MME

GCSE MATHEMATICS
AQA | Edexcel | OCR | WJEC

Grouped Frequency Tables

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You *can* use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 High scores are collected for an eSports event held in the city centre.

The range was large so the organisers wanted to have them arranged in a grouped frequency table.

The scores are given below:

3771	9705	6373	492	1828	6587	341
4164	8626	5241	8559	4136	5847	8404
9736	3146	7784	9787	4688		

Complete the grouped frequency table below.

[3 marks]

Score, s	Frequency
$0 < s \leq 2000$	
$2000 < s \leq 4000$	
$4000 < s \leq 6000$	
$6000 < s \leq 8000$	
$8000 < s \leq 10\,000$	

Turn over for next question

3

Turn over ►

2 The following grouped frequency table shows time, in minutes, visitors spent on a popular website over the course of one day.

Time, t	Frequency
$0 < t \leq 2$	6472
$2 < t \leq 4$	7864
$4 < t \leq 6$	6248
$6 < t \leq 8$	4635
$8 < t \leq 10$	2751

2(a) Visitors who spent more than 4 minutes on the website were directed to a survey where they could enter a prize draw after they gave feedback.

How many visitors were directed to the survey?

[1 mark]

Answer _____

2(b) Does this grouped frequency table identify how many visitors spent less than one minute on the website?

Explain your answer.

[1 mark]

Answer _____

Turn over for next question

2

Turn over ►

3 A volunteer lost part of the results of a survey that showed the time, t, people planned to spend at the gym, one day.

The volunteer knows that the number of people who spent **more than** 30 minutes was 84.

Complete the table, with this information.

Exercise time, t	Frequency
$0 < t \leq 15$	13
$15 < t \leq 30$	26
$30 < t \leq 45$	27
$45 < t \leq 60$	
$60 < t \leq 75$	42

[2 marks]

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2

Turn over ▶

4 In a biology class, students recorded heights of plants, after caring for them over a 2 month period.

Plant height, h (cm)	Frequency
$0 < h \leq 10$	8
$10 < h \leq 20$	11
$20 < h \leq 30$	12
$30 < h \leq 40$	15

Two plant heights were not recorded; both were the same height.

If they had been added, their category would become the second most common.

Which category did the two plants belong to?

[2 marks]

Answer _____

Turn over for next question

Turn over ►

5 The times for goals scored by a local football team are recorded in the following table.
Extra time goals are not included.

Time, t, (minutes)	Frequency
$0 < t \leq 15$	7
$15 < t \leq 30$	13
$30 < t \leq 45$	12
$45 < t \leq 60$	9
$60 < t \leq 75$	17
$75 < t \leq 90$	22

5(a) Which class contains the median from this grouped frequency table?

[1 mark]

$15 < t \leq 30$ $60 < t \leq 75$

$30 < t \leq 45$ $45 < t \leq 60$

5(b) Find the modal class of this grouped frequency table.

[1 mark]

$15 < t \leq 30$ $60 < t \leq 75$

$30 < t \leq 45$ $75 < t \leq 90$

Turn over for next question

2

Turn over ▶

6 Data on the time taken for 90 students to complete a 200 m race has been summarised in the grouped frequency table below.

Time taken (seconds)	Frequency
$23 < t \leq 24$	18
$24 < t \leq 25$	19
$25 < t \leq 26$	17
$26 < t \leq 27$	20
$27 < t \leq 28$	16

6(a) Why is the mode an inappropriate measure of the average in this case?

[1 mark]

_____

_____

Answer _____

6(b) Discuss an improvement that could have been made when creating this grouped frequency table.

[2 marks]

_____

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3

Turn over ▶

7 Ben and Jane both collected data on the English marks for two year 9 classes.

Their data has been summarised below

Ben	
Score (%)	**Frequency**
$0 < x \leq 10$	1
$10 < x \leq 20$	4
$20 < x \leq 50$	12
$50 < x \leq 70$	15
$70 < x \leq 90$	6
$90 < x \leq 100$	2

Jane	
Score (%)	**Frequency**
$0 < x \leq 20$	5
$20 < x \leq 40$	3
$40 < x \leq 50$	1
$50 < x \leq 70$	11
$70 < x \leq 90$	6
$90 < x \leq 100$	4

7(a) Combine Ben and Jane's data in a single grouped frequency table shown below.

[3 marks]

Score (%)	Frequency
$20 < x \leq 50$	
$90 < x \leq 100$	

7(b) Discuss an advantage and disadvantage of combining the results into one grouped frequency table.

[2 marks]

_____

_____

_____

Turn over for next question

5

Turn over ▶

8 Times for racing snails to complete a course were recorded.

The grouped frequency table displays their results.

Time taken, *s (seconds)*	Frequency
$0 < s \leq 100$	1
$100 < s \leq 200$	6
$200 < s \leq 300$	8
$300 < s \leq 400$	16
$400 < s \leq 500$	8

8(a) What is the total number of snails that took longer than 100 seconds but no more than 400 seconds to complete the course?

[1 mark]

Answer _____

8(b) In which category will you find the median of the value given in part a?

[1 mark]

Answer _____

8(c) Find the modal class of this grouped frequency data.

[1 mark]

Answer _____

End of Questions

3