B.E. (Information Technology) Fifth Semester (C.B.S.)

System Programming

P. Pages : 2 **NRJ/KW/17/4493**

Time : Three Hours * 0 4 3 3 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Draw and explain general machine structure. **8**

b) Define following terms : **any four.** **5**

i) Assembler

ii) Loader

iii) Compiler

iv) System Software

v) Interpreter.

OR

2. a) What are the advantages and disadvantages of using base register or base offset addressing scheme over direct addressing scheme. **5**

b) Explain different data formats for 1BM 360/370 system. **8**

3. a) Explain the difference between linear and binary search. State the prerequisite of binary search. Determine the number of passes / iterations required to search the word "Aug" in the following list using binary search Apr, Aug, Dec, Feb, Jan, Jul, Jun, Mar, May, Nov, Oct, Sep. **4+5**

b) Explain why assembler needs two passes over the source program? If one wants to have one pass assembler, then what will be the restrictions on programmer? **2+2**

OR

4. a) Explain detailed pass - 1 of assembler with flow chart. **9**

b) How DS and DC pseudops are processed in pass - 1 and pass - 2 of assembler. **4**

5. a) Describe the table formats of ALA, MNT, MDT needed in macroprocessor. **7**

b) Explain the working of "Macro Call with macro" facility provided by macroprocessor. **7**

OR

6. For the following program give entries in ALA, MNT, MDT and the expanded code. **14**

```
        MACRO
        XYZ     &A
        L       1, &A
        AR      2, 1
        ST      1, &A
        MEND
        :
        MACRO
        MIT     &ARG1, &ARG2
        XYZ     &ARG1
        XYZ     &ARG2
        MEND
        :
        MIT     DATA1, SUM
        :
        :
DATA1   DC      F'10'
SUM     DC      F'20'
        :
        END
```

7. a) What are different loading schemes. Explain Relocating loader in detail. **9**

b) What is dynamic loading? Explain with suitable example. **4**

OR

8. a) Explain the different cards used in direct linking loader? What is their sequence and contents? **7**

b) Explain in brief GEST and LESA. **6**

9. a) Explain various steps involved in translation of high level language program to machine language or used by compiler. **10**

b) What is cross compiler? Where it is used? **3**

OR

10. a) What is the functionality of LEX and YACC? Describe the format of LEX and YACC program. **2+6**

b) Explain advantages of using high level language over that of assembly language. **5**

11. a) What is device driver? What are the design issues in developing any device driver. **8**

b) What are different types of device driver? Explain any one in detail. **6**

OR

12. Write the difference between character device driver, terminal, block and stream device drivers. **14**

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