| STAT 2311 _1212_ TEST 1 |
|---|

Name (بالعربية) ........A.....................Number .............................Section .........

## Question # 1 (7 points) Circle the correct answer

1. Temperature is an example of a variable that uses a ratio scale
   a. True    (b) False
2. Data collected over several time periods are
   **a.** cross sectional data
   (b) Time series data
3. The summaries of data, which may be tabular, graphical, or numerical, ʁ ⁖ ᵘᵗ ₐᵢₜᵢₜᵃ.
   (a.) Descriptive statistics
   b. Inferential statistics
4. The most common graphical presentation of quantitative data is a
   a. Pie chart
   b. Bar graph
   (c.) Histogram

**Questions 5 – 7** : In a sample of 500 BZU students, 80, or 16%, are Computer Sciences majors.

5. The 16% is an example of
   (a) Descriptive statistics
   b. Statistical inference
   c. A census
6. Based on the above information, the school's paper reported, "16% of all the students at the university are Computer Sciences majors." This report is an example of
   a. Descriptive statistics
   b. A sample
   c. A population
   (d) Statistical inference
7. The 500 students described above is an example of the use of a
   (a.) Sample
   b. Population
   c. Census

## Question # 2: The numbers of hours worked (per month) by a sample of statistics students are shown below.

| Number of hours | Frequency |
|---|---|
| 0 – 9 | 140 |
| 10 – 19 | 200 |
| 20 – 29 | 260 |
| 30 – 39 | 300 |
| 40 – 49 | 100 |
|  | *1000* |

1. The number of elements is ___*1000*___

2. The class width for this distribution is ___*10*___

3. The relative frequency of students working 20 hours or more ___ $\frac{260+300+100}{1000} = 66\%$

4. The percentage of students who works less than 40 hours per month is $\frac{900}{1000} = 90\%$

5. The cumulative percent frequency for the class of 40 - 49 is $100\%$

6. Construct a histogram for the distribution. Comment on the skewness of the distribution.
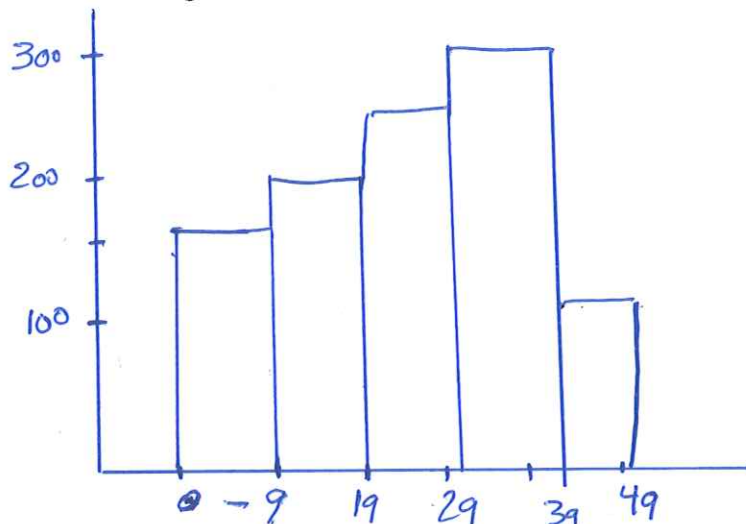


skew to the Left

## Question #3
**The SAT scores of a sample of business school students and their genders are shown below.**

SAT Score

| Gender | Less than 20 | 20 up to 30 | 30 and more | Total |
|--------|--------------|-------------|-------------|-------|
| Female | 192 | 480 | 124 | 796 |
| Male | 128 | 840 | 236 | 1204 |
| Total | 320 | 1320 | 360 | 2000 |

1. What is the sample size

   2000

2. How many students scored less than 30?

   $320 + 1320 = 1640$

3. Find the percentage of female students.

   $796/2000 = 39.8\%$

4. Of the male students, what is the percentage of students scored 20 or more?

   $\frac{840 + 236}{1204} = 89.37\%$

| STAT 2311 _1212_ TEST 1 |
|---|

Name (بالعربية) ..........B..................Number ..............................Section .........

