

Total No. of Questions : 12]

T.E. IT Sem - II  
May-June-2012

SEAT No. :

P1148

[Total No. of Pages : 3

[4163] - 355

**T.E. (Information Technology)**  
**SYSTEM SOFTWARE PROGRAMMING**  
**(2008 Pattern) (Sem. - II)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) In Section I, attempt Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6.
- 2) In Section II, attempt Q.No.7 or Q.No.8, Q.No.9 or Q.No.10, Q.No.11 or Q.No.12.
- 3) Answers to the two sections should be written in two separate books.
- 4) Neat diagrams must be drawn wherever necessary.
- 5) Figures to the right indicate full marks.
- 6) Assume suitable data, if necessary.

**SECTION - I**

- Q1) a) Write an algorithm for Pass-I of two pass Assembler and explain with suitable example. [12]
- b) Give the difference between Literal and Symbol. How these are treated by Assembler. [6]

OR

- Q2) a) For the following assembly code generate Literal table, Symbol Table, Pool Table, Intermediate Code, Assume size of instruction is equal to one byte. [10]

```
START 200
MOVER AREG, A
L:    MOVEM BREG, = '2'
      ADD BREG, = '2'
      ADD CREG, = '3'
      ORIGIN L + 20
      LTORG
      MOVER AREG, C
      C EQU L + 15
      ADD AREG, = '2'
      ADD BREG, = '5'
      A DS 5
      END
```

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- b) Explain forward referencing and back - patching with reference to single Pass Assembler with suitable example. [8]

Q3) a) Write an algorithm for Pass - I of two pass Macro Processor with suitable example. [10]

- b) What are the different ways in which we can specify the arguments to a Macro call? Briefly explain with the help of suitable example. [6]

OR

Q4) a) Write an example for a Macro Calls within Macro definitions, for this example (input source) Show the contents of Macro Definition Table and Macro Name Table. [12]

- b) Compare Macro and Subroutine. [4]

Q5) a) What is Lexical Analysis? Enlist the various data structures used in Lexical Analysis. Give the format of each data structures with suitable example. [10]

- b) With the help of suitable example explain the problem of left recursion in Top down Parser. [6]

OR

Q6) a) Consider the following Grammar. [6]

$S \rightarrow aABe$

$A \rightarrow Abc \mid b$

$B \rightarrow d$

Show stepwise procedure for recognizing the input string "abbcd" using Bottom up parsing technique.

- b) What do you mean by Top down Parser? Explain with suitable example. [6]
- c) What are the basic tasks of Scanner? [4]

## SECTION - II

Q7) a) For the statement given below, generate intermediate code in the format. [8]

i) Postfix notation.

ii) Parse tree.

iii) Quadruple.

iv) Triple.

$s = (a + b) / (c - d)$

- b) What are the issues in code generation? [8]



OR

- Q8)** a) Explain in brief machine Independent optimization techniques. [12]  
b) What is the need for generating intermediate code? Explain. [4]

- Q9)** a) Explain compile and Go loader scheme. [6]  
b) What is loader? Enlist the basic functions of a loader. [6]  
c) Differentiate between absolute loader and relocating loader. [6]

OR

- Q10)** a) Draw the flow chart for Pass II of direct linking loader. [12]  
b) Explain: [6]  
i) Overlay structure,  
ii) Linkage editor.

- Q11)** a) Explain the following language processor tools. [8]  
i) LEX.  
ii) YACC.  
b) State merits & demerits of Line & Screen editors, with example. [8]

OR

- Q12)** a) Explain in detail typical editor structure. [8]  
b) What is the importance of User Interface in system software development? Explain. [4]  
c) Write the significance of Debug Monitor. [4]

