Q1: The normal distribution is

* Positively skewed
* Negatively skewed
* Symmetric around the mean
* Symmetric around the standard deviation

Q2: Based on the following regression equation y=17.7-3.5x ,which one of the following statements is true?

* On average one-unit increase in x will decrease the estimated value of y by 3.5 units.
* Since the coefficient of x is negative, the coefficient of determination must be negative.
* on average, one unit increase in x will increase the estimated value of y by 3.5 units.
* when x is-0, the estimated value of y is -17.7.

Q3: The data that describe the relationship between printer speed (x) and price (y) are: sum(x)=75, sum(y)=595, sum(x^2)=1189, sum(y^2)= 74725, sum(x\*y)=9340, n=5 The regression slope is:

* 4.857
* 12.347
* 6.484
* None of the above

Q4: The data that describe the relationship between printer speed (x) and price (y) are: sum(x)=75, sum(y)=595, sum(x^2)=1189, sum(y^2)= 74725, sum(x\*y)=9340, n=5 The regression intercept is :

* 7.845
* 5.492
* 21.734
* None of the above

Q5: The data that describe the relationship between printer speed (x) and price (y) are: sum(x)=75, sum(y)=595, sum(x^2)=1189, sum(y^2)= 74725, sum(x\*y)=9340, n=5 The determination coefficient is :

* -0.69
* 0.91
* 0.96
* 0.69

Q6: The data that describe the relationship between printer speed (x) and price (y) are: sum(x)=75, sum(y)=595, sum(x^2)=1189, sum(y^2)= 74725, sum(x\*y)=9340, n=5 The correlation between speed and price is :

* -0.33
* 0.33
* 0.83
* -0.83

Q7: The data that describe the relationship between printer speed (x) and price (y) are: sum(x)=75, sum(y)=595, sum(x^2)=1189, sum(y^2)= 74725, sum(x\*y)=9340, n=5 use regression equation to estimate price when speed is 100 :

* 750.1
* 670.1
* 890.2
* None of the above

Q8: For the data that relationship between printer speed (x) and price (y) the meaning of intercept is:

* The estimated price when speed is -10
* The estimated price when speed is -1
* The estimated price when speed is 1
* The estimated price when speed is 0

Q9: For the data that describe the relationship between price (y) and printer speed(x)with positive slope the meaning of the slope is:

* The increase in the price when speed decrease by one unit.
* The decrease in the price when speed increase by one unit.
* The increase in the price when speed increase by one unit.
* None of the above.

Q10: a random sample of the employees of the HM company was chosen to determine their retirement plan for the future after the age of 60 years. The accompanying table gives the proportion of employees falling into the various categories. One employee is selected at random.

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

One employee is selected at random. Answer the following questions If the employee is secretary what is the probability that the employee plan is retiring:

* 0.333
* 0.666
* 0.500

Q11:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

 what is the probability that the employee selected is a production or not retire:

* 0.58
* 0.15
* 0.85
* 0.90

Q12:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

 what is the probability that the employee is a management and retire:

* 0.95
* 0.05
* 0.10
* None of the above

Q13:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

 what is the probability that the employee is retiring given the employee is not production

* 0.273
* 0.700
* 0.333
* None of the above

Q14:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

 what is the probability that the employee is production given management

* 0.20
* 0.80
* 0
* 0.5

Q15:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

 what is the probability that the employee is production or management?

* 0.55
* 0.610
* 0.700
* 0.335

Q16:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

what is the probability that the employee is management and secretary

* 0
* 0.15
* 0.450
* 0.30

Q17: To estimate the mean amount on sugar yearly consumption per customer for local community, data were collected from a sample of 28 customers. The mean of this sample is 5.9 kg and the standard deviation is 1.3BD. Based on these data, answer the following questions the point estimate for the mean sugar consumption is

* 1.3
* 28
* 5.9/28
* 5.9

Q18: To estimate the mean amount on sugar yearly consumption per customer for local community, data were collected from a sample of 28 customers. The mean of this sample is 5.9 kg and the standard deviation is 1.3BD. Based on these data, answer the following questions the upper 95% confidence is:

