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NPTEL (https://swayam.gov.in/explorer?ncCode=NPTEL) » **Practical Machine Learning with Tensorflow (course)**

Announcements (announcements)   **About the Course (https://swayam.gov.in/nd1_noc20_cs44/preview)**

Ask a Question (forum)   Progress (student/home)   Mentor (student/mentor)

Unit 2 - Week 1

## Course outline

How does an NPTEL online course work?

Week 1

- Overview of Tensorflow (unit? unit=1&lesson=2)
- Machine Learning Refresher (unit? unit=1&lesson=3)
- Steps in Machine Learning Process (unit? unit=1&lesson=4)
- Loss Functions in Machine Learning (unit? unit=1&lesson=5)
- Gradient Descent (unit?

Assignment 1

The due date for submitting this assignment has passed.   Due on 2020-02-12, 23:59 IST.

Assignment submitted on 2020-02-12, 23:20 IST

1) From the below graphs, select the one that satisfies the equation $y = \sigma(0.1^{*}x)$:   *1 point*
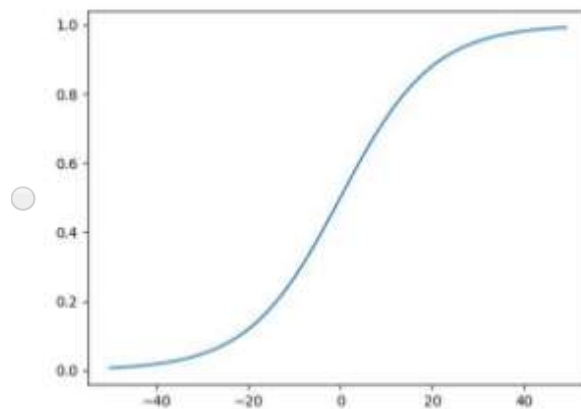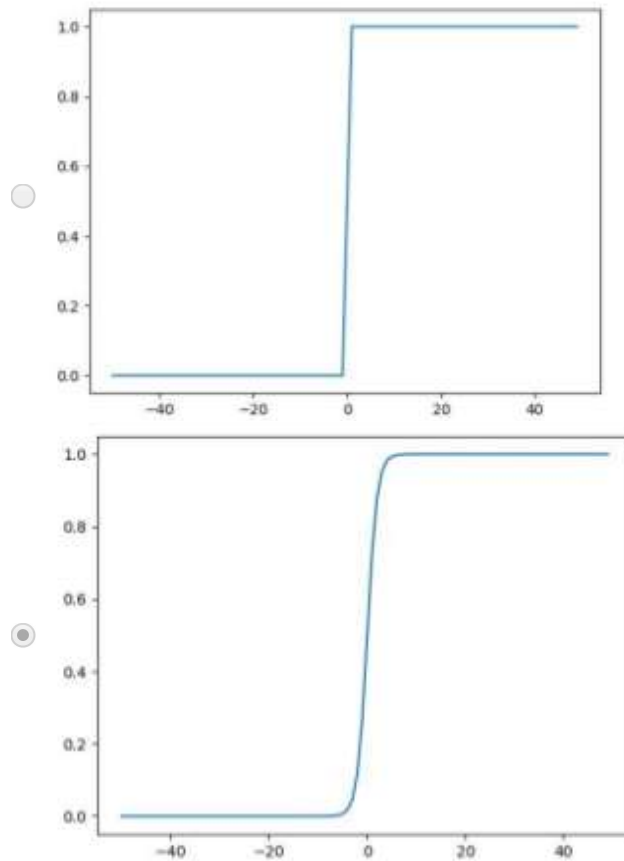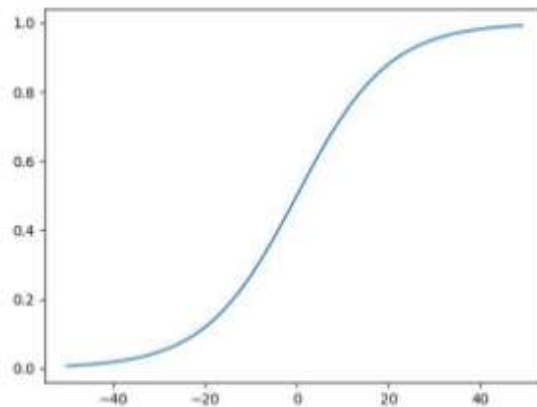
○ None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:

2) Perform z-score normalization and min-max scaling on the given array and select from the   **1 point**
given options.

```
arr =  [  100 ,  50 ,  400 ,  300 ,  100 ]
```

○ z-score: [-0.66 -1.03 1.45 0.81 -0.66] ,
   min-max: [0.14 0. 1. 0.71 0.14]

○ z-score: [-0.26 -1.54 1.46 0.6 -0.26] ,
   min-max: [0.43 0. 1 . 0.71 0.43]

z-score: `[-0.86 -1.25 1.48 0.7 -0.08]` ,

min-max: `[0.14 0. 1. 0.71 0.43]`

◉ None of the above

Yes, the answer is correct.
Score: 1
Accepted Answers:
None of the above

3) We have a neural network with an input layer of h_0 nodes, hidden layers of $h_1, h_2, h_3, \ldots, h_l$ nodes respectively and an   ***1 point***

    output layer of h_{l+1} nodes. How many parameters does the network have?

