**STATISTICS ASSIGNMENT**

**ANSWER 1-**

Sample size n = 25

Sample time = 60 M

Sample Standard deviation = 30 M

H0: u= 50 the average time spent by users

H1: u≠ 50 the average time spent by the users

Calculate the ‘t-test

T= (x-u)/(s/√n)

= (60-50)/ (30/√25)

=1.6666667

P value= 0.054290

df= (n-1) =24

Since this P value is more than our significance level a= 0.20, we accept the null hypothesis. We have sufficient evidence to say that the mean minute of the sample user is equal to 50 min.

**ANSWER 2-**

First, we arrange the given data in ascending order

160, 162, 162,164,168,169,170

Median= 164, as it’s the middle number of the data.

**ANSWER 3-**

84, 85, 89, 92, 93,89, 87, 89, 92  
As 89 occurs the maximum times so 89 is the mode.

**ANSWER 4-**

|  |  |  |
| --- | --- | --- |
| Marks xi | Number of student fi | fixi |
| 3 | 1 | 3 |
| 4 | 2 | 8 |
| 5 | 2 | 10 |
| 6 | 4 | 24 |
| 7 | 5 | 35 |
| 8 | 3 | 24 |
| 9 | 2 | 18 |
| 10 | 1 | 10 |

Total ∑fi=20 ∑8i=1fixi= 132

x- - = ∑8i = 1fixi ∑fi= 13220

=6.6

**ANSWER 5-**

The probability of length of time will be between 50 and 70 is

Mean + standard deviation

= 50+15

= 65

**ANSWER 6-**

Largest number – lowest number

23 – 10 = 13

**ANSWER 7-**

P(B’/A) = 0.50 \* 0.5/ 0.05 \* 0.5 + 0.99\* 0.5

= 0.025/ 0.52

= 0.0481

**ANSWER 8-**

First we arrange in ascending order

10, 11, 12, 15, 16, 17, 19, 19, 21, 25

Lower quartile = 11+12/2

=11.5

**ANSWER 9-**

N= 25 P= 0.3 Q= 1-0.3= 0.7

Variability of distribution= NPQ

= 25\*0.3\*0.7

= 5.25

**ANSWER 10-**

P(X/A) = P(AIX) PX / P(AIX) P(X)+ P(AIY) P(Y)

= [( 7/11)(1/2))/ (7/11) (1/2)+ (5/14)(1/2)]

= 0.64

**ANSWER 11-**

Arrange given data in ascending order-

10, 11, 12, 12, 14, 15, 16, 17, 19, 21, 23

Mean= 10+11+12+12+14+15+16+17+19+21+23 / 11 =170 /11

= 15.45

Median = 15, is in the middle of given data

Mode = 12, as it occurs maximum time.

**Answer 12-**

n= 160 S= 10 x= 160 µ=165

Z = x- µ/ s/√n

= 160-165/10√100

= -5

Z= -5 does not lie in acceptance region

H0 is rejected, H1 is accepted

Thus, it is more than 165.

**ANSWER 13 -**

T = Mammogram result in positive

B = Tumor is benign

M = Tumor is maligent

=0.80\*0.01 / (0.80\*0.01+0.10\*0,99)

= 0.075

So, the chance would be 7.5%, far away from a common estimate of 75%.

**ANSWER 14 –**

P(RB/R) = ½\*1/3 / (1/2\*1/3) + (0\*1/3) +(1\*1/3)

= 1/3 = 0.333

The required probability is 1/3 = 0.333