Shyampur Siddheswari Mahavidyalaya

B.SC. Sem3(Internal Test)
COMPUTER SCIENCE (Hons.)
CC7

Total Marks-30   **Time- 1Hr.**

Q1. Answer Any 4 Question (Each Carrying 1.5 marks)   4X1.5=6

a)What is Real time OS?

b)Compare between multiprogramming and multitasking.

c) What is Process control block?

d) Distinguish between Deadlock and Livelock.

e) What do you mean by 'Divide and Conquer' algorithm?

f) Distinguish between binary semaphore and counting semaphore.

g) What is TLB(Translation Look aside Buffer)?

Q2. Answer Any 4 Question(Each Carrying 6 marks)   4X6=24

a)Following jobs are to be executed on a single processor system and their order of arrival is as per the list:

Job-ID	CPU-Burst Time
P	4
Q	1
R	8
S	1
T	2

Calculate the departure time (completion time) for job P if scheduling is Round Robin with time slice 1.

b) There are 3 CPU-intensive processes, which require 10,20 and 30 time units and at times 0,2 and 6, respectively. How many context switches are needed if a shortest remaining time first scheduling algorithm is used? Do not count the context switches at time zero and at the end.

c) What is binary semaphore? How producer – consumer relationship is implemented by using this semaphore?

d) (i)Define 'User mode' and 'Kernel mode'.

   (ii)Consider a set of n tasks with known runtimes r1,r2,......rn to be run on a uniprocessor machine. Which scheduling technique do you think will result in the maximum throughput , Round Robin, FCFS or SJF and why?

 e) Given references to the following pages by a process: 0,1,4,2,0,4,3,5,1,6,3,2,3,2,6,2,1,3,4,2,1,0 find number of page faults if the process has 3 page frames available to it and page replacement algorithms are both LRU and Optimal.

f) Paging and segmentation are sometimes combined with one scheme.- Why?What is Page fault?

What do you mean by Belady's anomaly?

g)Write short note: Virus,Trojan Horse
Write some methods that may provide protect and security for different computer systems

h) Write different file allocation methods and explain their advantage and disadvantage.

i) Write short note: Critical section in process synchronization, Demand Paging, OTP.