

Question 1: Consider the following data set;

14 14 15 13 15 17 14 11 4 8 21 19

Compute the following measures:

- (a) Mean (b) Standard deviation (c) Median (d) IQR (e) Range

Question 2: A group of 15 smokers were asked about the number of cigarettes they smoke per day. Sample data were as follows:

No. of cigarettes	10	15	17	20	22
No. of smokers	1	3	5	2	4

Find the following measures:

- (a) The sample mean
 (b) The sample standard deviation
 (c) The sample interquartile range

Question 3: Suppose that Sample 1 is given by

Observation	x	10	12
Frequency	10	5	5

and suppose Sample 2 of size 30 has mean 8. If the mean of the two combined samples is 10. Find the value of x.

Question 4: The grades in a general exam had mean, standard deviation, Q_1 , Q_3 and the range were 70, 5, 30, 30, 90, respectively. Let X be the grade of a student and assume that each grade X is changed to $Y = -2X + 3$. Find

- (a) The mean \bar{Y} of the transformed grades Y
 (b) The standard deviation of the transformed grades Y
 (c) The range of the transformed grades Y
 (d) The first quartile of Y

Question 5: The mean and standard deviation for the final grades of 500 students in a statistics course are 70 and 8, respectively.

- (a) Find the largest number of grades outside the interval [54, 86]
 (b) If only one grade was mistakenly recorded 10 instead of 100, what is new mean?

Question 6: Given that $P(A)=0.45$, $P(B)=0.50$ and $P(\bar{A} \cap \bar{B})=0.20$. Obtain

- (a) $P(A \cap B)$
 (b) $P(\bar{A} | \bar{B})$

Question 7: Given $P(A \cap \bar{B})=0.40$, $P(\bar{A} \cap B)=0.1$ and $P(\overline{A \cap B})=0.60$. Find

- (a) $P(\bar{A})$ (b) $P(\bar{A} \cup B)$

Question 8: Given the information that

Box I : contains 3 Red (R) and 2 white (W) balls

Box II: contains 2 Red (R) and 1 white (W) balls.

One ball was drawn randomly from Box I and put in Box II, then one ball is drawn randomly from Box II. Determine

- (a) The probability that the ball drawn from Box II is red =
(b) If the ball drawn from Box II is red, what is the probability that the ball transferred from Box I to Box II is red?

Question 9: Three balls are drawn without replacement from a box containing 2 red and 2 black balls. Let X be the number of red balls. Find

- (a) The mean of X
(b) The Std. of X

Question 10: A class has 12 Math. Students (2 males and 10 females) and 8 physics students (3 males and 5 females).

- (a) What is the probability of selecting 2 students from the 20 students such that all are physics students?
(b) What is the probability that there is at most one physics student among the 5 students selected from the entire class?

Question 11: A family has 5 children (3 girls and 2 boys). Two of the girls and one boy wear glasses. What is the probability of randomly selecting 2 children wearing glasses from the 5 children?

Question 12: A random variable takes the values 1, 2, 3 where $P(X=1) = 0.5$ and $E(X)=1.7$. Find

- (a) $P(X = 3)$
(b) Variance of X
(c) $P(X > 2 | X > 1)$