Unit 3 - Week 2

Course outline

How does an NPTEL online course work?

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Week 2
- Lecture 06 : Objectives, Steps and Basic Definitions
- Lecture 07 : Variables and Types of Data
- Lecture 08 : Absolute Frequency, Relative Frequency and Frequency Distribution
- Lecture 09 : Frequency Distribution and Cumulative Distribution Function
- Quiz : Assignment 2
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Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-11, 23:59 IST.

1) The nature of variables defined by the random variable associated with an experiment to count "the number of students of a particular gender in each room of a school" is ***1 point***

○ discrete.
○ continuous.
○ sometimes discrete and sometimes continuous.
○ not clear as the information is inadequate.

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

2) An experiment is conducted in which a medicine is administered to a group of ten patients. The body temperatures of patients are recorded after three hours and the median of body temperatures is found. The experiment is repeated 500 times. The nature of variables defined by the "median of body temperature" is ***1 point***

○ discrete.
○ continuous.
○ sometimes discrete and sometimes continuous.
○ not clear as the information is inadequate.

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

3) *Questions 3 to 10 are based on the following data set.* ***1 point***

A hospital has 15 rooms and each room has 10 admitted patients. A puzzle for the mental exercise was given to all the patients in every room. The time (in minutes) taken to complete the puzzle was recorded as follows and stored in a data vector as
`puzzletime`

8, 13, 21, 9, 15, 29, 6, 13, 24, 27, 3, 22, 21, 20, 21, 20, 8, 27, 10, 17, 9, 7, 13, 15, 14, 23, 11, 20, 12, 21, 11, 27, 29, 3, 6, 6, 18, 8, 17, 6, 5, 11, 24, 22, 19, 20, 22, 21, 8, 20, 17, 28, 13, 4, 7, 24, 23, 16, 19, 29, 16, 20, 21, 23, 8, 1, 11, 16, 9, 16, 13, 10, 17, 18, 28, 10, 23, 27, 16, 8, 14, 9, 9, 18, 14, 21, 28, 16, 20, 11, 26, 7, 5, 25, 29, 27, 17, 24, 23, 27, 13, 3, 7, 27, 28, 18, 7, 9, 13, 9, 5, 27, 26, 27, 9, 4, 7, 10, 19, 19, 13, 9, 20, 16, 27, 20, 3, 26, 23, 11, 28, 21, 5, 19, 11, 18, 12, 22, 9, 11, 5, 28, 3, 12, 9, 11, 8, 17, 6, 11

The outcome of the command `range(puzzletime)` is

○ `29`
○ `-29`
○ `29 1`
○ `1 29`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`1 29`

4) How many patients completed the puzzle in exactly 17 minutes? ***1 point***

○ 5
○ 6
○ 7
○ 8

No, the answer is incorrect.
Score: 0
Accepted Answers:
6

5) How many patients completed the puzzle in less than 10 minutes? ***1 point***

○ 46
○ 42
○ 11
○ 9

No, the answer is incorrect.
Score: 0
Accepted Answers:
42

6) How many patients completed the puzzle in more than 25 minutes? ***1 point***

○ 1
○ 3
○ 23
○ 24

No, the answer is incorrect.
Score: 0
Accepted Answers:
23

7) How many patients completed the puzzle in more than 15 minutes and less than 20 minutes? ***1 point***

○ 34
○ 32
○ 25
○ 23

No, the answer is incorrect.
Score: 0
Accepted Answers:
23

8) Suppose we want to convert the data in `puzzletime` in a grouped data having class intervals [1,5), [5,10), [10,15), [15,20), [20,25) and [25,30). Which of the following is the correct frequency table of values in the `puzzletime`? ***1 point***