## *Question # 1 (7 points) Circle the correct answer*
1. Temperature is an example of a variable that uses a ratio scale
   a. Ratio scale
   **b.** Interval scale
   c. Nominal scale
2. Data collected over several time periods are time series data
   **a.** True
   **b.** False
3. The summaries of data, which may be tabular, graphical, or numerical, are inferential statistics.
   a. True
   **b.** False
4. The most common graphical presentation of qualitative data is a
   a. Ogive
   **b.** Bar graph
   c. Histogram

**Questions 5 – 7**: In a sample of 500 BZU students, 80, or 16%, are Computer Sciences majors.
5. The 16% is an example of descriptive statistics
   **a.** True
   b. False
6. Based on the above information, the school's paper reported, "16% of all the students at the university are Computer Sciences majors." This report is an example of
   a. Descriptive statistics
   b. A sample
   c. A population
   **d.** Statistical inference
7. The 500 students described above is an example of the use of a
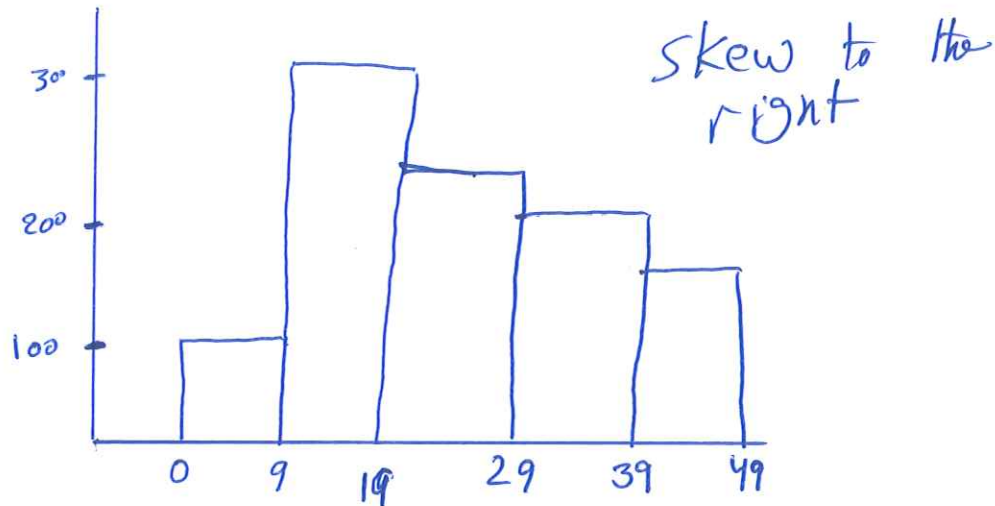   **a.** Sample
   b. Population
   c. Census

## Question # 2: The numbers of hours worked (per month) by a sample of statistics students are shown below.

| Number of hours | Frequency |
|---|---|
| 0 – 9 | 100 |
| 10 – 19 | 300 |
| 20 – 29 | 260 |
| 30 – 39 | 200 |
| 40 – 49 | 140 |
| | 1000 |

1. The number of elements is ___1000___

2. The class width for this distribution is ___10___

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3. The relative frequency of students working 20 hours or more $\frac{260 + 200 + 140}{1000} = 60\%$

