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MIT(CS)-304

Introduction to Operating System

M.Sc. Cyber Security (MSCCS)

3rd Semester Examination, 2023 (June)

Time : 2 Hours] **[Max. Marks : 70**

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. Explain about the Linux file system.

2. Write a short note on following :

(a) Inter-Process communication.

(b) Polling.

(c) System Call.

(d) Kernel.

(e) Interrupts.

3. Define Virtual memory and demand paging. Consider a reference string : 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5, the number of frames in the memory is 3. Find out the number of page faults respective to :

(a) Optimal Page Replacement Algorithm.

(b) FIFO Page Replacement Algorithm.

(c) LRU Page Replacement Algorithm.

4. Answer the following :

(a) What is queuing model? 4

(b) Paralled computing. 4

(c) Wireless system. 3

(d) DMA mode of Data transfer. 4

(e) Dead locks. 4

5. What is Scheduler? What constitutes a good scheduling algorithm? Describe FCFS, Round robin and Priority scheduling?

SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. What are the role of Operating system ? Explain all the functions of Operating system.

2. Explain about the Characteristics of real-time systems.

3. What are the role of Kernel and Shell, explain it briefly?

4. What is Real-Time operating system? What are the characteristics of a real time system?

5. Which are the services provided by Kernel? Draw and discuss the block diagram of UNIX system Kernel.

6. What are awk patterns ? Describe Begin and End pattern.

7. Illustrate the user of octal notation of file permission, giving suitable example.

8. Explain the following commands of Unix with suitable examples :

(a) ls

(b) rm

(c) mv

(d) touch

(e) ln

(f) whoami

(g) chmod

(h) cat