



CBCS SCHEME

18SCS12

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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.

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)

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)
