Date: 16th Feb'17

BVM Engineering College (An Autonomous institute)

2nd year Information Technology

A.Y. 2016-17, Semester-II,

IT208 – Operating Systems

ASSIGNMENT 1

1. Define operating system. Explain the different functions of operating system in brief.
2. Explain types of operating system.
3. Define processes. List the four events that cause processes to be created. Explain each in brief.
4. Explain thread implementation in user space with its advantages and disadvantages.
5. Explain the classical thread model with its implementation strategies.
6. How TSL instruction can be used to achieve mutual exclusion? Explain with proper pseudo code.
7. Explain producer-consumer problem and solve it using semaphore. Write pseudo code for the same.
8. What is Mutex? Write a pseudo code to achieve mutual exclusion using mutex.
9. Explain the IPC Problem known as Dining Philosopher Problem.
10. Explain thread scheduling.
11. Explain in short:
    (1) Shell (2) System call (3) Process States
    (4) Race condition (5) Critical Region (6) Monitors
12. Consider the Following set of Processes , with the length of the CPU-burst time given in milliseconds:

Process	Burst Time	Arrival Time	Priority
P1	10	0	3
P2	1	2	1
P3	2	3	3
P4	1	5	4
P5	5	7	2

    a) Draw Four Gantt charts illustrating the execution of these processes using FCFS, SJF, non-preemptive Priority (a small priority number implies a higher priority), and Round Robin (quantum=1) scheduling.
    b) What is the average waiting time of all processes for each of the scheduling algorithms in part a?
    c) What is the average Turnaround time of all processes for each of the scheduling algorithms in part a?

Last Date of Submission: 06/03/2017

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