Seat No. : _____

XY-138

Five Years M. Sc. (CA & IT) Integrated (K.S.)
T.Y. M.Sc.
April-2013

System Software

Time : 3 Hours] **[Max. Marks : 100**

1. (A) Attempt any **three :** **18**

   (a) Explain various data structures used during Pass – I & Pass – II of an assembler.

   (b) Discuss problem of single pass assembler. Explain the pass structure of two pass assembler.

   (c) Write a note on "Language Processor Development tools".

   (d) Compare Derivation and Reduction with example.

   (B) Define "Intermediate Representation". **2**

2. (A) Attempt any **three :** **18**

   (a) Explain use of stack and extended stack model with suitable example.

   (b) Explain Top-Down parsing without backtracking with example.

   (c) Explain various data-structures used/generated by macro processor with example.

   (d) What are the different types of parameters used in Macros ?

   (B) Define "Regular Expression". **2**

3. (A) Attempt any **three :** **18**

   (a) Explain code optimization and all its techniques.

   (b) Write a note on Loader.

   (c) Write a note on Device Driver.

   (d) Explain Non-relocatable program, Relocatable program and self relocatable program.

   (B) Draw schematic of program execution. **2**

4. (A) Attempt any **three :** **18**

(a) Explain various intermediate representation for expression with example.

(b) Write a note on “Software tools”.

(c) Define : (i) Translated origin

(ii) Relocation factor

(iii) Public definitions

(iv) External reference

(d) Explain significance of linkage overlay with examples, write the advantage of an overlay techniques.

(B) Draw DFA for real number. **2**

5. Attempt any **two :** **20**

(a) Explain the working principles of first pan of linker with examples.

(b) Explain Major Design Issues of Device Drivers.

(c) Find first and follow for the given grammar for every non-terminals and develop LL parsing table. For a given grammar

E = E + T / T

T = T ∗ F / F

F = <id> / (E)

(d) Draw expression tree for the string f + (*x* ∗ y) ∗ ((a + b) / (c – d)), Do RR labelling and evaluate order according to algorithm 6.1.

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