T.E. Com / Sem VI / Rev

Con. 3617-10. **(REVISED COURSE)** **AN-4468**

Systems Programming & Compiler construction

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory.**
(2) Attempt any **four** questions out of remaining **six** questions.

1. Answer the following questions in short (any **four**) :— **20**
   (a) Differentiate between Parse tree and Syntax tree.
   (b) State the reasons for the assembler to be multipass program.
   (c) Explain role of the finite automata in Compiler theory.
   (d) With example explain the process of elimination of left recursion.
   (e) What is System Programming ? List some System Programs and write their functions.

2. (a) With the help of following grammar and given string explain role of operator precedence parser. **10**

   $E \rightarrow E + T / T$
   $T \rightarrow T * V / V$
   $V \rightarrow a / b / c / d$

   String to parse 'a + b*c*d'

   (b) Explain when will a macro be used in a program ? How is macro different from subroutine ? **10**

3. (a) Generate three address code for a given expressions. **10**

   while (A < B) do
   if (C < D) then X = Y + Z

   (b) (i) Write a note on JAVA Compiler and Environment. **5**
   (ii) What are assembler directives? Explain with example. **5**

4. (a) Test whether the grammar is LL(1) or not, and construct a predictive parsing table for it. **10**

   $S \rightarrow AaAb / BbBa$
   $A \rightarrow \epsilon$
   $B \rightarrow \epsilon$

   (b) Explain various phases of Compiler with suitable example. **10**

5. (a) With reference to assembler explain the following tables with suitable example. **10**
   (1) POT (2) MOT (3) ST (4) LT
   (b) What are different functions of loader ? Explain difference between linkage editor and linking loader. **10**

6. (a) Explain run time storage organization in detail. **10**
   (b) Explain role of code optimization in compiler designing with suitable example. **10**

7. (a) What is binding ? Explain static and dynamic binding. **10**
   (b) Explain syntax directed translation with respect to construction of syntax tree. **10**