Heathkit

ZENITH

Educational Systems

FORTRAN Programming

EC-1101

FINAL EXAMINATION Instructions

The following multiple choice examination is designed to test your understanding of the material presented in this Individual Learning Course. Besides telling us how well you have learned the subject, this exam provides you with a complete review of the program and serves as another learning activity to ensure your understanding.

The final exam is optional, and you are not obligated to submit it. However, if you have completed the program, you will no doubt want to receive some recognition for this accomplishment. If you complete the exam and make a passing grade, you will receive an attractive Certificate of Achievement and Continuing Education Units (CEU) of credit. The CEU is a nationally recognized unit of credit that indicates your participation in and satisfactory completion of an adult continuing education course.

The final exam is an "open-book" test. This means that you may refer back to the text material, or the experiments in obtaining your answers. You may also use any other reference material available to you. However, you may not receive help from another individual. The work must be entirely your own.

To take the exam, read each question completely and select the correct answer. Place a check beside the answer (A,B,C, or D) that you feel is most correct. It is usually a good idea to read the question and each answer twice to be sure you fully understand what is being asked.

When you have answered all the questions, carefully transfer your answers to the Examination Answer Sheet. Place an "X" in the box labeled with your answer choice (A,B,C, or D). Be sure to fill in your name, address, and course number in the spaces provided.

Next, fill out and sign the Educational Record form. This form will be retained at Heath in a transcript file. When your exam is graded, your grade will be recorded and the form signed. You may request a copy of your transcript for transfer of credit to your employer, an institution recognizing the CEU, or for your own use. Send $1.00 for each copy requested to Transcript Records, Heathkit/Zenith Educational Systems, Benton Harbor, Michigan 49022.

Also fill out the Educational Survey form. This form provides us with useful feedback about you and your opinions. This information will help us to improve our present programs and develop new programs based on your needs and interests. Both the Educational Record form and the Educational Survey form must be returned with your Final Examination. No certificate or credit can be awarded without them.

Mail the Examination Answer Sheet, the Educational Record form and the Educational Survey form using the return envelope provided for that purpose. Do not mail this Final Examination, as you will need it later to check your answers.

Your Answer Sheet will be graded and returned to you along with a summary of the correct answers. If you correctly answer 70 percent or more of the exam questions, you will be awarded the Certificate of Achievement and the appropriate Continuing Education Units of credit.

Examination

1. An arithmetic IF:

   A. Is an unconditional branch.
   B. Provides a two-way branch.
   C. Provides a three-way branch.
   D. None of the above.

2. A STOP statement:

   A. Terminates the execution of a program.
   B. Is the last statement in a program.
   C. May not be used in a logical IF.
   D. Indicates the end of a DO loop.

3. An array name without a subscript may appear in a program:

   A. In an argument list of a SUBROUTINE.
   B. In an arithmetic expression.
   C. In a logical expression.
   D. If it is the index of a DO loop.

4. The range of a DO statement:

   A. Is specified in the DO.
   B. Is controlled by a conditional transfer.
   C. Is specified by a CONTINUE statement.
   D. Is controlled by the index.

5. Which of the following is an arithmetic assignment statement?

   A. DATA X, Y /2*0.0/
   B. X=X+1.
   C. ASSIGN 25 TO JOE
   D. READ(5, 20) X

6. Arrays are dimensioned in a:

   A. DIMENSION statement.
   B. Type statement.
   C. COMMON statement.
   D. Any one of the above.

7. Which of the following should be avoided as a parameter of a SUBROUTINE:

    A. An array name.
    B. A variable.
    C. A constant.
    D. A FUNCTION name.

8. If X is 2 and Y is 6, what value will be stored in Z by the statement $Z = 3.*Y + 2./X$

    A. 10
    B. 12
    C. 19
    D. None of the above.

9. Which data type does not have to be declared?

    A. COMPLEX
    B. INTEGER
    C. DOUBLE PRECISION
    D. LOGICAL

10. The index variable of a DO statement:

    A. Is a subscripted variable.
    B. Is assigned a value by the DO statement.
    C. Is incremented using an arithmetic assignment statement.
    D. Is a REAL variable.

