1) The mean annual college fees paid by all students in a college is ₹55 lakhs. The mean annual college fees paid by male and female students of the college are ₹40 lakhs and ₹60 lakhs respectively. Then, the percentages of male students studying in the college is ***3 points***

- 60%
- 50%
- 20%
- 25%
- 30%

2) By multiplying each of the numbers $4, 5, 7, 11, 13$ by 4 and then adding 7 to each of them, we obtain a new dataset. Then, the difference between the sample variance of the new dataset and the sample variance of the old dataset is

3 points

3) Consider various variables that describes the specifications of flats owned by a builder. These variables include price of flat, area of flat, BHK(number of bedrooms attached with 1 hall and 1 kitchen), furnishing(furnished, semi furnished or unfurnished), and locality. The builder owns 400 flats whose specifications are then organised in a data table. Based on this information, choose the correct option(s) from below. ***3 points***

- [ ] The number of variables in the data table is 5.
- [ ] The number of cases/observations in the data table is 5.
- [ ] Furnishing is a categorical variable.
- [ ] Price of flat is a numerical variable.
- [ ] Area of flat is a discrete numerical variable.
- [ ] Locality is a numerical variable.

4) If the variance of a set of non-zero observations is zero, you can conclude ***2 points***

- that the observations have same number of positive and negative data points.
- that the mean (average) value is zero.
- that all observations are the same value.
- that a mistake in calculation has been made.

- none of the above.

5) If first quartile ($Q1$) = 80 and third quartile ($Q3$) = 100, which of the following must be true? ***2 points***

I.The median will lie in the range $[80, 100]$.
II. The median is 90.
III. The standard deviation is at most 20.

- I only
- II only
- III only
- I and II.
- All are true.
- None is true.

6) Suppose the correlation coefficient between two variables x and y is 0.45. What will be the new correlation coefficient if 0.10 is added to all values of the x variable, every value of the y variable is doubled, and the two variables are interchanged? ***3 points***

- 0.55
- 0.65
- 0.90
- 0.45
- 0.80

7) The bar chart given in Figure $Q.1$ shows the shoe sizes of a group of 70 children. Based on this information, which of the following statements is(are) true? ***3 points***

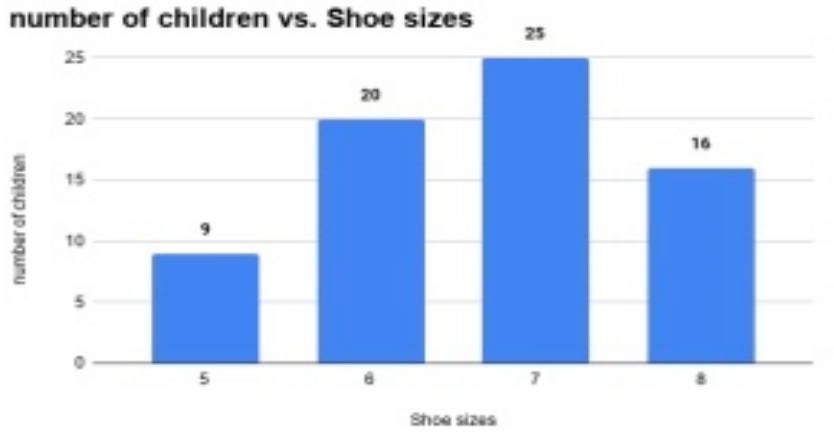

Figure Q.1: Shoe size dataset

- [ ] 16 children wear a size 8 shoe.
- [ ] 29 children wear a shoe size less than 8.
- [ ] 7 is the median shoe size.
- [ ] 35 children wear a shoe size larger than 6.
- [ ] 6 is the mode shoe size.
- [ ] Range of the shoe size is 4.
- [ ] The value of first quartile $(Q1)$ for shoe size is 6.

The histogram of runs scored by a batsman in his career is given in Figure .