4. The percentage of students who works less than 40 hours per month is $\frac{860}{1000} = 86\%$

5. The cumulative percent frequency for the class of 40 - 49 is $\text{100}\%$

6. Construct a histogram for the distribution. Comment on the skewness of the distribution.



skew to the right

## Question #3
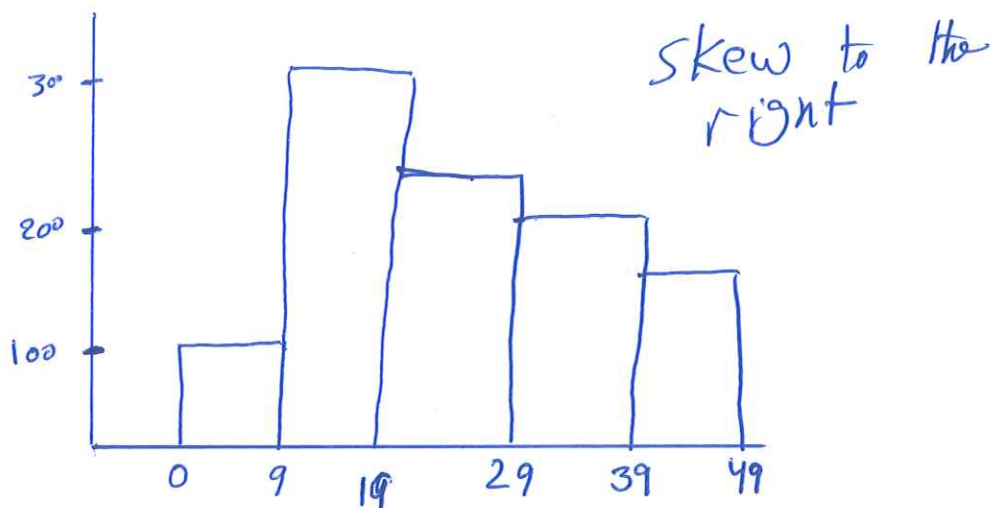**The SAT scores of a sample of business school students and their genders are shown below.**

SAT Score

| Gender | Less than 20 | 20 up to 30 | 30 and more | Total |
|--------|--------------|-------------|-------------|-------|
| Female | 292 | 480 | 224 | 996 |
| Male | 228 | 840 | 136 | 1204 |
| Total | 520 | 1320 | 360 | 2200 |

1. What is the sample size

   2200

2. How many students scored less than 30?

   $520 + 1320 = 1840$

3. Find the percentage of female students.

   $996 / 2200 = 45.27\%$

4. Of the male students, what is the percentage of students scored 20 or more?

   $\frac{840 + 136}{1204} = 81.06\%$

3. The relative frequency of students working 20 hours or more _____

$$\frac{260 + 200 + 140}{1000} = 60\%$$

4. The percentage of students who works less than 40 hours per month is

$$\frac{860}{1000} = 86\%$$

5. The cumulative percent frequency for the class of 40 - 49 is ---- 100 %.

6. Construct a histogram for the distribution. Comment on the skewness of the distribution.



skew to the right

## Question #3
**The SAT scores of a sample of business school students and their genders are shown below.**

SAT Score

| Gender | Less than 20 | 20 up to 30 | 30 and more | Total |
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$996/2200 = 45.27\%$

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$$\frac{840 + 136}{1204} = 81.06\%$$

## STAT 2311 _1212_ TEST 1

Name (بالعربية) ............C...................Number ................................Section .........

The following reports information on **age** and the amount of **coffee consumed** in a month

Coffee Consumption

| Age | Low | Moderate | High | Total |
|---|---|---|---|---|
| Under 30 | 73 | 62 | 48 | 183 |
| 30 – 39 | 37 | 61 | 54 | 152 |
| 40 – 49 | 20 | 48 | 40 | 108 |
| 50 and over | 50 | 49 | 58 | 157 |
| Total | 180 | 220 | 200 | 600 |

1. Which scale of measurement is used with coffee consumption variable?

   Ordinal

2. How many elements does this data set contain?

   600

3. How many persons aged less than 40?

   $152 + 183 = 335$

4. How many persons coffee consumption is moderate?

   220

5. Of the persons with" high coffee consumption", what is the percentage of those aged 40 or more. $\frac{40 + 58}{200} = 49\%$

6. Of those aged 40 or more, what is the percentage of persons of" low coffee consumption"? $\frac{20 + 50}{108 + 157} = \frac{70}{265} = 26.42\%$

