Form A: Paper –Setting Blank

Ref No. –Ex/CE/5/T/104//2018

B.CIVIL ENGG. (EVENING). 1st YEAR 2nd SEMESTER EXAM 2018

(2ND Semester ~~/ Repeat / Supplementary / Annual / Bianual~~)

SUBJECT: COMPUTER PROGRAMMING-I

(Name in full)

Time: ~~Two hours~~/Three hours/~~Four hours/ Six hours~~

Full Marks 100

(50 marks for each part)

Use a separate Answer-Script for each part

). of :stion	PART – I (I)	
1.(a)	Write the equivalent FORTRAN expression for the following arithmetic statement: $Y= Log_e(x^{(P+q)})^{½}$	2
(b)	Write the equivalent arithmetic expression for the following FORTRAN statement: X=a*b/c+d**k/m+k	2
(c)	Find he value of the following FORTRAN expression using I=2,J=5,K=-2, m= J**I/J*K	2
(d)	What will be the value of the variable X, at the end of the following program segment? X=5.0 DO I=1,7,3 Do J=2,3 X=X+I END DO END DO WRITE (*,*) X END	2
(e)	What will be the printed output, at the end of the following program segment? i= 12 x=-12.2 y= 2.44E-02 WRITE(*,8) i,x,y 8 FORMAT(2X,I8,2X,F8.2,2X,E12.4) END	2

No. of Question		
2.	Answer **any two** Questions	6x
	a) Write step-wise Algorithm and draw the flow chart to find big number from given series of Integer number.	
	b)Distinguish between function subprogram and subroutine subprogram	
	c)Write short notes on different type of do-Loop & Rules to be followed in written do-Loop	
3.	Answer **any two** Questions.	14
a)	i)Write a FORTRAN program to find out roots of given a quadratic equation.	7
	ii) i) Write a FORTRAN program, to add two square Matrices [A] and [B], both of size (nxn), and store the result in a separate matrix [C]. Nested do loop use for input and output matrices.	7
b)	i) Write a FORTRAN program, to product of two Matrices [A] and [B], both of size (2 x 3) and (3 x 2) respectively and store the result in a separate matrix [C]. Implied do loop use for output matrices and format it.	7
	ii) Given four-digit integer number, write a FORTRAN program to print it in reverse and also find sum of the digits	7
c)	i) Write a FORTRAN program to find the value of ${}^{n}c_{r}$, using function subprogram.	7
	ii)Write a FORTRAN program to print ascending order form given input as N number Integer	7

Ex/CE/5/T/104/2018

Ref. No.: ~~Ex/CE/5/T/105/47/2018~~

BACHELOR OF CIVIL ENGINEERING (EVENING) EXAMINATION 2018

(First Year, Second Semester)

SUBJECT : COMPUTER PROGRAMMING - I

Time: Three Hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part

No. of questions	Part II	Marks
	Answer Question **No.1** and any **Two** from the rest.	
1.	Answer any one question	
	a) Write a computer program in FORTRAN 77 using False Position method that finds a root of the equation $x^2 + x - 2 = 0$ between 1.50 and 2.00, using tolerance of 0.001.	10
	b) Write a FORTRAN 77 program to estimate a value y at a point x from a given table of values of x and y by using n^{th} order Lagrange interpolation polynomial.	10
2.	a) Using Newton-Raphson method, using two iterations ,determine the roots of the following non-linear simultaneous equations, close approximation to start with x =1.00 and y = 1.00 $x^3 - y^2 = -1$ $x^2 - 2x + y^3 = 2$	12
	b) Solve the following system of equations by simple Gauss elimination method. $2x - y + z = 9$ $x + 3y + 2z = -1$ $4x + 4y + z = 5$	8
3.	a) What is an initial-value problem? How is it different from a boundary value problem?	3
	b) State the formula of Euler's method. Illustrate its concept graphically.	4
	c) Explain Predictor – Corrector method for solving initial-value problem for the type $\frac{dy}{dx} = f(x,y)$ with initial condition $y = y_i$ at $x = x_i$.	6
	d) Using Runge-Kutta method of order four find y at x = 0.50 and 1.00 by solving $y' = y(x^2 - 1)$, $y(0) = 1.0$. Assume step size (h) = 0.50.	7
4.	a) Explain the principle of Secant method. What is the difference between false position method and Secant method?	4
	b) Using Newton-Raphson method, using two iterations ,find a root of the function $f(x) = x^2 - 4x - 10 = 0$, in the vicinity of $x = 4.00$.	4
	c) What is interpolation? Given a set of n+1 points, state the general form of nth degree Lagrange interpolation polynomial..	4
	d) For the following table of values:	8

x	2.00	3.00	4.00	5.00
f(x)	7.00	26.00	63.00	124.00

find f(x) for x = 3.5 using Lagrange interpolation. What order of polynomial would you use in the above problem?