



WEST BENGAL STATE UNIVERSITY
B.A./B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

CMAACOR06T-COMPUTER APPLICATION (CC6)

OPERATING SYSTEM

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.*

Answer Question No. 1 and any four from the rest

1. Answer any **four** questions from the following: 2×4 = 8
 - (a) What is thread?
 - (b) Why SJF scheduling is called special case of Priority Scheduling?
 - (c) What is distributed operating system?
 - (d) In which situation a process can directly go back to the ready queue again from the active state without going through waiting queue?
 - (e) What is segmentation?
 - (f) Write down the difference between physical address and logical address.
 - (g) What is the need of Counting Semaphore while we are already having Binary Semaphore?

2.
 - (a) What is deadlock? 2
 - (b) What is the difference between a program and a process? 2
 - (c) Write down the necessary condition for deadlock occurrence. 4

3.
 - (a) What do you mean by critical section? What are the conditions that should be maintained for any solution of critical section problem? 1+2
 - (b) Describe the Peterson's Two Process solution and check whether the constraints for the solution of a critical section problem have been maintained or not and how. 5

4.
 - (a) Write a short note on paging describing the hardware architecture that will be needed to maintain for paging. 3
 - (b) What is the need of segmentation while you are actually having paging? Explain with an example. 2
 - (c) Describe internal and external fragmentations using examples. 3

5. (a) What is Belady's Anomaly? 2
(b) Calculate the number of page faults occurring in case of both LFU and LRU when you are using the frame size 3 for the following requests: 2+2
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2
(c) What is the limitation of LFU page replacement algorithm? 2
6. (a) Solve the producer-consumer problem by using counting semaphore. 5
(b) What is thrashing? 1
(c) What are the two ways of happening external fragmentation for variable length partitions? 2
7. (a) What are system calls? 2
(b) Explain different categories of system calls. 2
(c) Explain PCB. 4
8. (a) Explain process state diagram. 2
(b) What is client server system and peer to peer system? 2
(c) Explain demand paging. 4

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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