* 6.4
* 4.6
* 5.5
* None of the above

Q19: To estimate the mean amount on sugar yearly consumption per customer for local community, data were collected from a sample of 28 customers. The mean of this sample is 5.9 kg and the standard deviation is 1.3BD. Based on these data, answer the following questions the value of t (critical value) using 95% is :

* 2.110
* 2.011
* 2.576
* 2.052

Q20: To estimate the mean amount on sugar yearly consumption per customer for local community, data were collected from a sample of 28 customers. The mean of this sample is 5.9 kg and the standard deviation is 1.3BD. Based on these data, answer the following questions the lower 95% confidence interval is:

* 4.5
* 5.8
* 5.4
* None of the above

Q21: The range of confidence level is between :

* More than 1
* 0 and 1
* 0 and 0.5
* 0.5 and 1

Q22: when t value used to compute confidence interval?

* Sigma known and n less than 30
* Sigma unknown and n less than 30
* Sigma known and n more than 30
* Sigma unknown and n more than 30

Q23: At company study the relationship between the sales of tea bags and cost of advertising data is given in the following table. Compute the following

The total of square cost (sum(x^2)) is

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sales(y) | 8 | 7 | 8 | 8 | 6 | 8 | 6 |
| Cost(x) | 5 | 2 | 2 | 3 | 3 | 3 | 5 |

* 58
* 89
* 85
* None of the above

Q24: The total of square sales (sum(x^2)) is

* 388
* 377
* 366
* None of the above

Q25: The total of x\*y (sum(xy)) is:

* 166
* 177
* 155
* None of the above

Q26: The correlation is :

* -0.345
* -0.545
* -0.220
* None of the above

Q27: The determination coefficient is :

* 0.088
* 0.048
* 0.077
* None of the above

Q28: The slope is :

* 0.155
* -0.167
* -0.185
* None of the above

Q29: The intercept is :

* 7.833
* 5.383
* 9.734
* None of the above

Q30: What is estimated sales when cost is 15:

* 5.388
* 5.333
* 8.333
* None of the above

Q31: The lower confidence limit for the population mean is :

* 277.349
* 264.429
* 255.249
* None of the above

Q32: The upper confidence limit for the population mean is :

* 278.457
* 267.571
* 245.457
* None of the above

Q33: AS part of an annual review of its accounts, their accounts are wishes to have information about population mean account evaluation. A discount brokerage selects a random sample of (12) customers., which showed a sample mean of (341) with a sample standard deviation of (5). Use confidence level (95%) to compute the following:

The t value is:

* 2.201
* 2.781
* 3.101
* None of the above

Q34: AT company study the relationship between the sales of tea bags and cost of advertise. The following information are given: n=7, sum(x) = 38, sum(x^2)=224, sum(y)=56, sum(y^2)=492 and sum(xy) =291. Compute the following :

The correlation coefficient is:

* -0.783
* -0.547
* -0.466
* None of the above

Q35: At company study the relationship between the sales of tea bags (y)and cost of advertising(x)the data is given in the table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sales(y) | 6 | 6 | 7 | 7 | 9 | 7 | 5 |
| Cost(x) | 3 | 4 | 3 | 4 | 5 | 4 | 2 |

The total of square cost (sum(x^2)) is?

* 25
* 95
* 60
* 38

Q36: The total square sales(sum(y^2))is ?

* 47
* 75
* 325
* 250

Q37: The total of x\*y (sum(xy)) is?

* 120
* 77
* 236
* 174

Q38: Consider the prices have a normal distribution price mean =74 and price standard deviation=8 . what is the variance of the price ?

* 2.828
* 8
* 64
* None of the above

Q39: What is the probability of number of sold houses not more than the mean ? (write the final answer to 3 decimal numbers)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 38 | 36 | 36 | Total |
| P(x) | 38/110 | 36/110 | 36/110 |  |

* 0.655
* 0.755
* 0.555
* None of the above

Q40: consider the prices have a normal distribution price mean=79 and price standard deviation = 6

What is the probability the prices will be between price 89 and price 71?

* 0.361
* 0.861
* 0.432
* None of the above

Q41: For a set of data how many quartiles are there?

