QUIZ 2 - Variant 2

Task 1 – Paper+Python (40/100)

x	y
1	7
1.5	6
2	6
2.5	7
3	8
3.5	10
4	13
4.5	15
5	19
5.5	25
6	33
6.5	43
7	54

- Fit the following data using 3 models given below.
- Show parameters of each model in the screen.
- Plot given data and all curves in the same window. Plot gridlines, legend in the same window
- Calculate error function Φ for all models and select the best model.

$$f_1(x) = \frac{ab^x}{x}$$

$$f_2(x) = ax^2 + bx + c$$

$$f_3(x) = ax^3 + bx^2 + cx + d$$

Task 2: Python (30/100)

Solve the following system using Gauss Elimination method. Check the roots

$$\begin{cases} \boldsymbol{2a + 5b + 4c + d = 20} \\ \boldsymbol{a + 3b + 2c + d = 11} \\ \boldsymbol{2a + 10b + 9c + 7d = 40} \\ \boldsymbol{3a + 8b + 9c + 2d = 37} \end{cases}$$

Task 3: Paper (30/100)

Solve the following system using Gauss Elimination method with Partial Pivoting method. Write your explanations in details. Check the results.

$$\begin{cases} \boldsymbol{x - 2y + 3z = 9} \\ \boldsymbol{-x + 3y - z = -6} \\ \boldsymbol{2x - 5y + 5z = 17} \end{cases}$$