* D R R - 3 2 5 7 *

DRR-3257

Third Year B. Sc. (Mathematics) (Sem. VI) Examination

March / April - 2016

Computer Oriented Numerical Methods - II (E.G.)

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

Instructions : (1)

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

Name of the Examination :

☛ **Third Year B. Sc. (Mathematics) (Sem. VI)**

Name of the Subject :

☛ **Computer Oriented Numerical Methods - II (E.G.)**

☛ Subject Code No. : **3 2 5 7** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) All questions are compulsory.

(3) Figures to the right indicate marks of the questions.

(4) Follow usual notations.

1 Answer the following. **10**

(i) Interpret the following FORTRAN statement.

```
IF (I.GT.5) THEN
   J=2
ELSE
   J=3
ENDIF
```

(ii) 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

(iii) Check whether the following statement numbers are valid or not and give reasons if they are invalid.

(i) –397

(ii) 2016

(iii) 3.14

(iv) 999999

(iv) To which statement will the control be transferred for $j=1$ and $k=3$ in the following statement ?

(i) GO TO (10,20,30) j

(ii) GO TO (10,20,30)k

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

(i) 1H0

(ii) 1H+

2 Answer any two of the following. **10**

(a) Which are the relational operators available in FORTRAN? What do you mean by the logical expression in FORTRAN?

State the reason for invalidity.

(i) 2.5 GT B

(ii) 20.16.LT.I

(iii) A > 5.

(iv) X = Y

(b) Explain one of the special cases of logical 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.

3 Answer any two of the following. **10**

(a) Give the general form of Computed GO TO statement along with the flow chart.

(b) What will be printed by the execution of the following program segment if

(i) $I = 5$ and $J = 2$

(ii) $I = 2$ and $I = 5$?

```
If (I – J) 10, 20, 30
10 K = I + J
20 K = 2 * I – J
30 K = I
   PRINT*, K
   END
```

(c) Write a program to find all numbers in Fibonacci sequence less than 200.

4 Answer any two of the following. **10**

(a) If Poisson function $P(k)$ is given by $P(k) = \frac{e^{-a} a^{k}}{k!}$, then write a program to find values of $P(k)$ for integral values of k from 0 to 15.

(b) What will be printed by the following program segments?

(i)
```
J = 5
DO 30 I = 1, J
PRINT*, j
J = J – 1
30 CONTINUE
```

(ii)
```
L = 2
DO 20 M = 3, 8
L = L + M
20 CONTINUE
L = 2 * L
PRINT*, L
```

(c) Write a program to sum a series $1+x+x^2+x^3+\ldots+x^k$ using DO loop.

5 Answer any two of the following. **10**

(a) Calculate how many times will the following Do loops be executed? Also find the possible values of integer variables.

(i) $DO\ 20\ J = 1, 18, 3$

(ii) $DO\ 35\ M = -10, 1$

(b) Mention the order in which the input values are assigned to $A(I, J)$ by the following input statement.

$DIMENSION\ A(10, 5)$

$READ*, ((A(I, J), I = 1, 10), J = 1, 5)$

(c) *If* $A = -193.4589$

$B = .4589$

$C = -.008946$

Then how will the output be printed by the following PRINT statement?

$PRINT\ 50\ A, B, C$

$50\ FORMAT\ (1X, F11.4, F8.4, F11.6)$
