X

Unit 5 - Week 3

Assignment 3

The due date for submitting this assignment has passed. Due on 2020-02-19, 23:59 IST.
As per our records you have not submitted this assignment.

1) A single letter is selected at random from the word 'MACHINE LEARNING'. The probability that it is a consonant is ***1 point***

- 8/15
- 5/15
- 7/15
- 9/15

No, the answer is incorrect.
Score: 0
Accepted Answers:
9/15

2) The probability of rolling 2 dice to get a sum of 4 or 7 is: ***1 point***

- 1/6
- 1/4
- 1/12
- 1/8

No, the answer is incorrect.
Score: 0
Accepted Answers:
1/4

3) A car manufacturer purchases car batteries from two different suppliers. Supplier X provides 55% of the batteries and supplier Y provides the rest. ***1 point***

If 5% of all batteries from supplier X are defective and 4% of the batteries from supplier Y are defective. Determine the probability

that a randomly selected battery is defective

- 0.95
- 0.045
- 0.5
- 0.85

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.045

4) For normal density function, the area under the probability density curve within 3σ limit is **1 point**

- 1
- -1
- 99.7
- 68.26

No, the answer is incorrect.
Score: 0
Accepted Answers:
99.7

5) A and B are mutually exclusive events, given P(A)=0.3 and P(B)=0.4 find P(A∩B)? **1 point**

- 0.12
- 0
- 0.7
- 1

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

X and Y are independent random variables with $E(X) = 6, \sigma_X^2 = 3, E(Y) = 3$ and $\sigma_Y^2 = 5$. Now based on this information
answer question 6 and 7

6) $E(10X + 5Y) =$? **1 point**

- 20
- 30
- 65
- 75

No, the answer is incorrect.
Score: 0
Accepted Answers:
75

7) Var $(3X + 5Y)$ is **1 point**

- 260
- 152
- 145
- 100

No, the answer is incorrect.
Score: 0

Accepted Answers:
152

Based on the below information answer questions from 8 to 11.

Read the dataset **Salaries.csv** (https://drive.google.com/open?id=1v6FbQfPCADkRIXCdZGmf5ujAxVm4aHV0). The description of the dataset is given below:
The 2008-09 nine-month academic salary for Assistant Professors, Associate Professors and Professors in a college in the U.S, the
data were collected as part of the on-going effort of the college's administration to monitor salary differences between male and female
faculty members.
A data frame consisting of 397 observations with 6 variables is described below.

Variable	Description
rank	factor with levels "AssocProf", "AsstProf", "Prof"
discipline	factor with levels A ("theoretical" departments) or B ("applied" departments)
yrs.since.phd	years since PhD
yrs.service	years of service
Sex	factor with levels Female, Male
salary	salary, in dollars

8) Average **Salary** of the professors is ***1 point***

- 113706
- 125688
- 107300
- 245131

No, the answer is incorrect.
Score: 0
Accepted Answers:
113706

9) The highest experience of professor since Ph.D. is: ***1 point***

- 54
- 32
- 21
- 56

No, the answer is incorrect.
Score: 0
Accepted Answers:
56

10) The Median of years of service of professors is: ***1 point***

- 7
- 16
- 23

35

No, the answer is incorrect.
Score: 0
Accepted Answers:
16

11) Variance of **Salary** is **1 point**

345658545
912562245
917425865
65872354

No, the answer is incorrect.
Score: 0
Accepted Answers:
917425865

12) Which one of the following is best measure of central tendency for categorical data? **1 point**

Mean
Median
Mode
None of the above

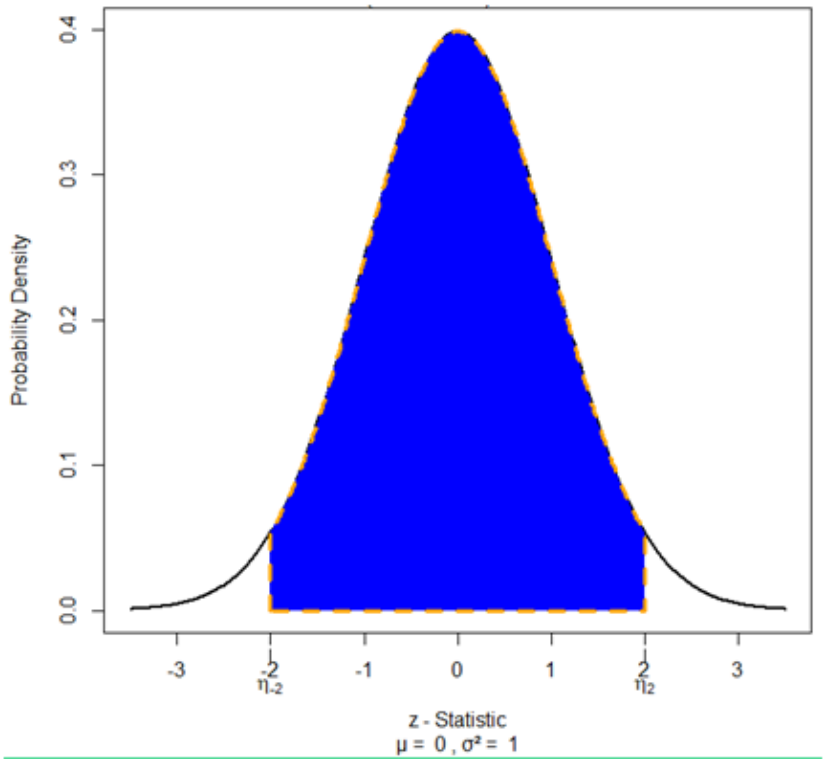
No, the answer is incorrect.
Score: 0
Accepted Answers:
Mode

13) The sum of the deviations from the mean is always **1 point**

Positive
Negative
Standard deviation
Zero

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

14) A standard normal density function is shown below. The area of the shaded region is **1 point**



- 0.046
- 0.977
- 0.954
- 0.023

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.954

15) Consider the experiment of tossing a coin three times. What is the probability of getting three tails? ***1 point***

- 1/8
- 3/8
- 1/4
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
1/8

16) A sample of N observations are independently drawn from a normal distribution. The sample variance follows ***1 point***

- Normal distribution
- Chi-square with N degrees of freedom
- Chi-square with N-1 degrees of freedom
- t-distribution with N-1 degrees of freedom

No, the answer is incorrect.
Score: 0

Accepted Answers:
Chi-square with N-1 degrees of freedom

Based on the below information answer questions from 17 to 20.

The **bigcity.csv (https://drive.google.com/open?id=1N42-T1kSKtMEBWlEEoiNqTUkEsxnmmqj)** file contains a data frame having 49 rows and 2 columns. The population (in 1000's) of 49 U.S. cities for the year
1920 and 1930 are recorded.

Variable	Description
X_1920	1920 population
Y_1930	1930 population

In order to assess whether the population of the cities changed significantly, a hypotheses test is conducted to test whether the differences of
the mean is equal to zero or not.

17) The difference in the mean between the population 1930 and 1920 is ***1 point***

- 20.464
- -23.652
- 24.653
- 10.555

No, the answer is incorrect.
Score: 0
Accepted Answers:
24.653

18) The value of the t-statistic for the hypotheses test is ***0 points***

- 1.069
- 0.404
- -0.856
- -1.069

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.069

19) The degrees of freedom of the t-statistic is ***1 point***

- 56
- 20
- 35
- 96

No, the answer is incorrect.
Score: 0
Accepted Answers:
96

20) The critical value of the test criterion for a level of significance of 5% is: ***1 point***

- 2.22
- 2.02

- 1.98
- 3.56

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.98