5E1353

Roll No. _____

Total No of Pages: 3

B. Tech. V - Sem. (Main / Back) Exam., Feb.-March - 2021

5E1353

Computer Science & Engineering

5CS4 – 03 Operating System

Common for CS, IT

Time: 2 Hours

Maximum Marks: 82

Min. Passing Marks: 29

Instructions to Candidates:

Attempt all ten questions from Part A, four questions out of seven questions from Part B and two questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL

2. NIL

PART – A

(Answer should be given up to 25 words only) **[10×2=20]**

All questions are compulsory

Q.1 What is an operating system?

Q.2 What is the kernel?

Q.3 What are batch system?

Q.4 What is a process?

Q.5 What are schedulers?

Q.6 Define the term virtual memory.

Q.7 Explain various goals of protection.

Q.8 Explain the term file system in brief.

Q.9 What is thrashing?

Q.10 What is multi user operating system?

PART – B

(Analytical/Problem solving questions) **[4×8=32]**

Attempt any four questions

Q.1 Differentiate between UNIX and Windows based operating systems.

Q.2 What is thread management in operating system? Explain the applications of thread.

Q.3 What is the importance of paging and segmentation in memory management? Explain with diagram.

Q.4 Define concept of file operations. Give the process of directory structures and file management.

Q.5 Explain in detail the following CPU scheduling algorithms-

(a) Priority Scheduling

(b) Round Robin

Q.6 What is process control block? Explain with diagram and its contents.

Q.7 Explain four conditions which are necessary for a deadlock to occur.

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions) **[2×15=30]**

Attempt any two questions

Q.1 Compute average turnaround time and average waiting time for the following scheduling methods –

(a) FIFO

(b) SJF

(c) Round Robin

Process	Burst time	Arrival time
P_1	4	2
P_2	2	1
P_3	5	1
P_4	3	3

Q.2 Suppose a disk drive has 200 cylinders, numbers numbered from 0 to 199. The drive is initially at cylinder 53. The queue with requests from I/O to blocks on cylinders-

98, 183, 37, 122, 14, 124, 65, 67

(a) FCFS SCAN scheduling

(b) C-SCAN scheduling

Q.3 Explain the following –

(a) Demand paging

(b) Segmentation with paging scheme

(c) Thrashing

(d) Global versus local allocation

Q.4 Under what circumstances do page fault occurs? Describe the actions taken by the operating system when a page fault occurs.

Q.5 What is Dining Philosophers Problem? Explain the solution of this problem by using a suitable example.
