RAN-2103000206030013

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T. Y. B. Sc. (Mathematics) (Sem. - VI) Examination April - 2023

Elective Generic : 6002

Computer Oriented Numerical Methods - II

Time: 2 Hours] **[Total Marks: 50**

સૂચના : / Instructions

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of ☛ signs on your answer book

Name of the Examination:

☛ **T. Y. B. Sc. (Mathematics) (Sem. - VI)**

Name of the Subject :

☛ **Elective Generic : 6002 Computer Oriented Numerical Methods - II**

Subject Code No.: **2103000206030013**

Seat No.:

Student's Signature

(2) All questions are compulsory.
(3) Figures to the right indicate marks of the questions.
(4) Follow usual notations.

Q. 1. Answer the following questions. **(10)**

(i) Give reason for invalidity.

(a) IF (X.GT.Y)
THEN A = B + C
ELSE A = B – C
ENDIF

(b) IF (X = Y) THEN P = Q + R
ENDIF

(ii) Check whether the following statement numbers are valid or invalid. Give the reason if they are invalid.

(i) –3.7
(ii) 2017
(iii) +88
(iv) 999999

(iii) What will be the effect of the following FORTRAN code in print?

(i) 1Hb

(ii) 1H1

(iv) Give the difference between G = H and G.EQ.H .

(v) Find the iteration count from DO 23K = 1, –20, –2.

Q. 2. Answer the following: (Any two) **(10)**

(a) Which are the relational operations available in FORTRAN? What do you mean by the logical expression in FORTRAN? State reasons for invalidity are following:

(i) 2.5 GT B

(ii) 20. 16.LT.I

(iii) A > 5

(iv) X = Y

(b) Explain the Block IF statement through flow chart.

(c) Write a program to find total number of even integers, total number of odd integers, sum of all even integers and sum of all odd integers from the given set of 100 integers.

Q. 3. Answer the following: (Any two) **(10)**

(a) Write a program to pick up largest of three number, by using Nested Block IF statement.

(b) Assume that N = 5, J = 10 then what will be the final value of N after each of following statement.

(i) IF (5*N.LT. 10) N = N + 3, N = N + 2

(ii) IF (2*N.EQ.J) N = N + 1, N = N + 2

(iii) IF (4*N–2*J) 10,20,30

(iv) IF (2*J.LE.3*N) GO TO 10

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N = N + 1
GO TO 20
10  N = J
20  N = N + J.
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(v) IF (J.GT.N) GO TO 10
N = N + 1
GO TO 20
10 N = J
20 N = N + J

(c) Explain the Arithmetic IF statement through flow chart.

Q. 4. Answer the following: (Any two) **(10)**

(a) Explain the rules for Nested DO LOOPS.

(b) Find the output be printed by the PRINT statement:
PRINT 40, X, Y, Z, L
40 FORMAT (1X, 3X, F8.6, 2X, F8.6, 3X, F8.6, 3X, I5)
Data: -0.2159, .826435, 8.2645, 4671

(c) Calculate how many times will the following DO loops be executed? Also find the possible values of integer variables:

(i) DO 20 I = 1, 16, 2

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20 CONTINUE

(ii) DO 30 k = 1990, 2012, 3

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30 CONTINUE

Q. 5. Answer the following: (Any two) **(10)**

(a) Explain the DIMENSION Statement.

(b) Write a program to solve $\frac{dy}{dx} = x + y, y(0) = 0$ by Euler's method.

(c) A = –239.4587
B = 0.4589
C = –0.008868
Then how will be output be printed by the following PRINT statement?
PRINT 50, A,B,C
50 FORMAT (1X, E15.8, E11.4. E12.4).