LE-124

April-2014

T.Y. M.Sc. (CA & IT) (Sem.-VI)

(Integrated)
System Software

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

1. Answer the following : (Any **4**)   **20**
   - (a) What is system software ? List and explain the goals of system software.
   - (b) Explain the fundamentals of Language Processing with diagram.
   - (c) List the different types of Editors available and explain each in brief.
   - (d) What is a Language processor ? List and explain the different types of language processors with diagram.
   - (e) What is a User Interface ? Explain with diagram.

2. (A) Attempt the following :   **10**

   For the given assembly code
   - (a) Generate appropriate data structures
   - (b) Show variant-I intermediate code

	START	500	
	ID1 DS	5	
LI	MOVER	AREG,	D
	ADD	AREG,	C
	SUB	AREG,	ID2
	MOVEM	AREG,	ID1
D	EQU	ID2	
L2	PRINT	D	
	ORIGIN	ID1 – 1	
C	DC	'9'	
	STOP		
ID2	DC	'13'	
	END		

   OR

   (A) Attempt the following :   **10**
   - (a) Explain the following assembler directives with example :
     (i) ORIGIN   (ii) LTORG
   - (b) Explain the pass structure of an assembler in brief.

   (B) Answer the following :   **10**
   - (a) What is a Device Driver ? Differentiate between Character Drivers and Block Drivers.
   - (b) Explain the major design issues of Device Drivers.

3. (A) Answer the following in brief : (Any **4**)   **12**
    (a) Differentiate between Macro & Sub-routines.
    (b) Explain Positional and Keyword Parameters with example.
    (c) List and explain the components of interpreter.
    (d) Explain how IRP and REPT statements are processed by Macro preprocessor.
    (e) Describe Pure & Impure interpreters with diagram.

   (B) Perform Macro Pass-I for the following Code :   **8**

```
           MACRO
           MATH      &P1,    &P2,   &P3,   &REG=CREG
           AIF       (&P1   EQ  &P2)        .EXIT
           MOVER     &REG,   &P1
           SUB       &REG,   &P2
           ADD       &REG,   &P3
           AGO       .STOP
.EXIT      MOVER     &REG,   &P3
           ADD       &REG,   &P2
.STOP      MEND
```

4. Answer any **4** in detail :   **20**
   (a) Define Grammar. List and explain different types of grammar.
   (b) List the different Code Optimization techniques and explain any 2 with example.
   (c) Draw Triples and Quadruples for the following :
       T1 = (a+b*c) - (d*e∧f)
       T2 = x+b*c
       T3 = y*e∧f
   (d) Explain Bottom-up parsing with algorithm.
   (e) Write a short note on Language Processor Development Tools.

5. (A) Attempt the following :   **10**
    (a) Write and explain Program Relocation algorithm with example. Draw the schematic of Program Execution. Also define the following terms :
        (i)   Translator
        (ii) Linking
        (iii) Relocation
        (iv) Loading
    (b) Write a short note on Overlay Structure program. Also explain the design of the same with example.

   (B) Give the function, operations, advantages & disadvantages of any **3** of the following :   **10**
    (a) Absolute Loader
    (b) General Loader
    (c) Two Pass Linking Loader
    (d) Relocating Linking Loader

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