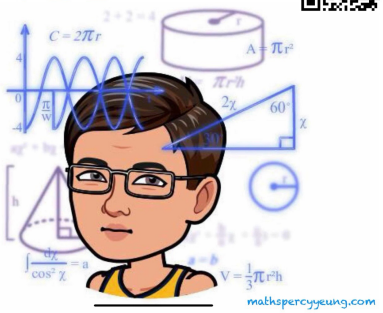


2018 – 2019

S.3 Mathematics Uniform Test 10 (3SMA)
Chapter 11: Measures of Central Tendency

Question-Answer Book

Date: 23 – 5 – 2019

Duration: 40 mins

This paper must be answered in English

Instructions:

1. Write your name, class and class number in the spaces provided on this cover.
2. Answer ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book.
3. Write your answers with black or blue ball-pens and draw graphs or figures with HB pencils.
4. Unless otherwise specified, all working and steps must be clearly shown.
5. **Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.**
6. The diagrams in this paper are not necessarily drawn to scale.

Section A:

Multiple Choice Questions

Question	Full Marks	Score
1 – 6	12	

Section B:

Conventional Questions

Question	Full Marks	Score
7	4	
8	5	
9	4	
10	4	
11	4	
12	3	
13	6	
Section B Total	**30**	

Section C:

Bonus Question

Question	Full Marks	Score
14	3	

PP		
Units		
Paper Total	**42**	

Section A: Multiple Choice Questions (12 marks)

For each of the following questions, fill in the best answer in the spaces provided.

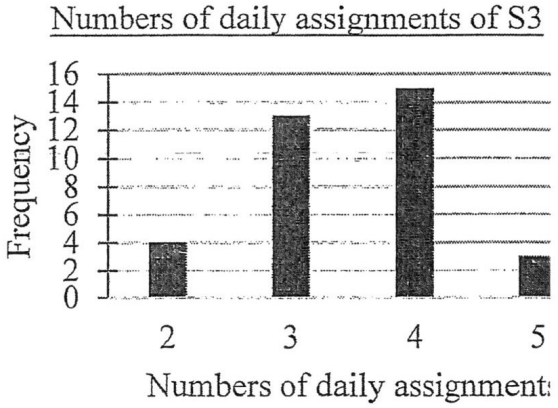
1.	2.	3.	4.	5.	6.

1. The mean weight of 3 boys and 2 girls is 46 kg. If the mean weight of the boys is 51 kg, then the mean weight of the girls is

   A. 38.5 kg. B. 41 kg. C. 42.7 kg. D. 48.5 kg.

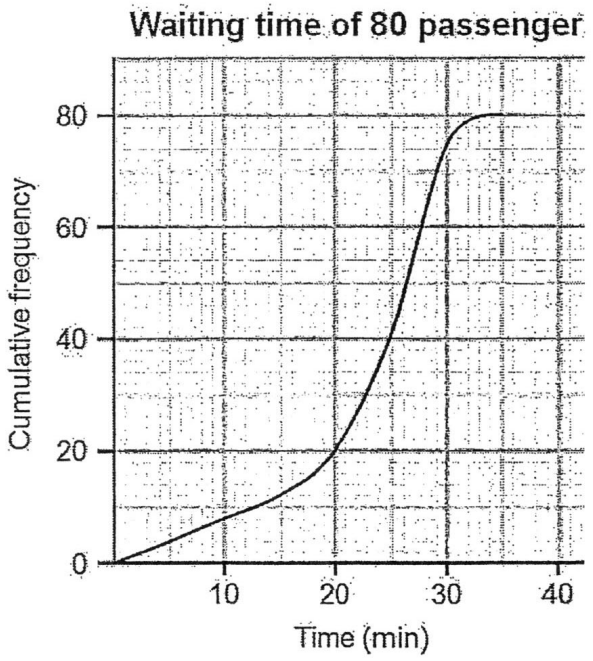
2. The bar chart shows the numbers of daily assignments of S3. Find the median number of daily assignments.

   A. 3
   B. 3.5
   C. 4
   D. None of the above



3. The cumulative frequency curve shows the waiting time of 80 passengers at a mini-bus stop. Find the median waiting time of these 80 passengers.

