Written Assignment 2

30 points

This assignment is practice in reading a dump and diagnosing an error.

Write out your answers to these problems in a text file and submit them by the due date.

Show your work!

Run the following program. You can use the JCL we used in the lab training exercise.

```
WRITTEN2 CSECT
         USING WRITTEN2,15  ESTABLISH A BASE REGISTER
         L     3,WINTER     LOAD A NUMBER INTO REGISTER 3
         L     4,SPRING     LOAD ANOTHER NUMBER INTO REGISTER 4
         AR    4,3          ADD THE TWO NUMBERS
         S     4,YETMORE    SUBTRACT YET ANOTHER NUMBER
         LA    5,SUMMER     SET REGISTER 5 = ADDRESS OF SUMMER
         L     6,SIX        COPY SIX'S VALUE INTO REGISTER 6
         ST    4,0(6,5)     STORE THE RESULT
         XDUMP AUTUMN,4     DUMP THE RESULT
         SR    7,7          SET REGISTER 7 = 0
         BCR   B'1111',14   RETURN TO CALLER
* THIS IS A COMMENT LINE.
NOTE     DC    CL2'OK'      PLACE KEEPER:  OKAY SO FAR
SIX      DC    F'6'         A CONSTANT = 6
WINTER   DC    F'211'       A NUMBER = 211
SPRING   DC    F'94'        ANOTHER NUMBER = 94
SUMMER   DS    XL4          SUM OF THE TWO NUMBERS
AUTUMN   DS    F            A PLACE TO PUT IT
YETMORE  DC    F'28'        YET ANOTHER NUMBER
         END   WRITTEN2     THE PROGRAM ENDS HERE
```

Use the resulting output to answer the following questions:

1. (2 points) Did this error occur (a) while the program was being assembled or (b) when it was being run?
2. (2 points) What is the address of the next instruction which will be executed?
3. (2 points) What is the value of the condition code at the time of the ABEND?
4. (2 points) What is the length of the instruction that caused the ABEND (a number of bytes)?
5. (2 points) What is the address of the instruction that caused the abend?
6. (2 points) What type of error occurred (number and name)?
7. (2 points) What actually causes this error?
8. (3 points) Correct the error by rewriting the section of code that caused it. (The sum should be stored in AUTUMN.) (There are several correct ways to do this.)
9. (2 points) At the time of the ABEND, what is the value of register 4 in decimal?
10. (2 points) What does the value in register 4 represent at the time of the ABEND?
11. (3 points) Why is the address (LOC column) of the storage area with the label SIX on it at X'000028' when the DC statement whose address is X'000024' only takes up 2 bytes?
12. (2 points) What are the contents of the two bytes of user storage starting at address X'000026'? What do they represent?
13. (1 point) Why do we not have XDUMP output?
14. (2 points) How many bytes are taken up by the XDUMP pseudo-instruction?

15. (1 point) If we correct the error, what should be the value of the condition code at the end of the program (when we reach the BCR line)?