

Total No. of Questions : 12]

SEAT No. :

P1432

[Total No. of Pages : 3

[4858] - 206

**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 side indicate full marks.*
- 5) *Assume Suitable data if necessary.*

**SECTION - I**

- Q1)** a) For the following assembly code generate Literal table, Symbol Table, Pool Table, Intermediate Code, Assume size of instruction is equal to one byte. **[12]**

```
START 200
MOVER AREG, = '5'
MOVEM AREG,A
LOOP : MOVER AREG, A
        MOVER CREG, B
        ADD AREG, ='2'
        LTORG
NEXT1: SUB AREG, = '1'
        ORIGIN LOOP+6
        ADD BREG, A
        A    DS    2
        B    DC    3
NEXT2 EQU  LOOP
        END
```

- b) Describe the following System software **[6]**
- i) Compiler
  - ii) Assembler
  - iii) Interpreter

**P.T.O.**

OR

- Q2)** a) Write an algorithm for Pass-II of two pass Assembler and explain with suitable example. [12]  
b) Explain Back patching with respect to Assembler. [6]
- Q3)** a) Describe an algorithm for Pass-I of two pass Macro Processor also show the contents of different tables created during Pass-I for suitable example. [8]  
b) Explain following Macro facilities with example. [8]  
i) Expansion time loops  
ii) Change of flow during Macro expansion.

OR

- Q4)** a) Write an algorithm for Pass-II of two pass Macro Processor with suitable example also show different tables used during Pass-II. [10]  
b) Describe conditional macro calls with suitable example. [6]
- Q5)** a) List and explain the working of various phases of compiler for the statement. [8]  
$$X = Y + Z * 10 \text{ (where X,Y,Z are float type).}$$
  
b) Explain Shift Reduce Parser with example also enlist what are the major problems with Shift Reduce Parser. [8]

OR

- Q6)** a) Enlist various tables used and created by Lexical Analyzer? Show the contents of tables with suitable example. [10]  
b) Describe Top down parser with example. [6]

### SECTION - II

- Q7)** a) Explain Machine Independent code optimization technique by taking appropriate example. [12]  
b) Explain the importance of intermediate code generation in compiler. [4]

OR

**Q8)** a) For the statement given below, generate intermediate code in the format. [8]

i) Quadruple

ii) Triple

iii) Postfix

iv) Parse Tree

$$A = (-C + D) / (-P * (-Q + R))$$

b) Describe and explain the issues in code generation. [8]

**Q9)** a) Explain BSS loading scheme with the help of an example. Also discuss how four basic functions of loader are performed in BSS loading scheme. [10]

b) Describe ESD and RLD cards with the help of suitable example. [8]

OR

**Q10)** a) Explain the following : [6]

i) Overlay Structure

ii) Linkage editor.

b) What is loader? Enlist basic functions of a loader? [6]

c) Compare : [6]

i) Dynamic loading Vs Dynamic linking

**Q11)** a) Describe various types of editors? Explain with the help of the block diagram of Typical Editor structure. [12]

b) Differentiate between Line and Screen editor. [4]

OR

**Q12)** Write a short note on: [16]

a) Debug Monitor.

b) LEX and YACC.

c) Programming Environment.

d) User Interfaces

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