Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

B.Sc. (AI and ML) (Sem.-2) OPERATING SYSTEMS Subject Code : UGCA 1923 M.Code : 79857 Date of Examination : 15-12-22

Time: 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

- 1. Answer briefly :
 - a) Write three function values of memory management module of an operating system.
 - b) What is the use of file system?
 - c) What is the main difficulty that a programmer must overcome in writing an operating system for a real time environment?
 - d) Define Logical address and Physical address.
 - e) Why page sizes are always powers of 2?
 - f) Explain seek time.
 - g) How does encryption protect misuse of data from an unauthorized user?
 - h) What basic services are provided by an Operating system?
 - i) What is address binding?
 - j) Differentiate program and process.

SECTION-B

- 2. a) How does the distinction between kernel mode and user mode function as a rudimentary form of protection (security) system?
 - b) Discuss the hardware support that is required in demand paging.
- 3. a) Explain basic concept of file management with access methods.
 - b) 'Linked allocation of physical disk block is not good'. Why?
- 4. a) Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page faults would occur for the following replacement algorithms, assuming five frames?
 - b) Write difference between paging and segmentation.
- 5. Disk requests come to the disk driver for accessing cylinders 10, 22, 20, 2, 40, 6, and 38, in given order. The disk head is currently at cylinder 20 and previous request was at cylinder 15. How much seek time is needed for FCFS algorithm, when seek time for positioning the head at a cylinder is 6 m sec?
- 6. Give two reasons why caches are useful? What problems do they solve? What problems do they cause? If a cache can be made as large as the device for which it is caching, why not make it that large and eliminate the device?
- 7. a) Distinguish between the client-server and peer-to-peer models of distributed systems.
 - b) Can a system detect that some of its processes are starving? Justify your answer.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.