CBCS SCHEME

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18SCS12

First Semester M.Tech. Degree Examination, Dec.2019/Jan.2020
Advances in Operating Systems

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Discuss the areas in which operating system provides services. **(06 Marks)**

b. Differentiate between simple batch processing and multiprogrammed batch processing. **(06 Marks)**

c. Explain Linux operating system Kernel components. **(08 Marks)**

OR

2 a. What is a Process? Mention the reasons operating system is responsible for creation of new processes. **(05 Marks)**

b. Describe five state process model with neat diagram, also explain the type of events that leads to state transition. **(08 Marks)**

c. Explain two general categories of system access threats in operating system and their countermeasures. **(07 Marks)**

Module-2

3 a. Explain user level thread management with its advantages and disadvantages. **(08 Marks)**

b. Explain benefits of Microkernel organization. **(06 Marks)**

c. With a neat thread transition diagram, explain the thread management in windows operating systems. **(06 Marks)**

OR

4 a. Explain with example differences between Fixed allocation, Local scope, Variable allocation global scope and Variable allocation local scope. **(08 Marks)**

b. With a neat diagram, explain address translation in a segmentation system. **(06 Marks)**

c. Explain virtual memory addressing in Linux memory management. **(06 Marks)**

Module-3

5 a. Explain the key design issues of multiprocessor operating system. **(06 Marks)**

b. List and briefly define five different categories of synchronization granularity. **(06 Marks)**

c. Explain popular classes of real time scheduling algorithm. **(08 Marks)**

OR

6 a. Compare Linux and windows scheduling. **(08 Marks)**

b. Explain some of the reasons for process migration implementation. **(06 Marks)**

c. Explain distributed deadlocks in message communication. **(06 Marks)**

Module-4

7 a. Explain the characteristics of Embedded Operating System. **(06 Marks)**

b. Explain in detail Tiny OS components. **(06 Marks)**

c. What is eCOS? Explain the various eCOS components with the help of layered structure architecture. **(08 Marks)**

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OR

8 a. Define a Computer Virus. List its parts. Explain different phases that a typical virus goes through during its life cycle. **(08 Marks)**

b. What is a Bot? List the uses of bots. **(06 Marks)**

c. Discuss the following terms: i) Backdoors ii) Trojan Horse. **(06 Marks)**

Module-5

9 a. List the steps performed during the creation of a new process by the fork ( ) system call in Linux. **(08 Marks)**

b. Explain the four different mechanisms by which user process can perform IPC using the Kernel. **(08 Marks)**

c. Write a short note on Module management in Linux. **(04 Marks)**

OR

10 a. With a neat diagram, explain the windows NT executive process and thread manager. **(10 Marks)**

b. With a neat diagram describe the steps followed by a cache manager of windows NT executive in cached read operation. **(10 Marks)**

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