

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2013

(CUCSS)

Mathematics

MT 4E 07—COMPUTER ORIENTED NUMERICAL ANALYSIS

Time : One Hour and a Half

Maximum : 18 Weightage

Part A

Short answer questions (1-6).

Answer all questions. Each question has one weightage.

- (1) Write, a short note on remainder operator.
- (2) Write a short note on structures.
- (3) Write a C++ program for finding the greatest common divisor of two numbers.
- (4) Write an algorithm for polynomial evaluation.
- (5) Write a C++ program for finding the average of two numbers.
- (6) Write an algorithm for finding the derivative of a function. (6 x 1 = 6 weightage)

Part B

Answer any four from the following six questions (7-12).

Each question has weightage 2.

- (7) Write a C++ program that demonstrates if else statement.
- (8) Write note on stream class hierarchy.
- (9) Write a C++ program for finding a root of an equation $f(x) = 0$ by bisection method.
- (10) Write an algorithm for piecewise linear fit.
- (11) Write a C++ program to evaluate $\int_a^b f(x) dx$ using trapezoidal rule.
- (12) Write a C++ program to evaluate $\frac{dy}{dx} = J(x, y), \quad = Y_0$ using Euler's method. (4 x 2 = 8 weightage)

Turn over

Part C

Answer any one from the following two questions (13-14).

Each question has weightage 4.

- (13) Write a C++ program that counts the number of words and the number of characters in a phrase typed by the user.
- (14) Write an algorithm and the corresponding C++ program to solve a system of linear algebraic equations using Gauss elimination method.

(1 x 4 = 4 weightage)