TB(3A) Ch. 6 Measures of Central Tendency

Conventional Questions

1. [14-15 Final Exam, #14]

The following stem-and-leaf diagram shows the test results in a class of 20 students. It is given that $a < b$, where a and b are integers.

Stem (10 marks)	Leaf (1 mark)
2	8
3	1 2 4 5 7
4	0 1 5 6 a b
5	1 2 3 5 a b
6	0 1

It is known that the mean mark of this class is 45.75.

(a) Write down the values of a and b. **(1 mark)**

(b) Write down the median mark of this class. **(1 mark)**

(c) All students have a re-test. If each student's mark is increased by 10, write down the new mean mark. **(1 mark)**

(d) If n test results are removed, the new median becomes 54, write down the minimum value of n. **(1 mark)**

2. [15-16 Final Exam, #6]

The bar chart in **Figure 1** shows the distribution of the number of siblings of S.3 students. It is known that a is twice of b and the median of the number of siblings is 1.5.

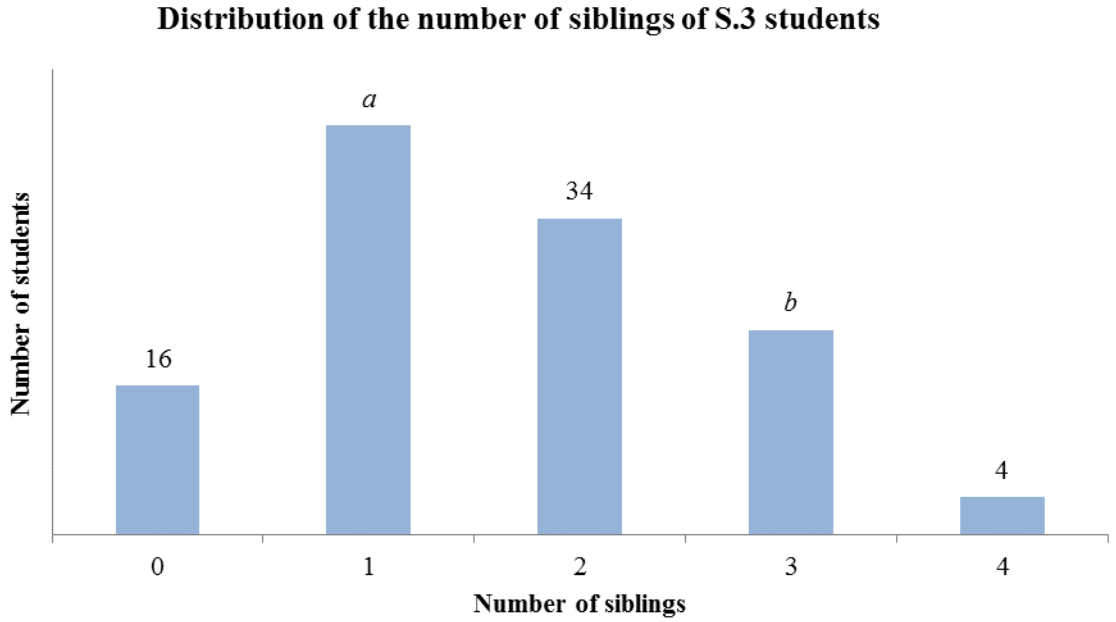

Figure 1

(a) Find a and b. **(2 marks)**

(b) Write down the mean number of siblings of S.3 students. **(1 mark)**

(c) Three more students of S.3 are interviewed and they are all only child in the family. Write down the new mean number of siblings of S.3 students. **(1 mark)**

3. [16-17 Final Exam, #4]

The mode of the numbers 1, 2, 3, 3, 4, 4 and x is 4. Write down

(a) the value of x,

(b) the mean, and

(c) the median. **(3 marks)**

4. [16-17 Final Exam, #5]

The following table shows the revision time per day of 100 students.

Revision Time (min)	16 – 30	31 – 45	46 – 60	61 – 75
No. of Students	12	18	20	50

(a) Write down the modal class. **(1 mark)**

(b) Find the mean time of the students spent on revision per day. **(2 marks)**

5. [16-17 Final Exam, #6]

The following table shows the amount of money donated in class 2G for DELIA'S WING revitalized project.

Money donated($)	50	100	500	1000	5000
No. of students	14	12	8	5	1

(a) Find the median of the amount of money donated. **(1 mark)**

(b) Which of the following can best describe the central tendency of the data? Mean, median or mode? Explain your answer. **(2 marks)**

6. [17-18 Final Exam, #12]

The following table shows the scores of two students, Anna and Elsa, in a fitness test. The weights of sit-ups, endurance run and push-ups in this fitness are 3, 5 and 2 respectively.

	sit-ups	**endurance run**	**push-ups**
Anna	6	8	7
Elsa	5	10	k
Weight	3	5	2

(a) Find the weighted mean score of Anna. **(2 marks)**

(b) After a month of training, both of them get 2 marks higher in both sit-ups and push-ups respectively while their scores in endurance run remain unchanged. If the new weighted mean score of Elsa is 0.5 higher than that of Anna, find k. **(2 marks)**

7. [17-18 Final Exam, #13]

The following table shows the number of social media accounts owned by a group of students.

Number of social media accounts	0	1	2	3	4
Number of students	1	4	11	3	[redacted]

However, the number of students owning 4 social media accounts was deleted accidentally. It is only known that the median of the number of social media accounts owned is 2.

(a) Write down the maximum number of students in this group. **(1 mark)**

(b) Joey claimed that the mode of the number of social media accounts owned must be 2. Do you agree with her claim? Explain your answer. **(3 marks)**

8. [18-19 Final Exam, #11]

The back-to-back stem-and-leaf diagram in **Figure 4** shows the distribution of the diameters of the gems (in mm) collected by Ironman and Thanos in a gem hunting contest.

Diameters of gems collected by Ironman and Thanos

Ironman										Thanos									
			Leaf (1 mm)					Stem (10 mm)		Leaf (1 mm)									
			6	4	3	3	2	0		4	4	9							
7	6	5	4	4	4	3	3	1		2	*a*	5	6	6	7	7	8	9	
							a	2		2	7	7	7						

Figure 4

(a) Write down the median and the mode of the diameters of gems collected by Thanos. **(2 marks)**

(b) The Black Widow gives a gem of diameter 14 mm to Ironman.

(i) Write down the new median of the diameters of gems collected by Ironman. **(1 mark)**

(ii) If the mean of all the diameters of gems collected by Ironman and Thanos is 14 mm, find the value of a. **(3 marks)**

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