

(3 Hours)

[Total Marks : 100

- N.B.:** (1) Question No. 1 is **compulsory**.
 (2) Solve any **four** questions from the **remaining** questions.
 (3) **Figures** to the right indicate **full marks**.
 (4) Assume **suitable data**, if **required**.

1. (a) Explain the different types of grammars and ambiguity in grammatic specification. 10
 (b) Explain Design of Pass II assembler. 10
2. (a) Explain the different page replacement algorithms. 10
 (b) Explain the mutual exclusion implementation with semaphores. 10
3. (a) Explain process and state diagram for PCB. 10
 (b) Explain the code optimization phase of a compiler. 10
4. (a) Explain bankers algorithms for deadlock avoidance. 10
 (b) Explain the design of direct linking loader. 10
5. (a) Explain Macro and database for 2-pass Macro. 10
 (b) Describe error identified by the different phases of compiler. 10
6. (a) Describe a mechanism by which one segment could belong to the address of two different processes. 10
 (b) Explain the file organization and the access methods ? 10
7. Write short notes on any **four** of the following :— 20
 - (a) Non relocatable programs
 - (b) Dynamic Linking
 - (c) Cross Compiler
 - (d) System calls and drivers
 - (e) Forward reference problem in Assembler.