



**WEST BENGAL STATE UNIVERSITY**

B.Sc. Honours/Programme 3rd Semester Examination, 2020, held in 2021

**CMSHGEC03T/MSGCOR03T-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 multi-processing system?
  - (b) What is multiprogramming?
  - (c) Explain 'grep' command.
  - (d) In CPU scheduling what is difference between waiting time and response time?
  - (e) What do you mean by CPU bound process and I/O bound process?
  - (f) What is buffering?
  - (g) What is thrashing?

**GROUP-B**

**Answer any four questions from the following** 8×4 = 32

2. (a) Define Operating System. 2
- (b) Describe the functions of Operating System. 4
- (c) Distinguish between long term scheduler and short term scheduler. 2
3. (a) What do you mean by Shell? Write Shell script to find maximum of two user input numbers. 2+3
- (b) Explain Process state diagram. 3
4. (a) What is a time-sharing system? What are its advantages? 2+2
- (b) Differentiate between multiuser and single user operating systems. 4

5. (a) What is paging? How is it different from segmentation? 3  
 (b) What is page fault? How can it be tackled? 3  
 (c) What is the purpose of paging the page tables? 2
6. (a) Explain the difference between internal and external fragmentation. 4  
 (b) What are the objectives of CPU scheduling? 4
7. Consider the following set of processes, with the length of the CPU-burst time given in milliseconds:  $2 \times 4 = 8$

<u>Process</u>	<u>Burst Time</u>	<u>Priority</u>
$P_1$	10	4
$P_2$	1	1
$P_3$	2	3
$P_4$	1	5
$P_5$	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. Calculate the turnaround time of each process for each of the following scheduling algorithms:

- (a) FCFS, (b) SJF, (c) Priority and (d) Round robin

8. Write short notes on: (any *two*)  $4 \times 2 = 8$
- (a) PCB  
 (b) Memory management in OS  
 (c) System calls.

**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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