

(3 Hours)

Total Marks: 80

- N.B:** (1) Question No. 1 is compulsory.
 (2) Attempt any three questions out of the remaining five questions.
 (3) Figures to the right indicate full marks.
 (4) Make suitable assumptions wherever necessary.

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- Q.1.** A. Differentiate between Application Software and System Software. 5
 B. What are the functions of a Loader? Enlist the loader schemes. 5
 C. Explain Macro and Macro Expansion with example. 5
 D. Compare Bottom-Up and Top-Down Parser. 5
- Q.2.** A. Explain with flowchart design of two pass assembler. 10
 B. Construct Three address code for the following program 10
 For(i=0;i<10;i++)
 {
 If (i<5)
 a=b+c*3;
 else
 x=y+z;
 }
- Q.3.** A. Explain different features of macros with suitable example. 10
 B. Design LL(1) parsing table for the given grammar: 10
 $S \rightarrow Ad$
 $A \rightarrow aB \mid BC$
 $B \rightarrow b$
 $C \rightarrow e \mid \epsilon$
 Also state that whether the given grammar is LL(1) or not.
- Q.4.** A. Explain the working of a Single-pass macro processor with neat flowchart. 10
 B. What are the different ways of representing Intermediate code? Explain with suitable example. 10
- Q.5.** A. Explain different issues in code generation phase of compiler. 10
 B. Construct DAG for the following expression 10
 $x = m + p/q - t + p/q * y$
- Q.6.** A. Explain Direct Linking Loader in Detail. 10
 B. Explain the different phases of a compiler with suitable example. 10