Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
MCA Summer 2017 – 18 Examination

Semester: 2 **Date: 21/05/2018**
Subject Code: 05201153 **Time: 10:30 am to 1:00 pm**
Subject Name: Operating Systems **Total Marks: 60**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Answer the followings.

A. Do as directed. **05**

1. What is Logical Address Space?
2. What is Cache Memory?
3. What is Interrupt?
4. What is First Fit?
5. What is Race Condition?

B. Do as directed. (Each of 01 marks) **10**

1. PC stands for _____.
2. DMA stands for _____.
3. What is Thread?
4. RAID – 0 is not true member of RAID family. [True / False]
5. System bus provides for communication among processors, main memory, and I/O modules. [True / False]
6. A closed chain of processes exists, such that each process holds at least one resource needed by the next process in the chain is known as _____.
7. Explain Logical Address.
8. A _____ is a program object that prevents simultaneous access to a shared resource.
   (a) Mutual Exclusion (b) Race Condition
   (c) Starvation (d) No Preemption
9. RAM stands for _____.
10. What is System Bus?

Q.2 Answer the followings. **15**

1. What is Internal Fragmentation? (2)
2. What is Virtual Memory? (2)
3. Explain importance of Mutual Exclusion. (2)
4. Explain different classes of Interrupts. (3)
5. How segmentation differs from paging? (3)
6. Explain Pile file organization. (3)

Q.3 Answer the following. (Any three) **15**

1. Explain DMA.
2. What is Deadlock? Explain various conditions for deadlock.
3. Explain differences between dynamic partitioning and fixed partitioning.
4. Suppose a disk has 200 tracks, numbered 0 to 199. The disk head is currently located at track 100. The random queue of pending requests, in FIFO order, is 55, 58,39, 18, 90, 160, 150, 38, 184 Starting from the current head position, what is the total distance (in tracks) that the disk head moves to satisfy all the pending requests, for each of the following disk-scheduling algorithms? Also show the next track accessed with each new request serviced. A) FIFO B) SSTF C) SCAN.

Q.4 Answer the following.

A. What is Thread? Explain types of Thread. **05**

B. Draw and explain PCB. **10**

OR

B. Solve following using Banker's Algorithm. **10**

	R1	R2	R3
P1	3	2	2
P2	6	1	3
P3	3	1	4
P4	4	2	2

Claim matrix **C**

	R1	R2	R3
P1	1	0	0
P2	6	1	2
P3	2	1	1
P4	0	0	2

Allocation matrix **A**

R1	R2	R3
9	3	6

Resource vector **R**