

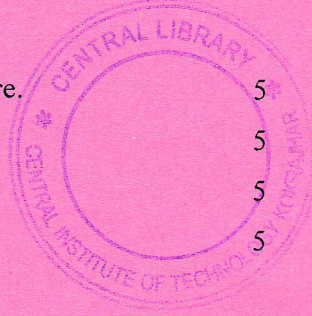
SYSTEM PROGRAMMING

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

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1. a) Define System and Application Software. 5
b) List various types of System Software. 5
c) Define Assembler. 5
d) Define Linker. 5
 2. a) Explain with diagrammatic illustration the Von Neumann architecture. 10
b) Giving a neat state diagram, explain various states of Instruction Cycle. 10
 3. For a given expression $X = (A/B) + (C * D)$ write
 - a) Three address instructions 5
 - b) Two address instructions 5
 - c) One address instructions 5
 - d) Zero address instructions 5
 4. a) Discuss different types of programming languages with their advantages and disadvantages. 10

- b) Write an instruction format of an assembly language. 4
- c) Discuss why do we need an assembler. 6
5. a) Discuss the working principle of a two pass assembler and various steps of translation. 6
- b) Write an assembly program for expression $Z=A*B/C+D$ 4
- c) Write variant I intermediate representation of obtained program of Question 5b. 5
- d) Write machine code of the obtained variant I in Question 5.c. 5
6. Write short notes on any two of the following 5x4=20
- a) Various phases of a Compiler
- b) Operating System and its types
- c) Device drivers
- d) Error Reporting
7. a) State and explain Translation Hierarchy. What is Loading? What are the different types of loaders? 4+3+5=12
- b) Write a shell program to add two numbers present in memory. 8