11. In the statement: READ (5.3) X, Y, Z the 3 refers to a:

    A. FORMAT statement.
    B. The number of values to be input.
    C. The input device.
    D. The number of records to be input.

12. An argument of a FUNCTION may be:

    A. A constant.
    B. A variable.
    C. An expression.
    D. All of the above.

13. A logical expression may contain:

    A.   Arithmetic operators.
    B.   REAL constants.
    C.   Logical operators.
    D.   All of the above.

14. Which of the following is an unconditional transfer statement?

    A.   IF(A LE. B) STOP
    B.   GO TO NEXT, (10, 20)
    C.   GO TO 100
    D.   END

15. How many variable names are on the input list of the READ statement which refers to the following FORMAT statement?

   10   FORMAT(2X, 15, 7X, 3F10.2)

    A.   4.
    B.   4 or less.
    C.   6.
    D.   Cannot be determined.

16. From the statement IF (K) X = Y + Z, it is clear that:

    A.   x is a REAL variable.
    B.   Y is a REAL variable.
    C.   K is a logical variable.
    D.   All of the above.

17. Which of the following format specifications is not for numeric data?

    A.   I
    B.   E
    C.   F
    D.   H

18. In the statement WRITE(8, F) x, the F is:

    A.   A variable containing the format statement label.
    B.   A typographic error.
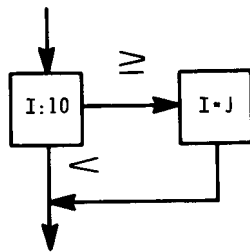   C.   An input variable.
    D.   An array name.

19. A four-way transfer of control is most conveniently executed \ using a:

    A. Logical IF.
    B. Two logical IF statements.
    C. Computed GOTO statement.
    D. Arithmetic IF statement.

20. When you compile a program, you:

    A. Translate FORTRAN statements to machine language.
    B. Draw a flowchart of the program.
    C. Write the FORTRAN statements using a flowchart as a guide.
    D. Debug a program from a listing of the program.

21. The flowchart symbol

    ```
         │
         ▼    ≥
      ┌──────┐    ┌──────┐
      │ I:10 │───▶│ I·J  │
      └──────┘    └──────┘
         │  <        │
         ▼◀──────────┘
    ```

    is best implemented by:

    A. An arithmetic assignment statement.
    B. An unconditional transfer.
    C. An arithmetic IF statement.
    D. A logical IF statement.

22. Which of the following is a correct DO statement?

    A. DO 100, I = 1, K
    B. DO 100 X = 1, 10
    C. DO 10 J = 1, K, 2
    D. DO J = K, 10

23. Which of the following symbols indicates the end of a record in a format statement?

    A. /
    B.)
    C. .
    D. ,

24. A carriage control character:

   A. Is the first character in every FORMAT statement.
   B. Is the first character in every output FORMAT statement.
   C. Is unnecessary for single-spaced output.
   D. May appear more than once in a FORMAT statement.

25. Which of the following will always return exactly one value?

   A. FUNCTION subprogram.
   B. Statement function.
   D. SUBROUTINE subprogram.
   D. BLOCK DATA subprogram.

26. Which of the following is a correctly written DATA statement?

   A. DATA A,B,X(1)/1.0,2*0.0/
   B. DATA A, B, X(J) / 1.0, 0.0, 0.0 /
   C. DATA / 1.0, 0.0, 0.0 / A, B, X(1)
   D. DATA /1.0, 2*0.0/,A, B, X(1)

27. DOUBLE PRECISION variables are used:

   A. To increase precision.
   B. To increase the number of significant digits in a variable.
   C. To conserve storage space.
   D. To speed up the arithmetic operations.

28. A field is:

   A. Identified by I, E, F, or G format specifications.
   B. Identified by A, H, or X format specifications.
   C. A collection of records.
   D. Part of a record.

