

Total No. of Questions : 12]

SEAT No. :

P835

[Total No. of Pages : 4

[4263] - 355

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

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 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 indicate full marks.
- 5) Assume suitable data, if necessary.

**SECTION - I**

- Q1)** a) Explain what is meant by pass of an assembler. [2]  
b) What activities are conducted during analysis and synthesis phase of a two pass assembler. [6]  
c) Explain the terms forward reference and backpatching with reference to the single pass assembler. [8]

OR

- Q2)** a) What are the assembler directives? Explain how assembler directives LTORG, ORIGIN and EQU are processed in first pass. [8]  
b) What types of errors are handled by the assembler? Explicitly mention error reporting in Pass I and Pass II of two pass assembler. [8]
- Q3)** a) Define the term macro. Explain the terms lexical expansion and semantic expansion with respect to macro. [8]  
b) State True or False and justify your answer : [10]  
i) A unit of specification for a program generation through expansion is called as Compiler.  
ii) An AGO <Sequencing Symbol> statement unconditionally transfers control.

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- iii) APTAB and EVTAB data structures are constructed during pass II of Macro preprocessor.
- iv) A language processor which bridges an execution gap but is not a language translator is called as detranslator.
- v) The process of replacement of a character string by another character string during program generation is called as semantic expansion.

OR

Q4) a)

[12]

```

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

```

- i) Show the contents of different tables and output after processing of macro definition.
  - ii) Show the expanded assembly language program.
- b) Explain C - Preprocessor. [6]

- Q5) a) Explain the role of finite automata in lexical analysis phase of compiler. [6]
- b) Compare top down parsing and bottom up parsing. [4]
- c) Explain error recovery in top down parsers. [6]

OR



Q6) a) Consider following program. [10]

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

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

b) Explain different strategies to recover from a syntactic error. [6]

### SECTION - II

Q7) a) What is the purpose behind code optimization? What is the criteria for code Optimization? [8]

b) Explain Loop optimization techniques with example. [8]

OR

Q8) 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 issues in code generation. [8]

Q9) a) Compare linking loader and linkage editor. [6]

b) Explain ESD and RLD cards. [6]

c) Explain the functions of loader. [6]

OR



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- Q10)** a) Explain following : [10]  
i) Dynamic linking  
ii) Overlays  
b) Explain BSS loading scheme with the help of an example. Explain how four basic functions of loader are performed in BSS loading scheme. [8]

- Q11)** a) Explain debug monitor in detail. [6]  
b) What are various types of Editors? With the help of block diagram explain typical Editor structure. [10]

OR

- Q12)** a) Explain YACC file structure. [4]  
b) Write short notes on : [12]  
i) Programming Environment  
ii) User Interfaces  
iii) LEX

