



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2022

(Under CBCS Pattern)

Semester - IV

Subject : MATHEMATICS

Paper : GE 4 - P

Numerical Methods Lab

Full Marks : 20

Time : 3 Hours



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

The figures in the margin indicate full marks.

1. Answer any *two* questions :

5×2=10

- (a) Write a program to find the value of $1 + \frac{1}{2} + \dots + \frac{1}{N}$, for $N = 10$ and 120 .
- (b) Write a program to find the value of the integration $\int_0^1 \frac{dx}{1+x}$ using trapezoidal rule correct upto 3 decimal places.
- (c) Write a program to find the value of the integration $\int_4^{5.2} \ln x dx$ using Simpson $\frac{1}{3}$ rule with $h = 0.1$
- (d) Write a program to find $y(0.2)$, from $\frac{dy}{dx} = x^2 + xy + 2$ using Euler method.

P.T.O.

2. Answer any *one* question :

$10 \times 1 = 10$

- (a) Write a program to find a root of $f(x) = 0$ using Bisection method.
- (b) Write a program to find the value of y at $x = x_i$ using Lagrange interpolation formula from a table of values.