PG/IS/EL - 1111/09 (Pr.)

M.Sc. 1st Semester Examination, 2009

ELECTRONICS

(*Computational Laboratory*)

PAPER—EL-1111

(Practical)

Full Marks : 50

Time : 3 hours

Answer any **one** question

Marks Distribution :

Program	: 10
Execution	: 20
Accuracy	: 02
Discussion	: 03
Viva	: 10
Laboratory Note Book	: 05
Total	: 50

1. Write a program in 'C' to check a number whether it is prime or non-prime.

2. Write a program in 'C' to check a number whether it is even or odd.

3. Write a program in 'C' to calculate the roots of a quadratic equation.

4. Write a program in 'C' to generate Fibonacci series.

5. Implement Euler method for solving the differential equation using C/C++ language.

6. Using Newton-Raphson method find the real root of the equation $3x = \cos x + 1$ correct to four decimal places. Give computer program in 'C' language.

7. Write a program in 'C' to evaluate the value of sin (x) with the help of sine series taking accuracy of $0 \cdot 00001$ and also calculate the number of terms required to achieve the given accuracy.

8. Write a program in 'C' to evaluate the value of cos (x) with the help of cosine series taking first 20 terms.

9. Solve the equation $\frac{dy}{dx} = x + y$ with initial condition $y(0) = 1$ by Runge–Kutta rule from $x = 0$ to $x = 0 \cdot 4$ with $h = 0 \cdot 1$. Also implement this method using Fortran language.

10. Find $y(10)$ from the following table.

x	5	6	9	11
y	12	13	14	16

and write a 'C' program to implement your propose method of interpolation.

11. Write a program in 'C' to check a number whether it is palindrome or not.

12. Write a program in 'C' to determine the largest number from a given array.

13. Write a program in 'C' to determine the smallest number from a given array.

14. Find

$$\frac{dy}{dx} \text{ and } \frac{d^2y}{dx^2} \text{ at } x = 1, \text{ and } x = 1 \cdot 25$$

where the table is given below

x:	1	1·05	1·1	1·115	1·2	1·25	1·30
y:	1	1·0247	1·0488	1·0723	1·0954	1·1180	1·1401

Also write a Fortran program to implement the differentiation.

15. Write a program in 'C' to sort an array in decending order using Bubble sort technique.
