Paper VIII
85

2013

Full Marks : 100

Time : 3 hours

Answer any **eight** questions out of twelve

The questions are of equal value

Candidates are required to give their answers in their own words as far as practicable.

1. (*a*) Write and explain the classification of computer.

   (*b*) What do you mean by numerical computing ?

2. (*a*) Convert the following to octal number :

   (*i*) $(549)_{10}$

   (*ii*) $(785)_{10}$

   (*b*) Convert the following to Hexadecimal number :

   (*i*) $(1110011)_2$

   (*ii*) $(100011)_2$

3. (*a*) Draw a flowchart to find the factorial of a number.

   (*b*) Draw a flowchart to print 1 to 10.

4. (*a*) What is conditional and unconditional jumps ? Explain it.

   (*b*) What is relational expression and I/O controls ? Explain it.

5. (*a*) Write a program in BASIC to find the prime number.

   (*b*) Write FORTRAN expression to the following expression :

   (*i*) $\dfrac{ay+b+c}{ay+b}$.

   (*ii*) $(4x+9)(3y+7)$

6. (*a*) Write a program to find the even no. between 1 to 10.

   (*b*) Write a program in FORTRAN to find out the factor of any number.

(*Continued*)

7. (*a*) Write a program in FORTRAN to reverse the number.

   (*b*) Write a program in FORTRAN to sum

   $$1^2+2^2+3^2+.....+n^2.$$

8. (*a*) Given

x :	1	2	3	4	5	6	7	8
y :	1	8	27	64	125	216	343	512

   find $f(7.5)$:

   (*b*) Solve by Lagrange's formula

x :	5	6	9	11
y :	12	13	14	16

   Find the value of y where $x = 10$.

9. (*a*) Use Newton's method to find the root of the equation :

   $$x^3-3x-5=0$$

   (*b*) Solve by Bisection method to find the roots of

   $$f(x)=x^3-x-1=0$$

(*Turn Over*)

10. (*a*) Solve :

$$2x - 3y + 10z = 3$$
$$-x + 4y + 2z = 20$$
$$5x + 2y + z = -12$$

By factorization method.

(*b*) Solve :

$$2x + 3y + z = 9$$
$$x + 2y + 3z = 6$$
$$3x + y + 2z = 8$$

By Gauss elimination method.

11. (*a*) What is Poison and Normal Distribution.

(*b*) What is the probability of obtaining three aces in rolling a die three times ?

12. (*a*) What is sample space and mutually exclusive events ?

(*b*) Eight coins are thrown simultaneously find the probability of getting at least seven tails.
