Seat No.

T.E. (Information Technology) (Semester – II) Examination, 2014
SYSTEM SOFTWARE PROGRAMMING
(2008 Course)

Time : 3 Hours   Max. Marks : 100

Instructions : *1) Answer Q.**1** or Q.**2**, Q.**3** or Q.**4**, Q.**5** or Q.**6** from Section **I** and Q.**7** or Q.**8**, Q.**9** or Q.**10**, Q.**11** or Q.**12** from Section **II**.*
*2) Answers to the **two** sections should be written in separate answer books.*
*3) **Neat** diagrams must be **drawn** wherever necessary.*
*4) Figures to the **right** side indicate **full** marks.*
*5) Assume suitable data if **necessary**.*

SECTION – I

1. a) What activities are conducted during Analysis and Synthesis phase of a two pass assembler. **8**

   b) Explain the Back-patching with suitable example. **6**

   c) Explain the term system programming. **2**

OR

2. a) What do you mean by assembler directives ? Explain how assembler directives LTORG, ORIGIN are processed in first pass with example. **8**

   b) Distinguish between Variant I and Variant II representations used for Intermediate code of two pass assembler. **8**

3. a) Define the term macro. Explain the terms lexical expansion and semantic expansion with respect to macro. **10**

   b) Explain with example following macro facilities. **8**
      i) Expansion time loops
      ii) Change of flow during macro expansion.

OR

4. a)
```
          MACRO
   ABC   &X,  &N,  &REG = AREG
          LCL   &M
&M        SET   0
          MOVER     &REG ,   ='0'
.MORE     MOVEM   &REG,   &X  + &M
&M        SET   &M + 1
          AIF   (&M   NE   N)   .MORE
```
12

MEND
START 500
MOVER CREG, B
ABC AREA ,10
ADD CREG ,= '1'
END

   i) Show the contents of different tables with output after processing of macro definition.
   ii) Show the expanded assembly language program.

  b) Explain the actual arguments and dummy arguments with examples.   **6**

5. a) Draw and explain the block diagram of phases of compiler.   **8**
  b) Differentiate between Compiler and Interpreter.   **2**
  c) What are the advantages and disadvantages of top down parsing.   **6**

<p align="center">OR</p>

6. a) Consider following program.   **10**

```
void main()
{
        int p,q,r;
        P = 10;
        P = P + 5;
        printf ("10");
}
```

Write down the output of lexical analyzer and also show the contents of different tables.

  b) Explain the role of grammar in Compilers. Give types of grammar and explain the example of Context free grammar.   **6**

<p align="center">SECTION – II</p>

7. a) Explain any two issues in code generation.   **8**
  b) Explain any two intermediate code formats with examples.   **8**

<p align="center">OR</p>

8. a) Show the triple and quadruple representation of following three address statements.   **8**

$$t_1 : = - c$$
$$t_2 : = b * t_1$$
$$t_3 : = - c$$
$$t_4 : = b * t_3$$
$$t_5 : = t_2 + t_4$$
$$a : = t_5$$

  b) Explain any two machine independent code optimization techniques with example.   **8**

9. a) Compare absolute loading scheme VS Compile and Go loading scheme. **6**

   b) Explain RLD and TXT cards. **4**

   c) Explain various databases required for Pass I and Pass II of direct linking loader. **8**

<div align="center">OR</div>

10. a) Compare linking loader and linkage editor. **4**

   b) Explain following.

     i) Relocating loaders   ii) Overlay Structure **6**

   c) Explain BSS loading scheme with the help of an example. Explain how four basic functions of loader are performed in BSS loading scheme. **8**

11. a) Explain Programming Environment in detail. **6**

   b) What are various types of Editors ? With the help of block diagram explain typical Editor structure. **10**

<div align="center">OR</div>

12. a) Explain the significance of LEX with example. **8**

   b) Write short notes on

     i) User Interfaces   ii) YACC. **8**

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