K201: The Computer in Business

Second Departmental Exam (D)

October 27, 1981

Signature _____

Name _____

Student Number _____

Instructor's Name _____

Section Number _____

This exam is worth 100 points. Although
ample time is allowed, the student is
advised to allocate his time wisely. If
your response to a question requires more
writing area, continue your response on
the reverse of the page.

If you require assistance, raise your hand
and a proctor will assist you at your seat.

Each of the following ten multiple choice questions counts 3 points.

_____ 1. Modifying programs from time to time to keep them up to date and useful is called:

    a. documentation
    b. conversion
    c. debugging
    d. maintenance
    e. none of the above

_____ 2. The final step in the overall process of program development is

    a. convert the program to operational status.
    b. debug the program.
    c. documentation.
    d. operation and maintenance.
    e. none of the above

_____ 3. Which of the following statements is correct?

    a. Index of a DØ statement can always be printed outside the loop.
    b. An IF statement in the range of a DØ loop will definitely cause a non-normal exit from the loop.
    c. A DØ loop is basically an uncontrolled loop.
    d. An IF statement in the range of a DØ loop may or may not cause a non-normal exit from the loop.
    e. none of the above

_____ 4. The format specification used for printing a variable whose value is 112.9 is F5.2. What kind of output will be printed for this specific data field?

    a. X
    b. *****
    c. 112.90
    d. 11.29
    e. none of the above

_____ 5. Which of the following is not included in the documentation package?

    a. input and output layouts
    b. flowchart
    c. list of variable names
    d. description of what the program does
    e. none of the above

_____ 6. A DØ loop may be ended with a

    a. GØ TØ statement.
    b. FORMAT statement.
    c. END statement.
    d. WRITE statement.
    e. none of the above

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_____ 7. An X in a printed numeric data field in the output indicates

    a. a decimal mode variable name was associated with an integer format specification.
    b. the number to be printed was too large to fit into the area specified by the format specification.
    c. the program was terminated by a CPU error before printing the output.
    d. the computer has attempted to divide by zero in the process of producing that answer, but the result was only printed and not used in a computation.
    e. none of the above

_____ 8. It is frequently desirable to generalize programs to make them applicable to a variety of situations without modifying the program itself. This may be accomplished by using variables instead of constants in the program, and giving these variables values by reading a special card preceding the data cards. These variables are referred to as

    a. initializers.
    b. parameters.
    c. test data.
    d. specifiers.
    e. none of the above

_____ 9. Which of the following statements contains an error?

    a. DØ 20 I=1,5,3
    b. IF (A.GT.B) X=X**(3./2.)-4.
    c. DØ 30 I=K,M,N
    d. DØ 40 MM=I,H
    e. none of the above

_____ 10. In the "debugging" process, a program which does not produce diagnostic messages

    a. may contain logical errors.
    b. will produce correct results.
    c. may contain syntax errors.
    d. will not produce CPU errors.
    e. none of the above

In each of the following four questions you are to specify the value of each variable indicated.

(3 pts) 11.   D=10.
        DØ 25 M=1,6
     25 D=D-1.   D=_____

(4 pts) 12.   K=0   M=_____
        DØ 35 M=3,8,2
     35 K=K+M   K=_____

(5 pts) 13.   R=4.
                  DØ 45 M=3,15,3
                  XM=M
                  R=R+XM   M=_____
                  IF(R.GE.15.) GØ TØ 50
               45 CØNTINUE   R=_____

               50 .....

(4 pts) 14.   K=0
                  DØ 55 M=2,9,4
                  K=K+M
                  DØ 55 N=1,8,3
               55 K=K+1   K=_____

(8 pts) 15.   Consider the array C DIMENSIONED for 9 elements:

               C: | -1.2 | -2.3 | 5.7 | 4.2 | -7.7 | 2.5 | 9.1 | 7.0 | -6.5 |

               If M=4, specify the value of each of the following array elements.

               a.   C(M)=_____

               b.   C(M-4)_____

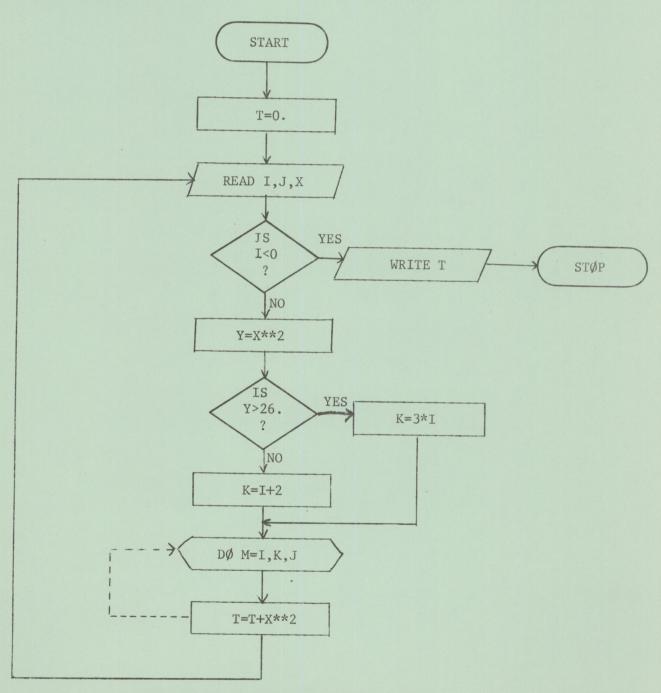   c.   C(3*M-5)=_____

               d.   C(7-M)=_____

(20 pts) 16.   Consider input cards with the following layout.

Card Columns	Variable
1-3	I
4-6	J
7-10	X (XX$_\wedge$XX)

The following flowchart computes a number T which is to be printed at the top of a new page in the following form:

THE VALUE OF T IS XXXXXX.XX

On the coding form provided, write a complete FORTRAN program to implement this flowchart.

NAME: _____

PROJECT #: _____   CARD COLOR: _____   PAGE ___ OF ___ PAGES

DECK ID: _____

DATE: _____   TRANSCRIBED BY: _____

FORTRAN STATEMENT

(20 pts) 17.   The state Department of Education has a punched card for each high school
in the state with the following layout:

Card Columns	Description
1-6	School identification number
7-29	School name
30-32	Number of teachers (XXX$_\wedge$)
33	Number of grades (3 or 4)
34-37	Female students enrolled (XXXX$_\wedge$)
38-41	Male students enrolled (XXXX$_\wedge$)
42-49	Total budget (XXXXXXXX$_\wedge$)

Prepare a program flow chart for a computer program that will print out a
list of the names of the four-year schools with a total budget of less than
4 million dollars where the female students outnumber the males. After
printing this list print the average number of teachers in the 4-year
schools with a total budget of less than 4 million dollars and the percent
of the four-year schools with a budget of less than 4 million dollars that
have more female than male students.

The end-of-data card has a negative number in columns 1-6. Define the
variable names you use.

(6 pts) 18. Describe the test data cards that would be required to debug the program described in problem 17.