Mid-West University

Examinations Management Office

End Semester Examinations 2081

Bachelor level/ B.E. Computer/ 6th Semester — Full Marks: 50

Time: 3 hours — Pass Marks: 25

Subject: Operating System (CO464/CO520)

- *Attempt all the questions*
- *Figures in the margin indicate full marks.*
- *Assume suitable values, with a stipulation, if necessary.*
- *Candidates are required to answer the questions in their own words as far as possible.*

1. Highlights the milestone of operating system. Explain the layered structure of operating system. **[2+3]**
2. What is mutual exclusion? Explain Dekker's Algorithm with its relevancy. **[2+3]**
3. Define deadlock. What are the necessary conditions for deadlock? Explain how deadlock is handled? **[1+2+2]**
4. What is TSL? Explain the working of PCB & IPC. **[1+4]**
5. What is the role of Kernel in OS? Consider the following matrices and calculate; **[1+2+2]**
   a) Need Matrix
   b) Is the system in safe state?

   Use Bankers Algorithm.

P	Allocation				Maximum Required				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P	0	0	1	2	0	0	1	2	2	4	3	1
P	1	0	0	0	1	7	5	0				
P	1	3	5	4	2	3	5	6				
P	0	6	3	2	0	6	5	2				
P	0	0	1	2	0	6	5	2				

6. Consider the following set of processes that arrives at given time, with the length of the CPU burst given in milliseconds: **[2.5+2.5]**

Processes	Arrival Time	Burst Time
P1	0	7
P2	2	4
P3	4	1
P4	5	4

Calculate; **a.** AWT

b. ATAT

[Use SJF Scheduling]

7. What do you mean by page fault? How many page fault occurs for the page reference strings, with four page frames: 1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2 using LRU page replacement algorithm. **[1+4]**
8. What is starvation? Explain I/O device controller with the help of block diagram. **[1+4]**
9. What are the operations of file? Explain about distributed operating system. **[2+3]**
10. Write short notes on (***Any Two***). **[2.5+2.5]**
    a) ACL
    b) RPC & ATM
    c) UNIX & LINUX OS

The End