

U.G. 3rd Semester Examination - 2020

MATHEMATICS

[HONOURS]

Course Code : MATH(H)-CC-P-07

[PRACTICAL]

SET-15

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

Symbols and notations have their usual meanings.

1. Answer any **one**: 10×1=10

- i) Write a C program by implementing an appropriate interpolation formula, to evaluate the value of $f(5)$ from the following data:

x	3	4	6	8
$f(x)$	4.5	13.2	43.7	56.4

- ii) Write a C program to find an approximate value of y corresponding to $x = 0.4$, given that $\frac{dy}{dx} = 1 + y^2$, $y(0)=0$, $h=0.2$, using the fourth order Runge-Kutta method.

- iii) Write a C program to find the value of $\int_0^6 \frac{1}{1+x^2} dx$ by taking six sub-intervals using Simpson's one-third rule.

2. Answer any **one**: 10×1=10

- i) Write a C program to find factorial of n , where n is a positive integer.
- ii) Write a C program to evaluate $\sum_{i=1}^{20} \frac{1}{i^2}$.
- iii) Write a C program to find the n th Fibonacci number using arrays.
