**1216**

**Code : 15CS43T**

*Register Number* | | | | | | | |

**III IS / IV CS Semester Diploma Examination, April/May-2018**

# OPERATING SYSTEM

**Time : 3 Hours ]** **[ Max. Marks : 100**

***Note :*** (i) Answer any **six** questions from Part – **A**, each question carries **five** marks.

(ii) Answer any **seven** questions from Part – **B**, each question carries **ten** marks.



## PART – A

**6 × 5 = 30**

Answer any **six** questions. Each carries **five** marks.



1. Define operating system. List its functions. **5**

2. List the advantages and disadvantages of multiprogramming system. **5**

3. Explain the contents of PCB with neat diagram. **5**

4. Explain the different scheduling criteria. **5**

5. Explain the three requirements for the solution to critical section problem. **5**

6. What is deadlock ? Explain the necessary conditions for deadlock. **5**

7. Explain Best-fit and worst-fit strategies for memory allocation. **5**

8. Write a note on copy-on-write. **5**

9. Briefly explain the operations that can be performed on files. **5**



**[Turn over**

## PART – B

$7 \times 10 = 70$

Answer any **seven** full questions. each carries **ten** marks.

10. Explain the computer system architecture. **10**

11. Define process. Draw and explain the state transition diagram of a process. **10**

12. Consider the following set of process with the length of the CPU burst time given in milli seconds.

| Process | Burst time | Priority |
|---|---|---|
| P1 | 10 | 3 |
| P2 | 13 | 1 |
| P3 | 3 | 3 |

The processes are assumed to have arrived in the order P1, P2, P3 all at time 0.

(i) Draw the Gantt chart for FCFS and PRIORITY scheduling algorithms.

(ii) What is the waiting time and turn around time of each process for FCFS & PRIORITY scheduling algorithms ?

(iii) Calculate the average waiting time and average turnaround time for FCFS & PRIORITY scheduling algorithms. **10**



13. Explain the banker's algorithms. **10**

14. What is segmentation ? Draw and explain its hardware support. **10**

15. Explain hardware implementation of page table with a neat diagram. **10**

16. Write a note on the following page replacement algorithms :

(i) FIFO

(ii) LRU **10**

17. Explain the demand page memory management with a diagram. **10**

18. Differentiate between sequential access and direct access methods. **10**

19. Explain tree-structured directory and acyclic-graph directory with a neat diagram. **10**