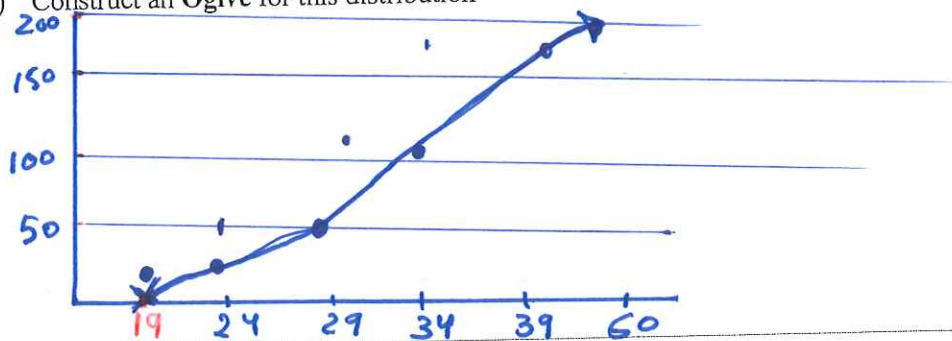*Question # 1 (7 points) Circle the correct answer*

1. The principal difference between the interval and ratio scale is that the ratio scale has a meaningful zero.

   a. **True**　　　　　　　　b. False

2. The amount of calories contained in a pack of 12-grams cheese is an example of a

   a. **A continuous variable**
   b. A discrete variable

3. Jawal phone numbers consist of numeric values. Therefore, Jawal's number is an example of

   a. Quantitative variable.
   b. **Qualitative variable**

4. Solo GYM club surveys 150 randomly selected members and found that the average weight of those questioned is 75 kg. The number 75 is an example of

   a. A parameter.
   b. **A statistic**
   c. A census

5. The **level of satisfaction** ("Very unsatisfied", "Fairly unsatisfied", "Fairly satisfied", and "Very satisfied") in a class is an example of a (an)….. variable.
   a. Nominal
   b. Ordinal  ⟵ (circled)
   c. Interval
   d. Ratio

6. A graphical presentation of the relationship between two variables is
   a. An ogive
   b. A histogram
   c. Either an ogive or a histogram, depending on the type of data
   d. A scatter diagram  ⟵ (circled)

7. The following data shows the yearly income (In 1,000 ILS) distribution of a sample of employees at XYZ Company. Complete the table and answer the following questions

| Income | Number of Employees | Cumulative frequency |
|--------|--------------------|----------------------|
| 20 - 24 | 2 | 2 |
| 25 - 29 | 48 | 50 |
| 30 - 34 | 60 | 110 |
| 35 - 39 | 80 | 190 |
| 40 - 60 | 10 | 200 |
| Total | 200 | |

a) What is the class width for the last class  $60 - 40 + 1 = 21$

b) What is the sample size  200

c) What percentage of employees has yearly incomes of more than 35,000 ILS?
   _____ Can't be determined

d) Is the figure (percentage) that you computed in the previous part an example of statistical inference? If no, what kind of statistics does it represent? No, Descriptive

e) What percentage of employees of the sample has yearly incomes of 39,000 ILS or less?
   $190/200 = 95\%$.

f) Construct an **Ogive** for this distribution
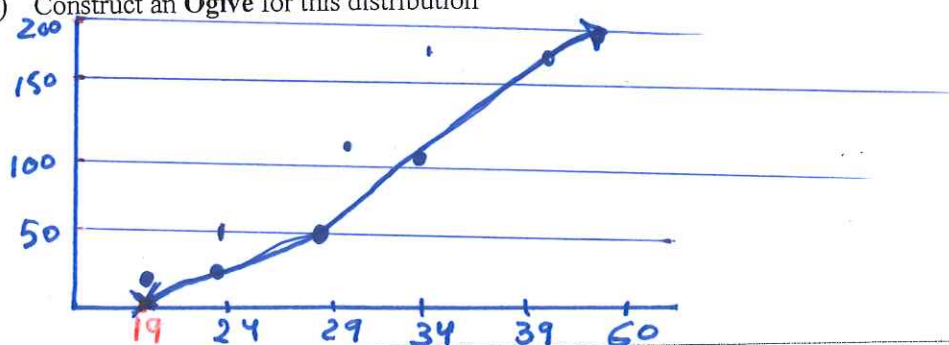
5. The **level of satisfaction** ("Very unsatisfied", "Fairly unsatisfied", "Fairly satisfied", and "Very satisfied") in a class is an example of a (an)….. variable.
   a. Nominal
   b. Ordinal
   c. Interval
   d. Ratio

