Lab 3

Q1: Output

```
**************Prdicate Logic ******************

Prashant
Name: shivam kumar panday
Roll no : 25
```

Q2: Output

```
********Prdicate Logic using pyDatalog ************

--------------------------------
Grandfather of Luv is: Dashrath
--------------------------------
Spouse of Ram is: Sita
--------------------------------
Brother of Luv is: Kush
--------------------------------
Uncle of Luv is: Laxman
--------------------------------
Kush is grandson of  Dashrath
Luv is grandson of  Dashrath
--------------------------------
Sita is mother of  Kush
Sita is mother of  Luv
Kaushalya is mother of  Laxman
Kaushalya is mother of  Ram
Name: shivam kumar panday
Roll no : 25
```

Q3: Output

```
*********Prdicate Logic using pydatalog ***********

Hari is sibling of paul
Mary is sibling of paul
Name: shivam kumar panday
Roll no : 25
```

Q4: Output

```
**********Prdicate Logic using pydatalog ***********

*
All girls are smart:
No

Some boys are young:
Yes
```

Q5: Output

```
**********Prdicate Logic using pydatalog ***********

Is Rita polite?
Rita is polite: no
--------------------------------
Is Ram polite?
Ram is polite: no
Name: shivam kumar panday
Roll no : 25
```

Lab 4

Q1: Output

#ANN with activation functions

```
 Program by: Name:Shivam Kumar Panday  Roll no: 25

Input Data(x):
[1, 1]
Weights:
[0.6 0.6]

The activation function called is step function
The output of the neuron is 1

The activation function called is linear function
The output of the neuron is 0.8

The activation function called is sigmoid function
The output of the neuron is 0.7685247834990175
```

Q2: Output

#Train OR Gate Using Perceptron Learning Algorithm

```
*********Train OR Gate using PLA ***************


 Program by:
 Name: Shivam Kumar Panday
 Roll no: 25

Training Data(x):
[[0 0]
 [0 1]
 [1 0]
 [1 1]]
Training Data(y):
[0 1 1 1]
Initial Weights:
[0 0]
Training:
+++++++++
Epoch# 1
Weights:
[0.  0.1]
Epoch# 2
Weights:
[0.1 0.1]

Epoch# 3
Weights:
[0.1 0.1]
Input: [1 1]
Output: 1
Input: [1 0]
Output: 1
Input: [0 1]
Output: 1
Input: [0 0]
Output: 0
```

Q3: Output

#Train AND Gate Using Perceptron Learning Algorithm

```
*********Train AND Gate using PLA************


 Program by:
 Name: Shivam Kumar Panday
 Roll no: 25

Training Data(x):
[[0 0]
 [0 1]
 [1 0]
 [1 1]]
Training Data(y):
[0 0 0 1]
Initial Weights:
[0 0]
Training:
+++++++++
Epoch# 1
Weights:
[0.2 0.2]

Epoch# 2
Weights:
[0.4 0.2]
Epoch# 3
Weights:
[0.4 0.2]
Epoch# 4
Weights:
[0.4 0.4]
Epoch# 5
Weights:
[0.4 0.2]
Input: [1 1]
Output: 1
Input: [1 0]
Output: 0
Input: [0 1]
Output: 0
Input: [0 0]
Output: 0
```