FIRST EXAM SAMPLE

Part 1: Circle the correct answer

1. Income is an example of a variable that uses the
    a) Ratio scale
    b) Interval scale
    c) Nominal scale
    d) Ordinal scale.

A researcher has collected the following sample data (Questions 2 – 5)

5	12	6	8	5
6	7	5	12	4

2. The median is
    a) 5
    b) 6
    c) 7
    d) 8
3. The mode is
    a) 5
    b) 6
    c) 7
    d) 8
4. The mean is
    a) 5
    b) 6
    c) 7
    d) 8
5. The 75th percentile is
    a) 5
    b) 6
    c) 7
    d) 8
6. Jawwal employee's income have a symmetric distribution with mean income of $2000 and a standard deviation of $300. What percentage of employees earn greater than $2600
    a) 84%
    b) 2.5%
    c) 97.%%
    d) 100%

7. The estimation of all governmental employees average salary based on the sample average salary of 2500 randomly selected governmental employee is an example of
   a) A sample survey
   b) A population census
   c) Statistical inference
   d) Descriptive statistics

8. Faculty rank (professor to lecturer) is an example of
   a) A discrete numerical variable
   b) A nominal scaled variable
   c) An ordinal scaled variable

Consider the following sample data.

   3   5   12   3   2

9. The **coefficient of variation** is
   a) 72.66%
   b) 81.24%
   c) 264%
   d) 330%

10. The **range** is
   a) 1
   b) 2
   c) 10
   d) 12

11. During the past six months, a retailer bought
   | | |
   1200   units of a product at $28 per unit
   3000   units of a product at $87 per unit
   500   units of a product at $88 per unit

What is the **price per unit**?
   a) $87.25
   b) $72.04
   c) $68.47
   d) $89.18

12. A financial analyst's sample of six companies' book value were

   $25 $7 $22 $33 $18 $15

The sample mean and sample standard deviation are (approximately):

   a) 20 and 79.2 respectively
   b) 20 and 8.9 respectively.
   c) 20 and 8.12 respectively.
   d) 120 and 8.9 respectively.

13. P(A) = 0.6, P(B) = 0.5, so P(A∪B)
    a) 0.3
    b) 0.5
    c) 0.6
    d) 1.1
    e) Cannot be determined.
14. The probability assigned to each experimental outcome must be
    a) any value larger than zero
    b) smaller than zero
    c) at least one
    d) between zero and on
15. An experiment consists of three steps. There are three possible outcomes on the first step, four possible outcomes on the second step, and five possible outcomes on the third step. The total number of experimental outcomes is
    a) (3!)(4!)(5!)
    b) 60
    c) 20
    d) 10
    e) None.

Part 2: Solve the following problems

16. A sample of 6 children ages and heights are given below

Age (months)	36	48	51	54	57	60
Height (cm)	86	90	91	93	94	96

   a) Find the correlation coefficient between the two variables.
   b) Find the equation of the regression line of height on age.
   c) Predict a child height if his age 40 months.
   d) Find r^2 and provide an interpretation.

17. A simple survey consists of three multiple choice questions. The first question has 3 possible answers, the second has 4 possible answers and the third has 3 possible answers. What is the total number of different ways in which this survey could be completed?

18. In a race with eight competitors, how many different possibilities are there for whom finishes finish first, second and third?

19. The following ages are for a simple random sample of 10 university students who are enrolled in an economics course. Find the five number summary. Do you consider the age 28 s an outlier?

20 18 20 22 18 20 22 17 19 28

20. The sales records of a real estate agency show the following sales over the past 200 days:

Number of Houses Sold	Number of Days
0	60
1	80
2	40
3	16
4	4

a) Assign probabilities to the sample points and show their values.
b) What is the probability that the agency will not sell any houses in a given day?
c) What is the probability of selling at least 2 houses?
d) What is the probability of selling 1 or 2 houses?
e) What is the probability of selling less than 3 houses?