B.E.(with Credits)-Regular-Semester 2012 - Information Technology Sem IV

IT405 - System Programming

P. Pages : 2 **GUG/W/16/3915**

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

Notes : 1. Same answer book must be used for all question.
2. All questions carry as indicated marks.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is an operating system? Briefly explain the evolution of operating system. **8**

b) What is an assembly language? What are its advantages over machine language? **8**

OR

2. a) Explain the various components of programming system in brief. **8**

b) Describe the various data formats of IBM 360/370. **8**

3. a) Explain the general design procedure for assembler. **8**

b) State & outline various translation phases of an assembler. **8**

OR

4. a) Sort the following numbers using:- **09**

i) Radix Exchange sort.

ii) Address calculation sort.

iii) Shell sort.
21, 09, 19, 27, 01, 16, 13, 05, 11, 02.

b) Explain the databases used in pass – 1 of assembler design. **7**

5. a) Define Macro. Explain the features of macro facility provided by macro language of IBM 360/370. **8**

b) Enlist and explain the four basic tasks that any macro instruction processor must perform. **8**

OR

6. a) For the following program, give the entries of ALA, MNT, MDT and expended code for macro call with macro definition, show all important steps. **8**

```
MACRO.
 XYZ     &A
 L       1, &A
 AR      2,1
 ST      1, &A
MEND
     .
     .
     .
MACRO

 MIT       &arg 1,     &arg2
 XYZ       &arg 1
 XYZ       &arg 2

 MIT       DATA 1    SUM
   .
   .
   .
 DATA 1    DC        F '10'
 SUM       DC        F '20'
   .
   .
   .
MEND.
```

b) Explain Macro call within macro with the help of a flowchart. **8**

7. a) What is loader? Enlist and explain its four main function. Also explain its general loading scheme with the help of a block diagram. **8**

b) Write short notes on:- **8**
i) "Compile – and, go" loaders. ii) Absolute loaders.

OR

8. a) Explain the working of BSS loader with example. **8**

b) Give details about GEST & LESA. **8**

9. a) Explain formal specifications. **8**

b) Explain BACKUS – NORMAL – FORM (BNF). **8**

OR

10. a) Explain in detail the pleases of a compiler. **8**

b) Explain the parameter passing mechanism in high level languages. **8**

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