53 (IT 404) SYPR

2018

SYSTEM PROGRAMMING

Paper : IT 404 (Back)

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. Answer in short : 5×4=20

   (i) What is an Instruction ? Identify the components of the following Instruction :
   A 1, 901 (2, 15).

   (ii) Consider the value of Register 5 is 1000. Calculate the address of the storage operand of the given instruction :

0101 1010	0011	0000	0101	0000 0001 0000

(iii) Discuss various data formats available in basic 360 structure.

(iv) What do you mean by Symbol Table? Define all the components.

2. (a) Show the intermediate steps in a two pass assembler to assembling the following program : 10

```
        START   0
        USING   *, 15
        L       1, Five
        A       1, Four
        ST      1, TEMP
Four    DC      F '4'
Five    DC      F '5'
TEMP    DS      1F
        END
```

(b) What is an assembler? Define the roles of symbol table and base table considering all fields. 10

3. (a) Discuss various Instruction formats available in 360 structure with proper examples. 10

(b) Illustrate with micro flow chart the sequence of hardware operations perform to execute the instruction ADD 2, 176 in IBM 360 structure. 10

4. (a) Define MACRO call, MACRO definition and MACRO processor. Explain conditional MACRO with example. 6+4=10

(b) Explain with example how arguments in MACRO provide more flexibility in assembly language program than basic MACRO. 10

5. (a) What are the basic functions of loader? Discuss the functionalities of Absolute loader and Relocating loaders with suitable examples. 10

(b) Explain various phases of compiler with proper examples. 10

6. (a) Define an operating system. Write a shell script to find the summation of the digits of a number. 4+6=10

(b) Write the definition and syntax of following UNIX commands — 10

mKdir, ps, grep, chmod, expr
