B.E CIVIL ENGG (PART TIME) 1st YEAR 2nd SEMESTER 2017

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 Question	Answer *all* questions. PART – I	
1.(a)	Write the equivalent FORTRAN expression for the following arithmetic statement: $$Y = \frac{1-e^{\sqrt{x}}}{1+xe^{-|x|}}$$	2
(b)	Write the equivalent arithmetic expression for the following FORTRAN statement: Y=LOG(SQRT(x/(w*Z)))	2
(c)	What will be the printed output, at the end of the following program segment? m=-125 a=45.65 b=-.12E-02 WRITE(*,8) m,a,b 8 FORMAT(2X,I8,F8.2,E10.2) END	2
(d)	What will be the value of the variable n, at the end of the following program segment? n=5 x=10.0 y=x*n n=n+(y/x) WRITE(*,*)n END	2
2	Write short notes on **any three four** of the following. a) Function subprogram and subroutine subprogram b) Rules to be followed in written DO-Loop. c) Use of CASE statement. d) Rules of writing FORTRAN program in a file.	3x2=6
3.	Write step-wise Algorithm and draw the flow chart to find big number from given N number integer number. OR Write step-wise Algorithm and draw the flow chart to find out roots of given a quadratic equation.	3x2=6

No. of Question		
4.	Answer any two Questions.	1
a)	i) Given four-digit integer number, write a FORTRAN program to print it in reverse and also find sum of the digits.	7
	ii) Write a FORTRAN program to print ascending order of given input as N number integers.	8
b)	i) Write a FORTRAN program to find number of days from given input as month and year.	7
	ii) Write a FORTRAN program, to product of two Matrices [A] and [B], both of size (2x3) and (3X2) respectively and store the result in a separate matrix [C].	8
c)	i) Write a FORTRAN program to the sum of following series for the first N terms, using function subprogram.	8

$$y = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} \cdots \cdots \cdots \cdots$$

ii) Write a FORTRAN program to find the value of ^nc_r, using function subprogram.

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BACHELOR OF CIVIL ENGINEERING (PART TIME) EXAMINATION 2017
(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 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
	b) Write a computer program in FORTRAN 77 using Secant method that finds a root of the equation $x^2 - 2x - 1 = 0$,with initial guess 2.00 and 3.00, using tolerance of 0.001.	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 $$x^2 + y^2 = 5$$ $$x^2 - y^2 = 1$$	12
	b) Solve the following system of equations by simple Gauss elimination method. $$2x + y + z = 7$$ $$4x + 2y + 3z = 4$$ $$x - y + z = 0$$	8
3.	a)) What is an initial-value problem ?	2
	b) Using Runge-Kutta method of order four find y at x = 0.2 and 0.4 by solving $y' = x^2 + y^2$, y(0) = 0.0 . Assume h = 0.20.	8
	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) Explain the limitations of using Newton-Raphson method.	4
4.	a) Write an algorithm to find root of a non-liner equation f(x) = 0 using Bi-section method.	3
	b) Using false-position method, using two iterations, find a root of the equation Sin x - 2x +1 = 0, with the initial estimates of x_1 = 0.00 and x_2 = 1.00.	4
	c) Using Newton-Raphson method, using two iterations, determine the root of the equation f(x) = x^2 - 3 x + 2 in the vicinity of x = 0.0.	3
	d) What is interpolation? Given a set of n+1 points, state the general form of nth degree Lagrange interpolation polynomial.	3
	e) For the following table of values:	7

x	1.0	2.0	3.0	4.0
f(x)	1.000	1.4142	1.7321	2.000

find f(x) for x = 2.5 using Lagrange interpolation .What order of polynomial would you use in the above problem?