Operating System -2011

Section-A (Objective Questions : 1 marks each)

1. ___is a program running at all times on the computer.
   (a) interface (b) file
   (c) driver (d) kernel
2. A time quantum is generally from ..... to ..... ms.
   (a) 10,100 (b) 100,200
   (c) 1,10 (d) none
3. The hardware cache which is a special, small, fast-look-up, high speed memory used in paging is called .....
4. A disk that has a boot partition is called a ..... disk or ___disk.
5. DMA stands for .....

Section-B (Short Questions : 2 marks each)

B-1. Give salient features of virtual and non-virtual machines.
Or What do you understand by dual mode operation of CPU.
B-2. Give the complete process state diagram with proper labeling so that the diagram is self explanatory.
Or Explain CPU burst and I/O burst.
B-3. Differentiate between external and internal fragmentation.
Or Explain thrashing? How is it controlled.
B-4. What is a hash table? Name one of its important application.
Or Write a short note on disk management.
B-5. Explain handshaking.
Or Name & explain in brief the basic hardware elements involved in I/O.

Section-C (Long Answers : 4 marks each)

C-1. Compare real time, distributed and network operating systems.
Or Enumerate operating system functions and services in detail.
C-2. (i) What is a PCB? What does it contain?
(ii) Where is the PCB situated and maintained.
Or (i) Define the performance criteria for judging the performance of the cpu scheduling algorithms.

(ii) Assume, we have the workload as shown below. All 5 processes arrives at time o, in the order given. The length of the CPU burst time is given in milliseconds.

Process :	P1	P2	P3	P4	P5
Burst time:	10	29	3	7	12

Considering the FCFS, SJF and RR (q = 10 ms) scheduling algorithms, which algorithm would give the minimum average waiting time.

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3. (i) Explain the hardware requirements to implement paging.
(ii) Why are page sizes always in powers of 2?
(iii) Name 2 differences between logical and physical address.

Or Consider the following segment table:

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

What are the physical addresses for the following logical addresses:

a. 0,430
b. 1, 10
c. 2, 500
d. 3, 400
e. 4, 112

C-4. (i) Enumerate the file attributes.
(ii) Name some common file types, their extension names and their functions.

Or (i) Write about the main features of the different directory structures in brief.
(ii) Name and describe the various on-disk and in-memory structures used to implement a file system.

C-5. (i) What do you understand by memory mapped I/O and I/O mapped I/O.
(ii) Write in detail about viruses and worms.

Or (i) Differentiate between Polling and Interrupts.
(ii) Write in detail about deadlock recovery.