

1. Explain the process used in Address calculation sort. Perform the address calculation sort for the following Nos. 19,13,05,27,01,26,31,16,02,09,11,21
2. Explain the following
  - a) RS & SS Format
  - b) LTOrg
  - c) Difference between DS & DC
3. a. Write the flowchart for single pass algorithm that handles the calls of Macro within a Macro.  
 b. Write a separate function in the above flowchart to process the AIF statements of a macro processor.
4. Write notes on
  - a) Basic functions of an Editor
  - b) Various stages of a compiler.
  - c) Various kinds of bugs & related debugging techniques.
5. Explain the Standard System Linkage criteria of an IBM 370 assembler by writing the minimum set of linkage instructions & then explaining them one by one.
6. Source Program for segment STUDENT

```

STUDENT      START      0
              ENTRY      A
              EXTRN      SOLN,DELTA
              BALR       15,0
              USING      STUDENT+2,15
              SR         4,4
              L          4,TWO
              L          5,TWO
              ST         5,SAVE
              BR         14
              DC         5F'01'
              DC         A(A+10)
SAVE         DC         12C'0'
A           DC         A(DELTA)
TWO        DC         F'2'
           DC         A(STUDENT-SOLN)
           END

```

Source program for segment soln

```

SOLN      START      0
           EXTRN      A,C2
           BALR       15,0

```

```

                USING          *,15
                SR              4,4
                L                0,ANS(1)
                BR              14
                DC              A(A+10)
CODE           DC              2C'JJ'
                DC              A(C2)
                DC              12C'2'
ANS            DC              5H'0'
                END

```

P.T.O

Source Program for segment GRADER

```

GRADER        START          0
               ENTRY         C2
               BALR          15,0
               USING         *,15
               SR            4,4
               L             6,C3
               ST            1,C3+4
               LA            1,C3
               L             2,JOHNSON
JOHNSON       BR            14
C2            DC            A(GRADER)
C3            DC            8F'3'
               END

```

a) Make ESD,TXT,RLD Table for segment STUDENT

b) Make ESD,TXT,RLD Table for segment SOLN

c) Make ESD,TXT,RLD Table for segment GRADER

d) Merge all these three segments & make a combined ESD,TXT & RLD Table assuming that the merged segments will start at memory location 400. Also write LESA & GEST tables