

Tutorial 1

(1) An address generated by the CPU is also referred to as a physical address. True or False?

(2) What is the hardware device that maps virtual to physical addresses?

(3) Name two differences between logical and physical addresses.

(4) Why are page sizes always powers of 2?

(5) An application program is being designed and developed for a microprocessor based controller for an automobile. The application is required to perform the following functions:

- monitor and display the speed of the automobile
- monitor the fuel level and raise an alarm if necessary
- display the fuel efficiency
- monitor the engine condition and raise an alarm if unusual condition is detected
- periodically record some auxiliary information like speed, fuel level etc.

(a) Is this a real time application. Justify your answer (b) It is proposed to create multiple processes to reduce the response time of the application. Enlist the processes that should be in it. Specify their priorities.

(6) Explain the difference between the single user single tasking, multitasking and multiprogramming operating systems.

(7) What do you mean by kernel and MicroKernel?