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4 SEM TDC CSC G 1 (N/O)

2018

(May)

COMPUTER SCIENCE

(General)

Course : 401

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

(New Course)

(Operating System)

Full Marks : 48
Pass Marks : 14

1. Choose and write the appropriate answer :
1×5=5

(a) Process is

- (i) a program in high-level language kept on disk
- (ii) content of main memory
- (iii) a program in execution
- (iv) a job in secondary memory

(Turn Over)

(2)

- (b) A Process Control Block (PCB) does not contain which of the following?
- (i) Code
 - (ii) Stack
 - (iii) Bootstrap program
 - (iv) Data
- (c) Which of the scheduling algorithm allows processes that are in runnable state to be temporarily in suspended state?
- (i) Preemptive scheduling
 - (ii) Non-preemptive scheduling
 - (iii) FIFO
 - (iv) FCFS
- (d) Two basic types of operating systems are
- (i) sequential and direct
 - (ii) batch and timesharing
 - (iii) sequential and realtime
 - (iv) batch and interactive
- (e) Which of the following is not the approach to handle deadlocks?
- (i) Deadlock prevention
 - (ii) Deadlock avoidance
 - (iii) Detect and recover
 - (iv) Virtual memory

(3)

2. Answer the following questions : 2×5=10
- (a) What is system call?
 - (b) Explain the term virtual memory.
 - (c) What do you mean by multi-programming?
 - (d) Define the term CPU scheduling.
 - (e) Explain the term sequential access of file.

3. Answer any *five* of the following questions : 5×5=25

- (a) Briefly explain the services of operating system.
- (b) Explain the basic method of paging.
- (c) Draw Gantt chart to illustrate the execution and find the waiting time for each of the following processes arriving in the order P_1 , P_2 and P_3 using FCFS algorithm :

| Process | Burst time (in milliseconds) |
|---------|---------------------------------|
| P_1 | 24 |
| P_2 | 3 |
| P_3 | 3 |

- (d) Briefly explain how real-time operating system works.
- (e) Explain any one page replacement algorithm using example.
- (f) Explain the direct access method of file.

4. Briefly explain the file allocation method.

Or

Briefly explain the various CPU scheduling algorithms.