THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (6x5=30)

I.   Find Particular Solution of: $y^{(4)}(t) + 6y'''(t) + 14y''(t) + 16y'(t) + 8y = 2$

II.   Find characteristic roots of: $(r + 2)(r + 2)(r^2 + 2r + 2) = 0$

III.   Write complementary function of characteristic equation $(r + 2)(r + 2)(r^2 + 2r + 2) = 0$.

IV.   Explain Routh Theorem.

V.   Explain the concept of Primal and Dual.

VI.   Explain use of Linear Programming in Economics.

Answer the following questions.   (3x10=30)

Q. 2. Test convergence of the path of $y_{t+2} + 2y_{t+1} + 2y_t = 12$, using Schur Theorem.

Q. 3. Explain Dynamic Input-output Models with example(s).

Q. 4. Solve the model: $X_{t+1} + \frac{1}{2}y_{t+1} - \frac{1}{7}y_t = 2$, using Routh Theorem.