* Two
* Three
* Four
* five

Q42: In a sample distribution of daily income in local cake shop.the limits of the class with the smallest frequency are:

|  |  |  |  |
| --- | --- | --- | --- |
| Hourly earning  | $6 up to $9 | $9up to $12 | $12up to $15 |
| Frequency | 16 | 42 | 10 |

* $12.00 and up to $15.00
* $6.00 and $9.00
* $11.75 and $14.25
* $12.00 and up to $14.00

Q1:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

Is production and not retire mutually exclusive? Why

Q2:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

 From above table

Is secretary and not retire independent? Why

Q3:

|  |  |
| --- | --- |
|  | Employee |
| Plan | Management | Production | Secretary |
| RetireNot retire | 0.05 | 0.25 | 0.10 |
| 0.10 | 0.30 | 0.20 |

From above table

Is retire and not retire mutually exclusive? Why

Q4: What is the probability of country A given the price is not P1?(max.3decimal numbers).

**Number of Houses sold by prices and countries**

**Given in the following contingency table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Prices |  | Country A | Country B  | Country C |
| P1 | 27 | 34 | 61 |
| P2 | 28 | 33 | 61 |
| P3 | 26 | 35 | 61 |
| total | 81 | 102 | 183 |

Q5: What is the probability ofCountry B and price p1?

Q6: What is the probability of number of sold houses not more than the mean ? (write the final answer to 3 decimal numbers)

**The probability distribution for the number of houses**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 33 | 36 | 32 | total |
| P(x) | 33/101 | 36/101 | 32/101 | 1 |

Q7: Write ANOVA table ?

N: number of data

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source of variation | Sum of squares (SS) | Degree of freedom (DF) | Mean square(MS) | f-static |
| Treatments | SS between (SSb) | K-1 | MSb=SSB/(K-1) | F=MSb/MSw |
| Error (or residual) | SS within (SSw) | N-K | MSw=SSw/(N-K) | - |
| Total | SS Total (SSt) | N-1 | - | - |

Q8: What is the probability of number of sold houses not more than the mean ? (write the final answer to 3 decimal numbers)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 34 | 33 | 32 | total |
| P(x) | 34/99 | 33/99 | 32/99 | 1 |

Q9: What is the probability of country A given the price is not P1?(max.3decimal numbers).

**Number of Houses sold by prices and countries**

**Given in the following contingency table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Prices |  | Country A | Country B  | Country C |
| P1 | 27 | 34 | 61 |
| P2 | 26 | 30 | 56 |
| P3 | 23 | 35 | 58 |
| total | 76 | 99 | 175 |

Q10: A student is taking two courses, H and M, the probability of student pass H 0.85, and probability of pass M is 0.6, The probability of passing both is 0.75, Compute the following probability: The probability of passing M given H.

Q11: A student is taking two courses, H and M, the probability of student pass H 0.9, and probability of pass M is 0.7, The probability of passing both is 0.63, Compute the following probability: The probability of passing at least one course.

Q12:A student is taking two courses, H and M, the probability of student pass H 0.9, and probability of pass M is 0.7, The probability of passing both is 0.63, Compute the following probability: what is the probability 0.63 called.

Q13: A student is taking two courses, H and M. The probability of student pass H is (0.8), and the probability of pass M is (0.6). The probability of passing both is (0.44). Compute the following probability:

1. The probability of passing M given H (max.3 decimal numbers).
2. The probability of passing at least one course .
3. What is the probability b called ?

Q14:What is the expected value(mean) for the number of houses sold ? (write the final answer to 3 decimal numbers)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 31 | 37 | 37 | total |
| P(x) | 31/105 | 37/105 | 37/105 | 1 |

Q15:what is the standard deviation for the number of sold houses? ? (write the final answer to 3 decimal numbers)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 31 | 37 | 37 | total |
| P(x) | 31/105 | 37/105 | 37/105 | 1 |

Q16: The net annual sales of a sample of small retail clothing stores were organized into the following incomplete frequency distribution table.

|  |  |
| --- | --- |
| Net Sales | frequency |
| 25 up to 35 | 2 |
| 35 up to 45 | 10 |
| 45 up to 55 | 7 |
| 55 up to 65 | 17 |
| 65 up to 75 | 25 |