○

$$\sum_{i=1}^{l}[(h_i * h_{i+1}) + h_i]$$

○

$$\sum_{i=0}^{l}[(h_i * h_{i+1}) + h_i]$$

◉

$$\sum_{i=0}^{l}[(h_i * h_{i+1}) + h_{i+1}]$$

○ None of the above

Yes, the answer is correct.
Score: 1
Accepted Answers:
$$\sum_{i=0}^{l}[(h_i * h_{i+1}) + h_{i+1}]$$

4) Suppose we need to minimize the following loss function by tuning scalar value w using   ***1 point***
gradient descent: f(w) = 9 + 4w + w^2 .

    Given w$_0$ =0, select the best value for learning rate α, such that gradient descent reaches the optimal value in just one step.

○ 0.1

◉ 0.5

○ 1

○ Any α: 1 > α > 0

Yes, the answer is correct.
Score: 1
Accepted Answers:
0.5

5) In linear regression with MAE loss, if we only had one target Y_train for all the observations   ***1 point***
X_train, then the optimal value that the

    prediction Y_pred should have is:

◉ Mean of Y_train

○ Median of Y_train

○ Mode of Y_train

○ Variance of Y_train

No, the answer is incorrect.
Score: 0

Accepted Answers:
Median of Y_train

6) A machine learning model gets an accuracy of 90% on a dataset with 90% positive class and   **1 point**
10% negative class. Can we conclude that
      the model is a good classifier of the data?

○ Yes

◉ No

Yes, the answer is correct.
Score: 1

Accepted Answers:
No

7) Suppose you are given with the following training data for linear regression $(h(x) = wx + b)$:**1 point**

$$x = [3, 2, 4, 0]$$
$$y = [4, 1, 3, 1]$$

You are using loss function $J(w, b) = \frac{1}{2} \sum_{i=1}^{n} [h(x_i) - y_i]^2$

What is the value of $J(1, 1)$?

○ 1

○ 2

◉ 4

○ 8

Yes, the answer is correct.
Score: 1

Accepted Answers:
4

8) In the above question, if (w, b) = (1, 3), what is *h(4)* ?   **1 point**

○ 3

○ 5

◉ 7

○ 8

Yes, the answer is correct.
Score: 1

Accepted Answers:
7

9) If we halve the value of a given feature, what happens to the coefficients of other features   **1 point**
estimated by minimizing squared loss function?
      (assuming no interaction between any two features)

○ Double

○ Halve

◉ Stay the same

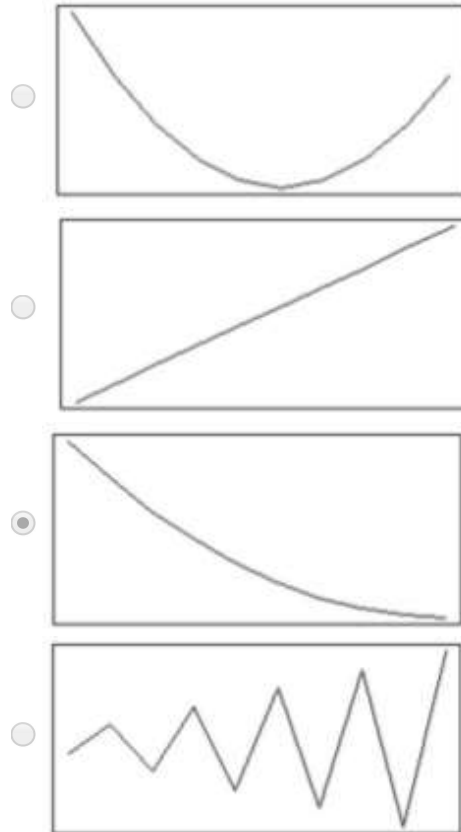○ More information required to say anything

Yes, the answer is correct.
Score: 1
Accepted Answers:
Stay the same

10)Which of the following model complexity vs. loss function plots is most likely from training   ***1 point***
data?

Yes, the answer is correct.
Score: 1
Accepted Answers: