



Rewarding Learning

**General Certificate of Secondary Education
2022**

Statistics

Unit 2

Foundation Tier

[GST21]

FRIDAY 24 JUNE, MORNING

**MARK
SCHEME**

General Marking Instructions

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

The marks awarded for each question are shown in the right hand column and they are prefixed by the letters **M**, **A** and **MA** as appropriate. The key to the mark scheme is given below:

M indicates marks for correct method.

A indicates marks for accurate working, whether in calculation, readings from tables, graphs or answers.

MA indicates marks for combined method and accurate working.

The solution to a question gains marks for correct method and marks for an accurate working based on this method. Where the method is not correct no marks can be given.

A later part of a question may require a candidate to use an answer obtained from an earlier part of the same question. A candidate who gets the wrong answer to the earlier part and goes on to the later part is naturally unaware that the wrong data is being used and is actually undertaking the solution of a parallel problem from the point at which the error occurred. If such a candidate continues to apply correct method, then the candidate's individual working must be **followed through** from the error. If no further errors are made, then the candidate is penalised only for the initial error. Solutions containing two or more working or transcription errors are treated in the same way. This process is usually referred to as "follow-through marking" and allows a candidate to gain credit for that part of a solution which follows a working or transcription error.

It should be noted that where an error trivialises a question, or changes the nature of the skills being tested, then as a general rule, it would be the case that not more than half the marks for that question or part of that question would be awarded; in some cases the error may be such that no marks would be awarded.

Positive marking

It is our intention to reward candidates for any demonstration of relevant knowledge, skills or understanding. For this reason we adopt a policy of **following through** their answers, that is, having penalised a candidate for an error, we mark the succeeding parts of the question using the candidate's value or answers and award marks accordingly.

Some common examples of this occur in the following cases:

- (a) a numerical error in one entry in a table of values might lead to several answers being incorrect, but these might not be essentially separate errors;
- (b) readings taken from candidates' inaccurate graphs may not agree with the answers expected but might be consistent with the graphs drawn.

When the candidate misreads a question in such a way as to make the question easier only a proportion of the marks will be available (based on the professional judgement of the examiner).

COVID-19 Context

Given the unprecedented circumstances presented by the COVID-19 public health crisis, senior examiners, under the instruction of CCEA awarding organisation, are required to train assistant examiners to apply the mark scheme in case of disrupted learning and lost teaching time. The interpretation and intended application of the mark scheme for this examination series will be communicated through the standardising meeting by the Chief or Principal Examiner and will be monitored through the supervision period. This paragraph will apply to examination series in 2021–2022 only.


			AVAILABLE MARKS	
1	(a)	£450.00 – £499.99	A1	4
	(b)	Belfast	A1	
	(c)	The chart shows where people work, not where they live. The figures are averages so not everyone in the area earns the same amount.	A1 A1	
2	(a)	Anna	A1	9
	(b)	$\frac{12}{3} = 4$ $4 \times 4 = \text{£}16$	MA1 A1	
	(c)	$(2 + 7 + 4 + 3 + 6) \times 4$ $= \text{£}88$	MA1 A1	
	(d)	Mean = $\frac{88}{5}$ $= \text{£}17.60$	MA1 A1	
	(e)	The symbol used in the pictogram represents £4 but £18 is not a multiple of 4 so the symbol would be difficult to divide up.	A2	
3	(a) (i)	No time frame is given in the question, i.e. per week.	A1	6
	(ii)	People could interpret the word ‘average’ differently.	A1	
	(b)	Suitable question which includes a time frame. Mutually exclusive, exhaustive response boxes.	A1 A1	
	(c)	Working hours of university students would not be a fair representation of the population of 18 to 22 year olds because they are likely to only work part-time, if at all.	A1 A1	
4	(a)	16 000	A1	5
	(b)	6000	A1	
	(c)	A suitable reason, e.g. • there has been a large increase in economic inactivity, or • more people have come into the workforce (16+).	A1	
	(d)	The figures are rounded to the nearest thousand. It is difficult to have exact employment figures at any given time.	A2	

