



WEST BENGAL STATE UNIVERSITY

B.Sc. Honours/Programme 3rd Semester Supplementary Examination, 2021

CMShGEC03T/CMShGCOR03T-COMPUTER SCIENCE (GE3/DSC3)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

GROUP-A

1. Answer any **four** questions from the following: 2×4 = 8
- (a) What is Batch System?
 - (b) What is virtual machine?
 - (c) What is context switching?
 - (d) What is meant by CPU-bound process?
 - (e) What do you mean by spooler directory?
 - (f) What is the difference between external and internal fragmentation?
 - (g) How a binary semaphore works in Process Management?
 - (h) What is overlay in Memory Management?

GROUP-B

- Answer any four questions from the following** 8×4 = 32
2. (a) Discuss by an example that shortest job First scheduling has a less average waiting time rather than FCFS Scheduling. 5+3 = 8
- (b) What do you mean by Convoy Effect?
3. (a) Explain variable partition. 2+6 = 8
- (b) What is virtual memory?
4. (a) What is System Calls? 2+4+2 = 8
- (b) Explain basic OS functions.
- (c) What is System programs?

5. (a) What do you mean by a process? 2+(2+4)=8
 (b) Design and describe a two state and five states process transition diagram.

6. Consider the following set of processes, with the length of the CPU-burst time given in milliseconds: 4+4 = 8

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5 , all at time 0.

- (a) Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, a nonpreemptive priority (a smaller priority number implies a higher priority), and RR (quantum = 1) scheduling.
 (b) What is the turnaround time of each process for each of the scheduling algorithms in part (a)?
7. (a) What is the difference between paging and segmentation? 3+3+2 = 8
 (b) Define Dynamic Loader and Dynamic Linker.
 (c) What is TLB?
8. Write short notes on: (any *two*) 4×2 = 8
 (a) PCB
 (b) Thrashing
 (c) Multi User Operating System.

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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