

M.SC.(Phy.) Semester - 4 (CBCS) Examination**May/June-2021 (NEW COURSE)****Numerical Analysis and Computer Programming (Core)****Time: 1:30 Hours****Marks: 42****Instructions:**

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

Que-1 Define linear equations. What are the methods used to solve linear equations? Solve (14)
the following set of linear equations by (1) elimination method and (2) Cramer's rule.

$$2x + 3y + 2z = 14$$

$$5x + y + z = 10$$

$$X + 5y + 3z = 20$$

Que-2 What do you mean by numerical integration? Why Trapezoidal rule is least accurate (14)
while weddle's rule is most accurate? Evaluate $\int_0^5 \frac{1}{1+x} dx$ by using (1) Trapezoidal rule
(2) Simpson's $1/3$ and $3/8$ rule (3) Weddle's rule. Compare the results with the actual
value.

Que-3 Discuss the importance of operating system , Describe various types of compilers. (14)

Que-4 What is the importance of flow chart? Explain each symbol with its application. Draw (14)
the flow chart to find the largest among the three numbers.

Que-5 Write the FORTRAN program to fit a straight line for a given data set of (X, Y), (14)

$$M = \frac{N \cdot \sum X_i \cdot Y_i - \sum X_i \cdot \sum Y_i}{N \sum X_i^2 - (\sum X_i)^2}$$

And

$$C = \frac{1}{N} [\sum X_i - M \sum X_i]$$