○
```
[1,5]  [5,10] [10,15] [15,20] [20,25] [25,30]

 8      34      28      25      31      24
```
○
```
[1,5)  [5,10) [10,15) [15,20) [20,25) [25,30)

 8      32      26      29      31      24
```
○
```
[1,5)  [5,10) [10,15) [15,20) [20,25) [25,30)

 24      31      25      28      34      8
```
○
```
[1,5)  [5,10) [10,15) [15,20) [20,25) [25,30)

    8      34      28      25      31      24
```

No, the answer is incorrect.
Score: 0
Accepted Answers:
```
[1,5)  [5,10) [10,15) [15,20) [20,25) [25,30)

    8      34      28      25      31      24
```

9) The number of patients who took less than 15 minutes to complete the puzzle is ***1 point***

○ 28
○ 42
○ 70
○ 85

No, the answer is incorrect.
Score: 0
Accepted Answers:
70

10) The difference in the number of patients who finished the puzzle in the first 5 minutes and last 5 minutes is ***1 point***

○ 8
○ 16
○ 24
○ 32

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

11) *Questions 11 to 20 are based on the following data set. Following are the scores of 250 students in a test with minimum and maximum marks being 0 and 100 respectively. The scores are stored in a data vector* **scores**. ***1 point***

99.86, 42.72, 3.66, 66.89, 96.60, 30.08, 49.50, 16.84, 89.14, 14.97, 66.86, 38.32, 71.90, 9.50, 66.92, 58.83, 38.06, 79.95, 95.30, 97.51, 49.67, 50.54, 93.64, 74.30, 76.82, 63.32, 36.54, 90.87, 72.37, 61.98, 89.44, 98.19, 27.07, 63.97, 55.35, 92.40, 32.97, 61.37, 34.40, 42.48, 77.67, 99.31, 54.64, 69.46, 49.88, 86.76, 31.95, 4.55, 36.77, 36.91, 56.45, 54.44, 76.53, 15.97, 18.22, 41.34, 50.17, 18.82, 96.60, 93.58, 8.85, 30.27, 44.18, 26.85, 54.82, 64.24, 46.20, 3.00, 96.14, 10.01, 75.64, 93.18, 93.32, 15.88, 84.66, 21.08, 13.76, 75.89, 68.41, 51.36, 21.58, 13.85, 82.75, 71.88, 57.93, 6.68, 24.99, 10.24, 24.60, 95.14, 37.91, 97.11, 66.32, 87.91, 85.58, 64.32, 16.11, 37.22, 42.69, 89.64, 89.96, 48.29, 27.71, 89.71, 23.08, 53.02, 4.22, 18.84, 17.41, 73.05, 33.26, 71.83, 8.28, 69.65, 51.27, 75.61, 63.67, 8.24, 1.15, 83.05, 23.08, 26.37, 19.74, 34.79, 53.58, 66.88, 99.58, 63.30, 60.82, 43.71, 39.76, 54.97, 13.55, 81.42, 26.04, 2.18, 69.18, 36.76, 67.77, 40.94, 37.88, 6.44, 24.03, 31.21, 44.02, 50.53, 1.29, 78.89, 78.18, 41.64, 13.12, 60.07, 37.38, 7.18, 38.98, 75.08, 17.65, 11.13, 19.43, 44.85, 63.36, 68.78, 91.34, 71.68, 90.47, 82.64, 15.24, 24.96, 14.07, 1.79, 35.54, 62.56, 76.10, 7.22, 96.00, 49.04, 93.72, 41.35, 6.35, 31.58, 14.91, 46.10, 48.83, 25.15, 15.98, 18.06, 54.47, 88.50, 87.06, 16.53, 47.53, 46.51, 68.91, 28.35, 68.89, 93.41, 21.07, 25.42, 93.02, 94.64, 93.94, 9.75, 89.52, 1.20, 34.41, 65.48, 58.09, 32.27, 55.53, 22.79, 5.41, 87.13, 52.83, 14.59, 17.07, 29.37, 94.04, 24.53, 62.59, 58.07, 83.71, 86.55, 23.05, 34.52, 35.22, 50.84, 71.60, 27.66, 5.29, 72.83, 34.59, 68.72, 6.51, 29.91, 40.08, 45.36, 16.20, 1.91, 22.10, 86.63, 44.83, 6.13, 93.60, 73.23, 2.01, 5.79, 72.59, 94.20, 1.20, 91.42

