

Con/5729-07.

( REVISED COURSE )

CD-5652

( 3 Hours )

[ Total Marks : 100

**N.B. :** (1) Question No. 1 is **compulsory**.

(2) Attempt any **four** questions from remaining **six** questions.

(3) **Figures** to the **right** indicate **full** marks.

(4) Assume **staitable** data whenever **necessary**.

1. (a) Explain various page replacement policies. Implement LRU, OPT, FIFO 10  
for following page frame sequence, where page frame size is 3.  
0, 1, 2, 1, 4, 2, 3, 7, 2, 1, 3. Calculate Hit ratio.
- (b) Explain the working of a two-pass assembler with neat flowcharts and 10  
description of various databases used.
2. (a) What is virtual memory ? Explain with neat sketch the translation of 10  
virtual address into physical address in a segmentation/paging system.
- (b) Describe the various forms of Intermediate code used by compilers. 10
3. (a) What is the need of Linkage editor in system programming ? Explain 10  
its working in brief.
- (b) What are the requirements of Mutual exclusion ? Explain Dekker's algorithm 10  
for mutual exclusion.
4. (a) Explain file organisation and access methods. 10  
(b) Explain process and state diagram for PCB. 10
5. (a) Differentiate between syntax tree and parse tree. Also explain, what is 10  
ambiguous grammar. Assume some suitable grammar.
- (b) Explain Macro and Database for 2-pass Macro. 10
6. (a) What are the four conditions that create deadlock ? Explain deadlock 10  
prevention and deadlock avoidance.
- (b) Explain the design of direct linking loader. 10
7. Write short notes on (any four) : 20
  - (a) Pre-emptive Scheduling
  - (b) Cross Compiler
  - (c) System Calls and Driver
  - (d) Dynamic Linking
  - (e) Interprocess Communication
  - (d) Forward Reference Problem in Assembler.