TDC (CBCS) Odd Semester Exam., 2022

COMPUTER SCIENCE

(3rd Semester)

Course No. : CSCDSC/GE-301T

(Operating System)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

1. Answer any *four* of the following questions : 1×4=4

(a) What is nucleus of an operating system?

(b) What are the four components of an OS?

(c) Mention two multiuser OS.

(d) What are the three elements of OS?

(e) What is RTOS?

2. Answer any *one* of the following questions : 2

(a) Write the differences between multi-processing and multithreaded OS.

(b) What are the drawbacks of real time system?

3. Answer any *one* of the following questions : 8

(a) Explain operating system architecture.

(b) What is system call? What are different services provided by system call? Give example with respect to Windows and UNIX. 2+3+3=8

UNIT—II

4. Answer any *four* of the following questions : 1×4=4

(a) What is thread?

(b) What is scheduler?

(c) Define context switching.

(d) Write the difference between suspend and wait in process states.

(e) What do you mean by average waiting time?

5. Answer any *one* of the following questions : 2

(a) Write the difference between preemptive and nonpreemptive scheduling.

(b) Write the advantages of thread own process.

6. Answer any *one* of the following questions : 8

(a) What do you mean by process creation and process termination? What are the roles of fork( ) and exec( )? Also draw the process hierarchy of a system. 3+2+3=8

(b) Explain priority-based scheduling and round robin scheduling with example. 4+4=8

UNIT—III

7. Answer any *four* of the following questions : 1×4=4

(a) What are the two types of processes in OS?

(b) Define starvation.

(c) What is bounded waiting?

(d) What is critical section?

(e) What is busy waiting?

8. Answer any *one* of the following questions : 2

(a) What is synchronous message passing?

(b) What is circular wait in case of deadlock?

9. Answer any *one* of the following questions : 8

(a) Explain process synchronization with a suitable example.

(b) Explain deadlock deduction and prevention mechanism in detail.

UNIT—IV

10. Answer any *four* of the following questions : 1×4=4

(a) What is swap space?

(b) What is LRU page replacement algorithm?

(c) What is TLB?

(d) When does thrashing occur?

(e) What is fragmentation?

11. Answer any *one* of the following questions : 2

(a) Write the advantages of demand paging.

(b) What is the structure of page table?

12. Answer any *one* of the following questions : 8

(a) Write short notes on the following : 4+4=8

(i) Memory compaction

(ii) Logical and physical address

(b) (i) Explain paging with diagram. 4

(ii) Write the difference between internal and external fragmentation. 4

UNIT—V

13. Answer any *four* of the following questions : 1×4=4

(a) What is mounting of file system?

(b) What is the function of file management?

(c) When will file system fragmentation occur?

(d) What is directory structure of file?

(e) What is the purpose of ATTRIB command?

14. Answer any *one* of the following questions : 2

(a) Mention some key file attributes.

(b) What are different file operations?

15. Answer any *one* of the following questions : 8

(a) Discuss about policy mechanism in operating system.

(b) Explain the linked allocation policy to allocate space for file.

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