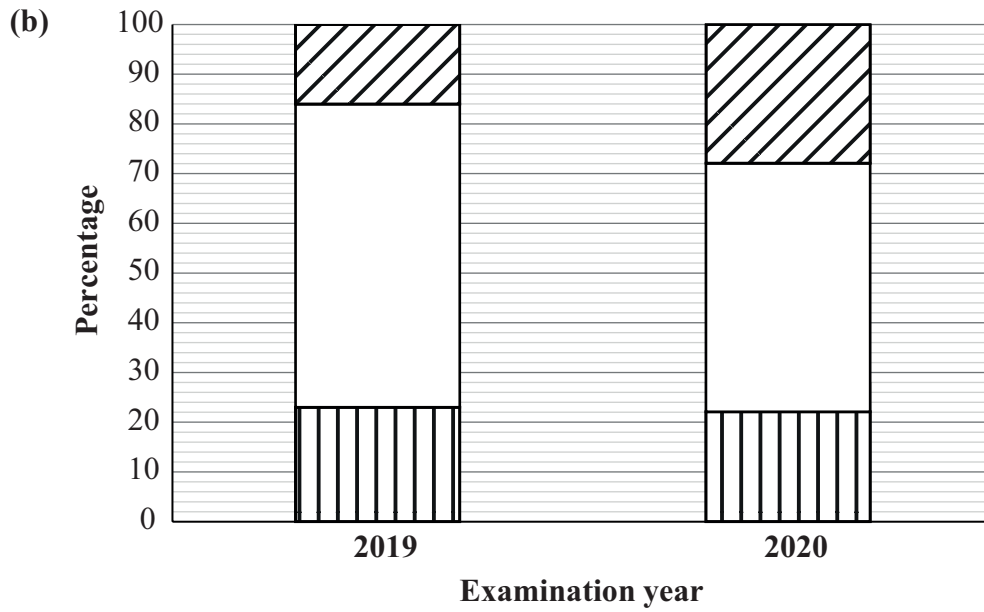
		AVAILABLE MARKS
5	(a) There are 3 modes: 19, 22 and 43. Bimodal means two modes.	A1 A1
	(b) (i) 22	MA1
	(ii) $43 - 2 = 41$	MA1
	(c) (i) Ava's students had a larger median so, on average, her students took more lessons before their tests.	A2
	(ii) Ava's students had a smaller range, so the numbers of lessons taken by her students were less varied than Roger's students.	A2
		8
6	(a) 2008 and 2009	A1
	(b) 2011	A1
	(c) Increasing	A1
	(d) Northern Ireland	A1
	(e) The NI employment rate has been consistently lower than the UK employment rate.	A1
	(f) Some regions must have a higher employment rate than the UK average since the NI employment rate is lower.	A2
	7	

