

1. What is the purpose of using swap memory? Describe in detail the paged memory mechanism. (15%)
2. Describe in detail the different methods of CPU scheduling for multi-task operating environment. (15%)
3. Explain the following terms: (20%)
 - (a). MACRO processor
 - (b). Direct-linking loader
 - (c). System deadlock
 - (d). I/O Processor
4. Please describe in detail the features of the *inheritance* and the *polymorphism* in Object-Oriented Programming paradigm. (15%)
5. If you are designing a compiler for a language, what would be the algorithms for calculating the correct address of an indexed element of a multi-dimensional array? Suppose the base address is B, and the dimension is N. (10%)
6. Describe the reasons why the hard disk manufacturers nowadays try every effort to raise the rotational speed of hard disks. What is the main drawback after the rotational speed of hard disks is raised? (15%)
7. What is the symbol table for a compiler? Why the design of a compiler usually uses two phases methods. (10%)