I. FLOW CHART FOR BACK PROPAGATION ALGORITHM

1. Initialize Training
   Epoch = 1

2. Initialize weights and biases with random values

3. Present input pattern and Calculate output values

4. Calculate mean squared error (mse)

5. If $\text{mse} \leq \text{mse}_{\text{min}}$
   - No

6. If Epoch $\geq \text{Epoch}_{\text{max}}$
   - Yes
     - Stop Training Network
   - No
     - Update the weights and biases

7. Epoch = Epoch + 1

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ANNEXURE – IV
II. FLOW CHART FOR COMPLEX VALUED BACKPROPAGATION ALGORITHM

1. Initialize Training
   Epoch = 1

2. Initialize complex weights and biases with random values

3. Present input pattern in complex form

4. Calculate output values of hidden and output layers

5. Calculate mean squared error (mse)

6. If $\text{mse} \leq \text{mse}_{\text{min}}$
   - Yes: Stop Training Network
   - No: Update the weights and biases of output layer and hidden layer

7. If $\text{Epoch} \geq \text{Epoch}_{\text{max}}$
   - Yes: Stop Training Network
   - No: Epoch = Epoch + 1
III. FLOW CHART FOR REPEATED POWER FLOW

Select Transfer case and variables to be changed

Step increase variables

Check if bus voltages are stable

Yes

No

Step back and increase variables with smaller steps

Check if bus voltages are stable

Yes

No

ATC

End
IV. FLOW CHART FOR COMPUTATION OF AVAILABLE TRANSFER CAPABILITY

1. Read the data of the power system
2. Select buyer and seller areas
3. Run repeated power flow increasing generation and load in steps
4. Check for voltage collapse
5. Calculate total transfer capability of all the tie lines
6. Calculate Available transfer capability