The Assam Royal Global University, Guwahati
Royal School of Engineering & Technology
M.Tech. (CE) Water Resources Development & Management, 2nd Semester
Semester End Examination, June 2023
Course Title : Systems Analysis in Water Resources
Course Code : CEE024C20W1

Time: 3 Hours Maximum Marks: 70

Note: Attempt all questions as per instructions given.
The figures in the right-hand margin indicate marks.

Section – A

1. Attempt **all questions**. (Maximum word limit 50) 2 x 8

    a. How would you identify entering variable?

    b. How would you describe decision variables?

    c. What do you mean by infeasible solutions?

    d. In what situation Reservoir Simulation with time discretization less than a day is necessary?

    e. What is a basis?

    f. How would you recognize slack variable?

    g. How would you identify basic feasible solution?

    h. What is Bellman's principle of optimality?

Section – B

2. Attempt *any two* of the following: 6 x 2

    a. Using graphical method

    Maximize z $= 6x_1 + 7x_2$

    Subject to $x_1 \le 6$

    $2x_2 \le 16;$

    $3x_1 + 2x_2 \le 36$

    $x_1 \ge 0;\ x_2 \ge 0$

    b. Illustrate the general recursive equation for any period *t* to be used to solve Reservoir Operation Problem with the help of necessary diagrams.