MCA-11

December - Examination 2015

MCA IInd Year Examination

Operating System

Paper - MCA-11

Time : 3 Hours]   **[Max. Marks :- 80**

Note: The question paper is divided into three sections A, B and C. Write answers as per given instructions.

Section - A   8 x 2 = 16
(Very Short Answer Questions)

Note: Answer **all** questions. As per the nature of the question delimit your answer in one word, one sentence or maximum upto 30 words. Each question carries 2 marks.

1) (i)   Which technique was introduced because a single job could not keep both the CPU and I/O devices busy?

    (ii)   What is dispatcher?

    (iii) Define SPOOLING.

    (iv)   What is system call?

    (v)   Give few deadlock handling methods.

    (vi)   What is context switch?

(vii) What is interprocess communication?

(viii) What is firmware?

Section - B   4 x 8 = 32
(Short Answer Questions)

Note: Answer **any four** questions. Each answer should not exceed 200 words. Each question carries 8 marks.

2) Define operating system. Explain how operating system acts as a resource manager.

3) Differentiate between program and process. Explain with state transition diagram various states of a process.

4) What is race condition? Explain critical section problem.

5) Explain various memory allocation schemes with suitable example.

6) What are different operations performed on file?

7) What do you mean by page replacement algorithm? Why page replacement algorithms are used?

8) What is user authentication? Explain different type of user authentication scheme.

9) Compare multiprocessor and distributed operating systems.

Section - C   2 x 16 = 32

(Long Answer Questions)

Note: Answer **any two** questions. You have to delimit your each answer maximum upto 500 words. Each question carries 16 marks.

10) Consider the set of processes with the length of CPU burst time given in (ms)

Process	Burst time	Priority
P1	13	5
P2	42	2
P3	25	3
P4	10	1

Process are assumed to have arrived in order P3, P1, P4, P2, P5, P6 at time 0 ms

(i) Draw Gantt chart illustrating the execution of the process using

   a) FCFS   b) Priority scheduling

(ii) Calculate the turnaround time and average waiting time for each process using RR algorithm (time quantum = 5 ms)

11) Explain different process states and states transition of process with the help of diagram. Also explain context switching in process.

12) How does pre paging differ from demand paging? How does demand paging affect the performance of system?

13) If the page reference string is 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2, 1,2,3,6 and there are three frames(page) apply LRU and FIFO replacement algorithm to find the page fault.

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