   A. 16 min
   B. 20 min
   C. 25 min
   D. 30 min



4. If the mean of 7 numbers 6, 12, 15, 21, x, 12 and 6 is 12, then the mode(s) of these 7 numbers is/are

   A. 6. B. 12. C. 6 and 12. D. 6, 12 and 15.

5. The mean, the median and the mode of a data set are all 50. If a datum '75' is deleted from the data set which of the following must be correct?

   I. The mean will be increased.
   II. The median will be decreased.
   III. The mode will remain unchanged.

   A. II only B. III only C. I and II only D. II and III only

6. The following table shows the scores of Jacky in a job interview.

	Experience	Language skills	IT skills
Score	80	70	x
Weight	40%	40%	y%

If the weighted mean score of Jacky in the interview is 72, find the value of x.

A. 100 B. 72 C. 66 D. 60

Section B: Conventional Questions (30 marks)

7. The following shows the numbers of times that 8 patients visit a doctor in a year.

6, 3, 3, 5, 7, 2, 4, 3

Find the **mean**, the **median** and the **mode(s)** of the above data. (4 marks)

8. The following table shows the results of a group of S3 students in a Mathematics test.

Score	Class Mark	Frequency
0 – 19		7
20 – 39		10
40 – 59		15
60 – 79		10
80 – 99		8

(a) Complete the table.

(b) Find the **mean** of the scores of the S3 students in the Mathematics test.

(c) Find the **modal class** of the scores of the S3 students in the Mathematics test. (5 marks)

9. Tom conducts a survey on the numbers of movies watched by a group of students last year. Questionnaires are sent out and 18 of them are returned. The stem-and-leaf diagram below shows the numbers of movies recorded in the 18 questionnaires:

Stem (10)	Leaf (1)
0	2 3 6 9
1	0 1 1 5 6 8
2	2 5 8
3	7 7 8
4	0 3

(a) Find the **median** and **mode(s)** of the numbers of movies watched by this group of students.

(b) Tom receives 1 more questionnaire, recorded as a. It is given that the new **median** of the numbers of movies recorded in the 19 questionnaires is the same as the **median** found in (a). Find the value of a.

(c) Tom receives 2 more questionnaires, recorded as b and c. where $b > c$. It is given that the new **mode(s)** of the numbers of movies recorded in the 20 questionnaires is the same as the **mode(s)** found in (a). Find the values of b and c. (4 marks)

10. Consider the following set of data.

$$7, \quad 10, \quad 8, \quad 16, \quad 14, \quad 16, \quad 8, \quad x, \quad y$$

If $x < y$ and the mean and the mode of the data are 11 and 8 respectively, find

(a) the values of x and y.

(b) the **median** of the data. (4 marks)

11. The mean, the median and the mode of a, b, c and d are 14, 12 and 5 respectively. Complete the following table. (4 marks)

Date Set	Mean	Median	Mode
(a) $a-6,\ b-6,\ c-6,\ d-6$			
(b) $\frac{a}{2}+5,\ \frac{b}{2}+5,\ \frac{c}{2}+5,\ \frac{d}{2}+5$			

12. The following table records the scores of John and James of different parts in a Chinese composition competition.

	Contents	Accuracy	Skills
John	80	78	60
James	60	90	72
Weight	10	4	6

(a) Find the **weighted mean** scores of John.

(b) Who is the winner of the competition? Explain your answer. (3 marks)

13. The following table shows the distribution of the numbers of children of some families:
It is given that k is a **positive integer**.

Number of children	0	1	2	3	4
Number of families	k	2	9	6	7

(a) If the mode of the distribution is 2, write down the least and greatest possible value of k.

(b) If the median of the distribution is 2, write down the least and greatest possible value of k.

(c) If the mean of the distribution is 2, find the value of k. (6 marks)

Section C: Bonus Question (3 marks)

14. The table below shows the number of children of 100 families in a survey.

Number of children	0	1	2	3	4	5
Frequency	15	32	x	y	6	4

If the mean is 1.75, find the values of x and y. (3 marks)

End of Paper