29. The A format specification is used for:

   A. Output of non-numeric characters.
   B. Input and output of Hollerith characters.
   C. Input of non-numeric characters.
   D. Input and output of numeric characters.

30. Which of the following can not be an INTEGER variable?

    A. J
    B. K
    C. J.3
    D. INCOME

31. Which of the following arithmetic assignment statements is incorrect?

    A. I=A+B
    B. X(J + 2) = X(2)
    C. Z=2*I+J
    D. A = X/ -17.5

32. In the input statement READ (5, 7) A, B, C, I, J the 5 refers to:

    A. The number of values to be input.
    B. A format statement label.
    C. An input device.
    D. The number of records to be input.

33. Which of the following is a correctly written logical IF?

    A. IF(A - B) 10, 10, 20
    B. IF(A .AND. B) STOP
    C. IF(A LT. B), GO TO 100
    D. IF(A .EL. B) GO TO 100

34. Program execution refers to:

    A. Writing the FORTRAN statements for a program.
    B. The process of removing errors from the program.
    C. Carrying out the process described in the program.
    D. Tossing the program in the waste basket.

35. Which one of the following parts of a loop is not controlled by the DO statement?

    A. Initialize counter.
    B. Process.
    C. Increment.
    D. Test.

36. Which of the following is not a system error message?

    A. Exponent underflow.
    B. Mixed mode.
    C. Division by zero.
    D. Invalid operator.

37. Which of the following is not a good way to find a logic error in a program?

    A. Desk check.
    B. Echo check.
    C. Checkpoint messages.
    D. Eliminate logical variables.

38. In the logical IF statement IF (e) s the s can not be:

    A. An executable statement.
    B. A computed GO TO statement.
    C. An ASSIGN statement.
    D. A DO statement.

39. Which of the following can be used as the terminal statement in a DO loop?

    A. A computed GO TO statement.
    B. A DO statement.
    C. A logical assignment statement.
    D. A FORMAT statement.

40. Which of the following statements is false?

    A. CONTINUE is an executable statement.
    B. CONTINUE is always the terminal statement in a DO loop.
    C. A CONTINUE without a label is useless.
    D. Nothing happens when CONTINUE is executed.

41. Which of the following would always contain a RETURN statement?

    A. DO loop.
    B. Main Program.
    C. BLOCK DATA subprogram.
    D. FUNCTION subprogram.

42. Which of the following is least important to structured programming?

    A. Efficiency.
    B. Readability.
    C. Reliability.
    D. Maintainability.

43. In the statement DO 5 J = 1, 10, 2 the number 2 is:

    A. The initial value.
    B. The terminal statement.
    C. The increment.
    D. The test value.

44. Which of the following is a logical operator?

    A. .LE.
    B. .NOT.
    C. *
    D. .TRUE.

45. An implied DO:

    A. Is always used with subscripted variables.
    B. Is found in a READ or WRITE statement.
    C. Is found in a FORMAT statement.
    D. May not be nested in an implied DO.

46. Which of the following could not be a subscript?

    A. I + J
    B. X
    C. 3*J + 5
    D. K - 7943

47. An EQUIVALENCE statement:

    A. Assigns 2 or more names to one location.
    B. Identifies a subprogram name which is used in an argument list.
    C. Identifies a storage location used by more than one program unit.
    D. None of the above.

48. Which of the following transfers in a DO loop is illegal?

    A. Transferring into the range of a DO.
    B. Transferring within the range of a DO.
    C. Transferring out of the range of a DO before the index has reached the terminal value.
    D. Transferring from the first statement in the range of a DO to the terminal statement.

49. The G format specification is used for:

    A. Output of REAL numbers or INTEGER numbers.
    B. Input and output of REAL numbers.
    C. Alphanumeric characters.
    D. Input or output of INTEGER numbers.

50. Which of the following is false?

    A. Parameters are not subscripted.
    B. Parameter names may be used as variable names in the main program.
    C. Every subprogram must have at least one parameter.
    D. Parameter lists must agree with argument lists in number, type, and order.