

BCA [Honours]

[CBCS]

B.Sc. Fifth Semester End Examination-2023

(Regular & Supplementary Paper)

PAPER- DSE2P

(Practical)

Full Marks: 20

Time: 02 Hrs

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as

far as practicable

Illustrate the answers wherever necessary

Answer any one question:

1x15= 15

1. Write a program to find the root of the equation $x^3 - 9x + 1 = 0$ for the root lying between 2 or 3, using Bisection method.
2. Write a program to find the root of the equation $x^2 + 2x - 2 = 0$ by Newton Raphson method.
3. Write a program to solve the following system of equation using Gauss-Elimination method

$$x + 3y + 2z = 5$$

$$2x - y + z = -1$$

$$x + 2y + 3z = 2$$

(2)

4. Write a program to find $y(0.4)$, given $\frac{dy}{dx} = x - y$,
 $y(0) = 1, h = 0.1$ by R.K. 4th order.
5. Write a program to determine $y(0.02)$ by Euler's method, given
that $\frac{dy}{dx} = x^3 + y, y(0) = 1, h = 0.01$
6. Write a program to find the value of $f(21)$ using Newton's
Backward interpolation

x	0	5	10	15	20
$f(x)$	1	1.6	3.8	8.2	15.4

7. Write a program to find $f(0.5)$ from the following table, using
Newton's Forward interpolation

x	0	1	2	3
$f(x)$	1	2	11	34

8. Write a program to find $\int_0^1 \frac{x dx}{1+x}$ taking 6 intervals by
Trapezoidal rule.
9. Write a program to find $\int_{1.2}^{1.6} \left(x + \frac{1}{x}\right) dx$ taking 4 intervals by
Simpson's $\frac{1}{3}$ rd rule.
10. Write a program to find $\int_0^1 (4x - 3x^2) dx$ by Simpson's $\frac{3}{8}$ rule,
taking $n=10$

Viva - 03
PNB - 02