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Course Name: Statistics and Probability

Course Code: STA102

Section: 4

Assignment - 1

1) a) The variables are categorical.

b) The scale of measurement which is used in the question is ordinal.

2) a) Annual sales is quantitative data and its measurement scale is ratio.

b) Soft drink size (small, medium, large) is categorical data and its measurement scale is ordinal.

c) Employee classification (GS1 through GS8) is categorical data and its measurement scale is ordinal.

d) Earnings per share is quantitative data and its measurement scale is ratio.

e) Method of payment is categorical data and its measurement scale is nominal.

3) a) Since The Hawaii Visitors Bureau collects data on visitors to Hawaii and the sample data were collected from an incoming airline flight, so the population is all the visitors to Hawaii who travel by plane.

b) i) Number of trip provides quantitative data.
ii) Primary reason of the trip provides categorical data.

iii) Location of staying will provide categorical data.

iv) Total days of staying will provide quantitative data.

4] a] Here, Size, $N = 10$

So, the average MPG for city driving

$$is = \frac{(13 + 17 + 16 + 13 + 24 + 25 + 17 + 15 + 21 + 21)}{10} = 18.2 \text{ MPG}$$

b] From 'a',

the average MPG for city driving = 18.2 MPG

Now,

the average MPG for highway driving

$$is = \frac{(19 + 25 + 25 + 18 + 33 + 33 + 26 + 22 + 31 + 29)}{10} = 26.1 \text{ MPG}$$

So we can say, the MPG of highway
is = $(26.1 - 18.2) = 7.9$ MPG higher than the
MPG of City road.

c) From the table, we see that only 3 cars have four-cylinder engine among the 10 cars.

$$\therefore \text{Percentage} = \frac{3}{10} \times 100\% \\ = 30\%.$$

So 30% cars have four cylinder engine.

d) From the table, we see that 6 cars have use regular fuel among the 10 cars.

$$\therefore \text{Percentage} = \frac{6}{10} \times 100\% = 60\%.$$

So 60% cars use regular fuel.

5] Table: Grouped frequency table on number of hours slept in a study on 100 individuals.

| Class Interval | Frequency | Relative Frequency | Cumulative freq (less than type) | Cumulative relative frequency (less than type) |
|----------------|-----------|--------------------|----------------------------------|------------------------------------------------|
| 3-5 | 15 | 15% | 15 | 15% |
| 5-7 | 40 | 40% | 55 | 55% |
| 7-9 | 30 | 30% | 85 | 85% |
| 9-11 | 15 | 15% | 100 | 100% |

total = 100

From the table:-

- ▣ A = 30% . 30% individuals slept 7-9 hours.
- ▣ B = 55 . 55 people slept less than 7 hours.
- ▣ C = 55% . 55% people slept at most 7 hours.

6] a] The midpoint of the 2 upto 4 class is $= \frac{2+4}{2} = 3$.

b] From the graph, we can say that, 15.2 up 4 patients were admitted in between 20-30.

c) The class interval is 2.

d) This chart is called frequency polygon.

7) a) 40 welders were studied.

b) The class interval is $= 5 - 0 = 5$.

c) About 12 welders earn less than \$10.00 per hour.

d) About 75% of the welders earn less than \$20.00 per hour.

e) Ten of the welders studied made less than \$8.00 per hour.

f) ~~75~~ Almost 75% of the welders make less than \$20.00 per hour.