T51)

Time**:** 3 Hours

Max: 75 Marks

INSTRUCTIONS

1. Answer ALL questions in PART A and as per choice in PART B. 2. PART A and **PART B** questions should be answered separately in the **same** answer sheet.
3. Question No. **11** is compulsory.

PART - A

(10 X 2 **=** 20)

1. What are the objectives of an **OS?**

2. Define **user** mode **and** kernel mode in memory protection.

3. Write **down the** contents of **Process Control** Block.

4. **State** the **benefits** of **threads**.

5. **Give** the different types of scheduling.

6. State **any** four requirements of **Mutual** Exclusion.

7. Define Thrashing.

8. What are external **and** internal **fragmentations?**

9. Distinguish between block oriented **and stream** oriented devices.

10. Define macro **processor.**

PART - B

11. a) Explain five state process model.

b) Explain the methods used to prevent deadlock.

12. Consider the following set of processes :

Process Name	Arrival **time**	Processing time
A	0	3
B	1	5
C	3	2
D	9	5
E	12	5

Find Turnaround time, response time **and** finish time of each process using

1) **FCFS**

ii) Round robin **(**Time **Slice** of **2)**

iii) SPN

iv**)** SRT

(OR)

(5 X 11=55)

(6)

(**5**)

(11**)**

Contd...

13.

Explain different types **of** real time scheduling methods.

(11)

14. a**)** Explain about semaphores. How the mutual exclusion is carried out using semaphore. (7)

b) Explain the structure of a monitor.

(4)

(OR)

15.

Apply deadlock detection algorithm for the following data and show the results

Available = (2001)

(**11)**

16.

17.

Request =

2	0	0	1
1	0		**0**
2	**1**	0	0

Allocation =

0	**0**	1	0
2	1	0	**1**
0	**0**	2	0

Explain about paging with address translation and TLB.

(**OR)**

Consider **a** simple segmentation system that has the following segment table:

Starting address	Length (bytes)
660	**248**
1752	**422**
222	**198**
604	**996**

For each of the following logical **addresses**, determine the physical address or indicate if a segment fault occurs:

a. 0,198

b. 2,156

c. 1,530

d. 3,444

e. 0,222

18. Explain different types of file allocation methods.

(OR)

19. Suppose that a disk drive has 5000 cylinders numbered 0-4999. The drive is currently **serving a** request at cylinder **143**, **and the** previous request was at 125. The queue of pending request, **in** FIFO order, is 86**, 1470**, 913, 1774, 948, 1509, 1022, 1750, 130 Starting **from the** current head position, what is the total distance in cylinders that the disk **arm** moves to satisfy all the **pending request** for each **of** the following - FIFO, **SSTF**, SCAN, C – SCAN.

888888888

(**11**)

(11)

(11)