WEST BENGAL STATE UNIVERSITY

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

CMSHGEC03T/CMSGCOR03T-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:　　$2 \times 4 = 8$

Process	Burst Time	Priority
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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