1. **Mini-assignment – Artificial Neural Network (ANN)**

a.) Draw and label an ANN with one input layer, one hidden layer and one output layer; the number of neurons in the input layer is 2; and number of neurons in the hidden layer is 3. The output layer will have only 1 neuron. The activation function for the hidden neurons is sigmoid function. The activation function for output layer is any linear function. The input layer neurons have no activation function.

b.) List all the equations needed to calculate this ANN for both forward pass and backward pass.

c.) Demonstrate how this ANN can be used to solve the XOR logic problem.

   a. Show the training and learning of this ANN,
   b. Program. Attach your code.
   c. Diagrams and graph of the classification result.
   d. Comment on observation of different initialization values of weights and different learning rate setting.

To submit latest by week 5 (dateline: 17th September 2023, 2359hrs). Report in pdf format. Codes to be placed in the report annex.

Marking scheme:

1. Draw and label of the ANN (10%)

2. List of all the necessary equations (20%)

3. Solving of the XOR logic problem and show all the details of training steps, program, diagram, observation and comments of the learning points. (45%)

4. Mini-assignment report layout, clarity, structure and grammatically correctness (25%)