K201: The Computer in Business

Third Departmental Exam (D)

December 1, 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.

_____ 1. You are given the FORTRAN statement

DIMENSIØN CALF(3,15),CØW(70),BULL(5,6)

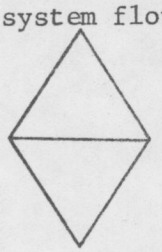
How many positions in memory are reserved by this statement?

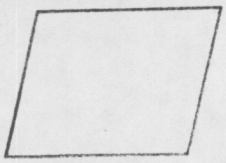
a. none
b. 70
c. 99
d. 145
e. none of the above.

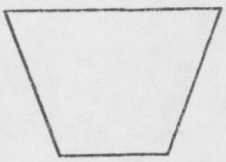
_____ 2. When using canned programs (such as the BMD package) we adapt a specific program from the package to our needs and specify the layout of input data cards by means of

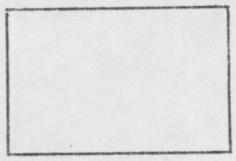
a. control cards.
b. parameter cards.
c. layout cards.
d. FORTRAN statements.
e. none of the above.

_____ 3. The system flow chart symbol for computer processing is

a. 

b. 

c. 

d. 

e. none of the above.

_____ 4. Which of the following is <u>not</u> a function of the operating system?

a. Detecting syntax errors.
b. Controlling multiprogramming.
c. Allocating hardware resources.
d. Providing access to software resources.
e. none of the above.

_____ 5. In the table look-up on less than or equal to, exit from the loop occurs when:

a. the search argument is less than or equal to the value of the argument array.
b. the value of the argument array is less than or equal to the value of the function array.
c. the search argument is less than or equal to the value of the function array.
d. the search function is less than or equal to the value of the function array.
e. none of the above.

6. Multiprogramming can be described as:

   a. using several procedure oriented languages at once.
   b. switching control back and forth among different programs in memory.
   c. reading data cards from several locations around campus.
   d. using the same program multiple times by use of parameter cards.
   e. none of the above.

7. Those individuals who write and maintain support software are called:

   a. applications programmers.
   b. FORTRAN programmers.
   c. support programmers.
   d. systems programmers.
   e. none of the above.

8. Which of the following statements is <u>incorrect</u> FORTRAN?

   a. WRITE (6,100) TAX(I), IDNØ (I+2)
   b. NØW = IND (6,K) + 5
   c. DIMENSIØN TEN (I), IUK (I)
   d. READ (5,20) ISSN (N), RATE (2*K)
   e. none of the above.

9. The specialist who specifies requirements for a data processing system and designs the system is called a

   a. systems coordinator.
   b. system designer.
   c. systems analyst.
   d. systems programmer.
   e. none of the above.

10. In a table look-up, the quantity (such as a rate or price) we wish to obtain <u>from</u> the table is called the

    a. function value.
    b. table number.
    c. argument value.
    d. search argument.
    e. none of the above.

11. Which of the following correctly presents the relationship between a system flow chart and a program flow chart?

    a. In a system flow chart the computer processing symbol corresponds to a complete program flow chart.

    b. In a program flow chart each outline symbol represents a complete program, while in a system flow chart the outline may represent processings steps, media or devices.

    c. In a system flow chart the arrows represent procedures, while in a program flow chart they represent the flow of electrons in the wires of the computer.

    d. In a system flow chart the outline symbols represent devices, while in the program flow chart they represent steps in a computer program.

    e. none of the above.

_____ 12. The FORTRAN compiler used by K201 students is an example of

a. applications software.
b. support software.
c. an operating system.
d. service software.
e. none of the above.

_____ 13. The operating system is told what to do via

a. the deck assembly language.
b. the FORTRAN compiler.
c. the data manipulation language.
d. the job control language.
e. none of the above.

14. In Lab 7.3 we were given a set of N rate table cards containing Killowatt hours used, a constant and the rate for that rate step. The layout of the rate cards is

Card Columns	Description
1-4	KWH used ($XXXX_\wedge$)
5-8	Constant ($XX_\wedge XX$)
9-12	Rate ($_\wedge XXXX$)

The number $N \leq 20$ of cards in the rate table is punched in columns 1 and 2 of a parameter card that precedes the table deck. An array NUM is used to count the number of bills computed in each rate step.

(9 pts) a) Write the FORTRAN statements required to begin this program, read the table cards and establish the table composed of the arrays USE, (Killowatt hours used), C (Constant) and R(Rate), and to initialize the array NUM to zero.