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| 20 - 24 | 2 | 2 |
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| 35 - 39 | 80 | 190 |
| 40 - 60 | 10 | 200 |
| Total | 200 | |

a) What is the class width for the last class __$60 - 40 + 1 = 21$__

b) What is the sample size __200__

c) What percentage of employees has yearly incomes of more than 35,000 ILS?
   ———— Can't be determined

d) Is the figure (percentage) that you computed in the previous part an example of statistical inference? If no, what kind of statistics does it represent? __No, Descriptive__

e) What percentage of employees of the sample has yearly incomes of 39,000 ILS or less?
   $190/200 = 95\%$.

f) Construct an **Ogive** for this distribution

### STAT 2311 _1212_ TEST 1

**Name (بالعربية)** .........D.................**Number** ..............................**Section** .........

The following reports information on **age** and the amount of **coffee consumed** in a month

Coffee Consumption

| Age | Low | Moderate | High | Total |
|-----|-----|----------|------|-------|
| Under 30 | 78 | 62 | 48 | 188 |
| 30 – 39 | 32 | 66 | 54 | 152 |
| 40 – 49 | 20 | 48 | 43 | 111 |
| 50 and over | 45 | 49 | 55 | 149 |
| Total | 175 | 225 | 200 | 600 |

1. Which scale of measurement is used with coffee consumption variable?

   Ordinal

2. How many elements does this data set contain?

   600

3. How many persons aged less than 40?

   $152 + 188 = 340$

4. How many persons coffee consumption is moderate?

   225

5. Of the persons with" high coffee consumption", what is the percentage of those aged 40 or more. $\dfrac{43+55}{200} = 49\%$

6. Of those aged 40 or more, what is the percentage of persons of" low coffee consumption"? $\dfrac{20+45}{260} = 25\%$

### Question # 1 (7 points) Circle the correct answer

1. The principal difference between the interval and ratio scale is that the ratio scale has a meaningful zero.
   - a. True
   - b. False

2. The amount of calories contained in a pack of 12-grams cheese is an example of a
   - a. A continuous variable
   - b. A discrete variable

3. Jawal phone numbers consist of numeric values. Therefore, Jawal's number is an example of
   - a. Quantitative variable.
   - b. Qualitative variable

4. A graphical presentation of the relationship between two variables is
   - a. An ogive
   - b. A histogram
   - c. Either an ogive or a histogram, depending on the type of data
   - d. A scatter diagram

5. Solo GYM club surveys 150 randomly selected members and found that the average weight of those questioned is 75 kg. The number 75 is an example of
   a. A parameter.
   b. A statistic
   c. A census

6. The **level of satisfaction** ("Very unsatisfied", "Fairly unsatisfied", "Fairly satisfied", and "Very satisfied") in a class is an example of a (an)….. variable.
   a. Nominal
   b. Ordinal
   c. Interval
   d. Ratio

7. **The following data shows the yearly income (In 1,000 ILS) distribution of a sample of employees at XYZ Company. Complete the table and answer the following questions**

| Income | Number of Employees | Cumulative frequency |
|--------|---------------------|----------------------|
| 20 - 24 | 10 | 10 |
| 25 - 29 | 80 | 90 |
| 30 - 34 | 60 | 150 |
| 35 - 39 | 48 | 198 |
| 40 - 60 | 2 | 200 |
| Total | 200 | |

a) What is the class width for the last class ___$60 - 40 + 1 = 21$___

b) What is the sample size ___200___

c) What percentage of employees has yearly incomes of more than 35,000 ILS?
   _____ Can't be determined

d) Is the figure (percentage) that you computed in the previous part an example of statistical inference? If no, what kind of statistics does it represent?_No, Descriptive_

e) What percentage of employees of the sample has yearly incomes of 39,000 ILS or less?
   ___$198/200 = 99\%$.___

f) Construct an **Ogive** for this distribution