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H-6021

M.Sc. (Semester-II)
Examination, July 2022

I.T.

(Advanced Operating System)

Time Allowed : Three Hours

Maximum Marks :70

Minimum Passing Marks : 25

Note : Question paper is divided into four sections. Attempt question of all four sections as per given direction.

SECTION-A

(Objective Type Questions)

Note : Attempt **any ten** questions. Each question carries 1 mark.

[1×10=10]

1. (A) Fill in the blanks :

(i) The main memory accommodates ..... .

(ii) Using transient code ..... the size of the operating system during program.

(iii) For real time operating systems, interrupt latency should be ..... .

(iv) An unrecoverable error is known as ..... .

(v) Defective sector on disks are often known as .....

(B) Multiple choice questions :

(vi) The number of processes completed per unit time is known as :

(a) Output

(b) Throughput

(c) Efficiency

(d) Capacity

(vii) The circular wait condition can be prevented by :

(a) Definig a linear ordering of resource types

(b) Using thread

(c) Using pipes

(d) All of the above

(viii) The information about all files is kept in :

(a) Operating system

(b) Separate directory structure

(c) Swap space

(d) None of the above

(ix) In distributed system each processor has its own :

(a) Local memory

(b) Clock

(c) Both local memory and clock

(d) None of the above

(x) To recover from failure in the network operations which information may be maintained?

(a) Operating system

(b) IP Address

(c) State less

(d) State

(xi) The first process launched by the Linux Kernel is :

(a) init process

(b) zombie process

(c) batch process

(d) boot process

(xii) A memory buffer used to accommodate a speed differential is called :

(a) Stack pointers

(b) Cache

(c) Accumulator

(d) Disk buffer

SECTION-B

(Very Short Answer Type Questions)

Note: Answer **any five** questions. Each question carries **2** marks. (Word limit **25 - 30** words) [2x5=10]

2. (i) What is the functions of an operating system?

(ii) What is Lamport's logical clock?

(iii) Define the classification of failures.

(iv) What do you know about database operating system?

(v) What is the history of Linux?

(vi) What do you know about distributed mutual exclusion ?

(vii) What is the concept of operating sytem?

SECTION-C

(Short Answer Type Questions)

Note: Answer **any five** questions. Each question carries **4** marks. (Word limit **250** words) [4x5=20]

3. (i) Define the design approaches of OS. Explain the types of advanced operating system.

(ii) What is Communication Primitives? Explain the inherent limitations.

(iii) Define the basic approaches to recovery. Explain the recovery in concurrent system.

(iv) Explain the structure and design issues of database operating system.

(v) What is Kernel modules? Explain the process management scheduling.

(vi) Define the termination detection. Explain the distributed deadlock detection.

(vii) What is language mechanism for synchronization? Explain the models of deadlocks.

SECTION-D

(Essay Type Questions)

Note: Answer **any three** questions. Each question carries **10** marks. (Word limit **500** words) [3x10=30]

4. (i) Define the axiomatic varifiation of parallel programs. Describe the consumable resources and reusable resources with diagram.

(ii) What is Distributed Resource Management? Describe the distributed shared memory and architecture with diagram.

(iii) What is Fault Tolerance? Describe the voting protocols and dynamic voting protocols.

(iv) What is Memory Management and File System? Explain the network structure and security summary with diagram.

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