(7 pts) b) In Lab 7.3 we read a card from which we computed the usage U. Write the FORTRAN statements required to look up the usage U in the rate table and calculate the bill BILL by adding the constant from the table to the usage U times the rate from the table. Also, add 1 to the corresponding element of the array NUM to count the bills in that rate step.

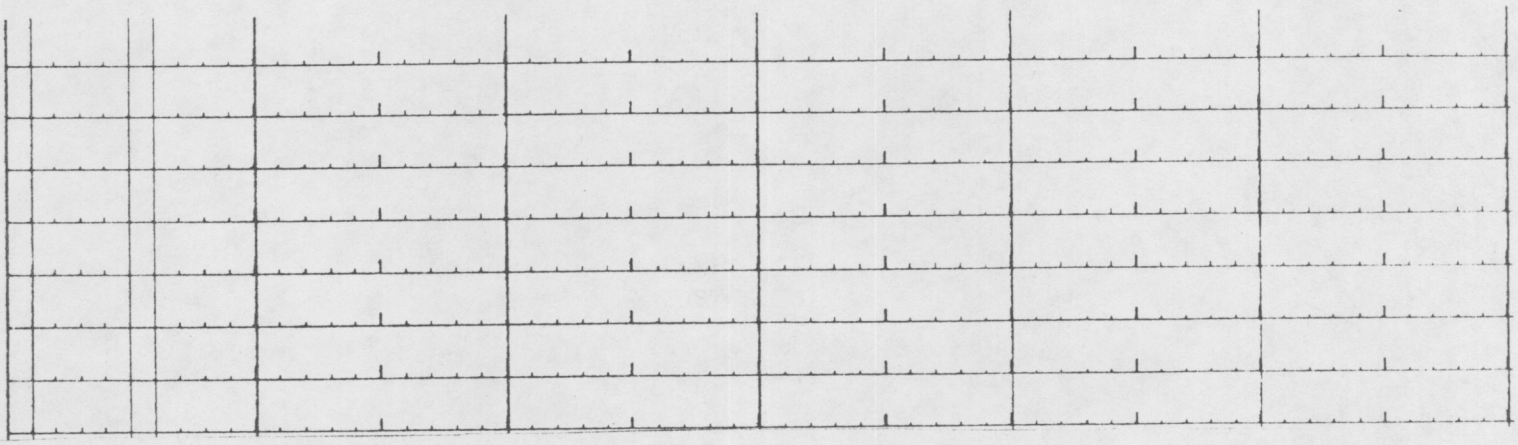
(7 pts) c) In Lab 7.3 we printed the rate step analysis in the form

RATE STEP	NUMBER OF CUSTOMERS

Write the FORTRAN statements required to print the body of this report (you do not need to print the headings) as follows:

Print Position	Description
1-2	Rate step number (integer)
6-9	Number of customers (from the array NUM)

Then terminate the program. This report should be single spaced.



(10 pts) 15. Consider the following six data cards.

Field Name:	Employee No.	Dept. No.	Operation Code	Hours Worked	Pay Amt.
Card Columns:	1-6	9-11	12-15	16-18	19-23
Card 1:	042222	343	9901	$10_{\wedge}3$	$40_{\wedge}75$
Card 2:	715000	102	1523	$8_{\wedge}2$	$28_{\wedge}00$
Card 3:	224887	475	9901	$14_{\wedge}0$	$63_{\wedge}40$
Card 4:	042222	102	4127	$5_{\wedge}1$	$17_{\wedge}90$
Card 5:	224887	343	1523	$16_{\wedge}0$	$80_{\wedge}00$
Card 6:	042222	343	9901	$12_{\wedge}5$	$87_{\wedge}50$

Including headings, show the following summary report produced from the above six data cards:

Pay Amount by Department Number.

16. Eli Lilly Corp. has the following data card punched for each sale of drugs to a customer.

Card Columns	Description
1-6	Customer Number (up to 20,000 customers)
7-10	Salesman Number (up to 900 salesmen)
11-13	Product Class (250 product classes)
14-18	Item Number (up to 2000 items)
19-23	Quantity Sold
24-31	Sales Amount

(12 pts) a) Prepare a system flow chart (using our standard symbols and conventions) to produce a Total Sales by Item Number and a Total Sales by Product Class report using sorting to organize the data.

(10 pts) b) Prepare a system flow chart (using our standard symbols and conventions) to produce these same two reports using only one computer run.

(6 pts) c) Describe all tables or arrays you use in the system presented in part b. Include a description of the data in each array and the size of the array.