The outcome of the R command **range(scores)/length(scores)** is

○ `0.39484`
○ `98.71`
○ `1.15 99.86`
○ `0.00460 0.39944`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`0.00460 0.39944`

12) Suppose we want to convert the data in `scores` in a grouped data having a class intervals of width 20. Which of the following is the correct R command to obtain the frequency table of values in the `scores`: ***1 point***

○ `table(scores, 20)`
○ `table.cut(scores, breaks=seq(0,100, by =20), right=FALSE)`
○ `table(cut(scores, breaks=20, right=FALSE))`
○ `table(cut(scores, breaks=seq(0,100, by =20), right=FALSE))`

No, the answer is incorrect.
Score: 0
Accepted Answers:
`table(cut(scores, breaks=seq(0,100, by =20), right=FALSE))`

13) Suppose we want to convert the data in `scores` in a grouped data having a class intervals of width 20. Which of the following is the correct frequency table of values in the `scores`: ***1 point***

○
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

   49       50       45       51       55
```
○
```
[0,20]  [20,40]  [40,60]  [60,80] [80,100]

   55       51       45       50       49
```
○
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

   55       51       45       50       49
```
○
```
[80,100)  [60,80)  [40,60)  [20,40) [0,20)

     55       51       45        50      49
```

No, the answer is incorrect.
Score: 0
Accepted Answers:
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

   55       51       45       50       49
```

14) The total number of students having scores less than 60% is ***1 point***

○ 45
○ 51
○ 106
○ 151

No, the answer is incorrect.
Score: 0
Accepted Answers:
151

15) The total number of students having scores equal to or more than 40% and less than 80% is ***1 point***

○ 50
○ 95
○ 146
○ 195

No, the answer is incorrect.
Score: 0
Accepted Answers:
95

16) The difference between the number of students having a score between the intervals 20-40 and 80-100 is ***1 point***

○ 1
○ 2
○ 49
○ 51

No, the answer is incorrect.
Score: 0
Accepted Answers:
2

17) The command to find out the cumulative sum of the data in `scores` is ***1 point***

○ `cumsum(table(scores, seq(0,100, by=20), right=FALSE))`
○ `cumsum(table(cut(scores, breaks=seq(0,100, by=20), right=FALSE)))`
○ `cumsum(table(cut(scores, right=FALSE)))`
○ `cumsum(table(cut(scores, seq(0,100, by=20), right=FALSE))`

No, the answer is incorrect.
Score: 0
Accepted Answers:
```
cumsum(table(cut(scores, breaks=seq(0,100, by=20),
right=FALSE)))
```

18) The cumulative relative frequencies of the data in `scores` are ***1 point***

○
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

   55      106      151      201      250
```
○
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

 0.220    0.424    0.604    0.804    1.000
```
○
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

 0.220     0.44     0.64    0.84     1.00
```
○
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

 1.000    0.804    0.604    0.424    0.220
```

No, the answer is incorrect.
Score: 0
Accepted Answers:
```
[0,20)  [20,40)  [40,60)  [60,80) [80,100)

 0.220    0.424    0.604    0.804    1.000
```

19) The relative cumulative relative frequency of scores up to the class intervals of 60-80 is ***1 point***

○ 22%
○ 42.4%
○ 60.4%
○ 80.4%

No, the answer is incorrect.
Score: 0
Accepted Answers:
80.4%

20) The difference between the relative cumulative frequencies up to the class intervals 20-40 and 60-80 is ***1 point***

○ 0.200
○ 0.380
○ 0.584
○ 0.804

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.380