7 (a) KEY

 Distinction

 Merit

 Pass



(c) Merit

A1

A3

A1

5

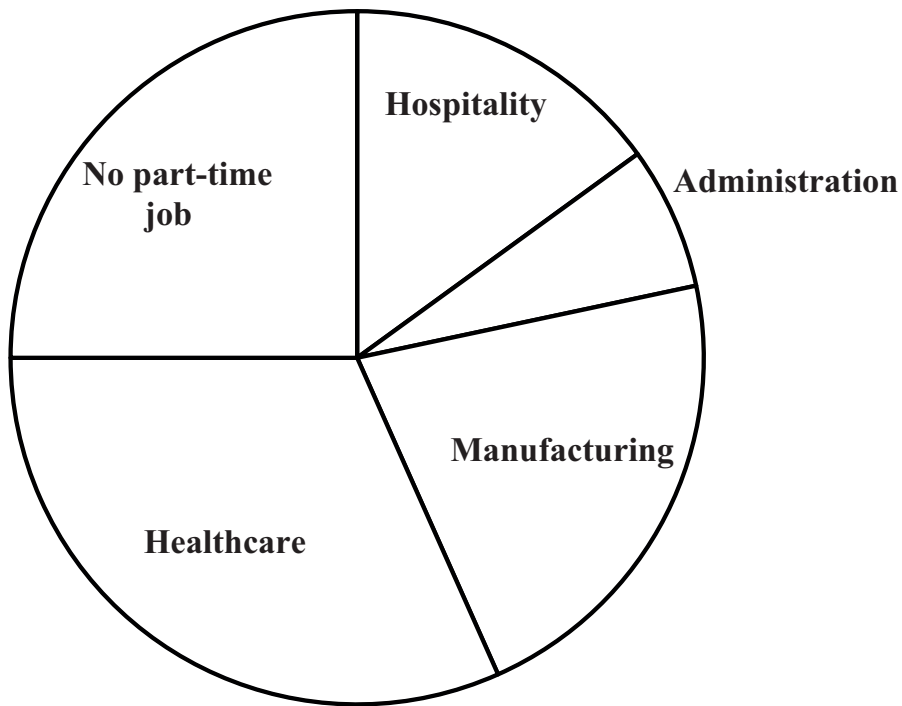
AVAILABLE
MARKS

8 (a) Opportunity sampling

A1

(b) Angles: $54^\circ, 24^\circ, 78^\circ, 114^\circ, 90^\circ$

MA2



A2

(c) Give each pupil a number from 1 to 800

A1

Use a random number generator to select 50 numbers between 1 and 800

A1

Select the pupil who matches that number.

A1

(d) Any viable problem, e.g. a selected pupil may be absent from school.

A1

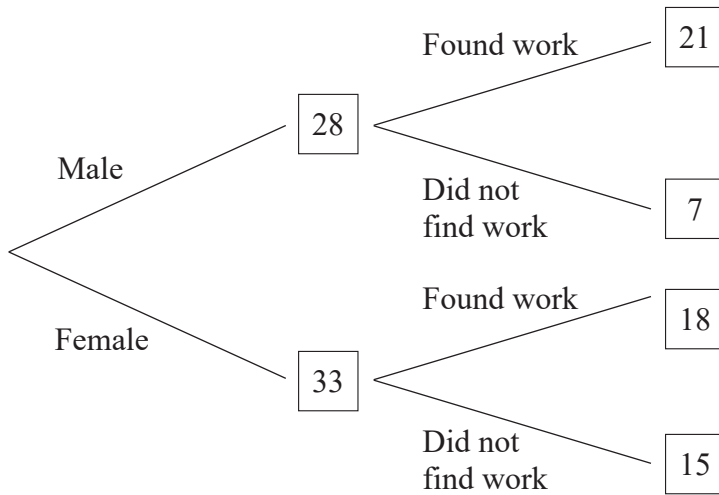
AVAILABLE
MARKS

9

9 (a) $28 - 7 = 21$

MA1

(b)



A1

(c) $P(\text{Male}) = \frac{28}{28 + 33} = \frac{28}{61}$

MA2

(d) Male

A1

Of the 39 clients who found work, 21 were male but only 18 were female.

A2

7

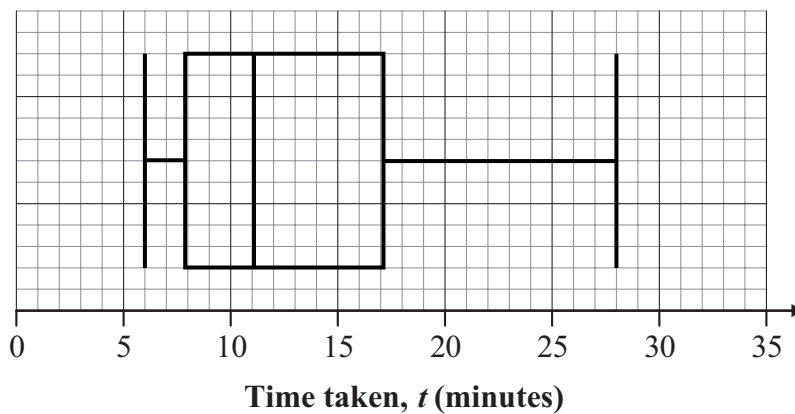
10 (a) 80

A1

(b) $5 \leq t < 10$

A1

(c)



M1

MA3

(d) Positively skewed.

A1

(e) No

A1

Nomally distributed data is not skewed.

A1

(f) 49

A1

10

11 (a) April 2020	A1	AVAILABLE MARKS	
(b) (i) $1513 - 1402 = 111$	MA1		
(ii) Some part-time jobs may have been advertised and filled or may not have been advertised during the month so the vacancy did not get counted.	A2		
(c) The months with more full-time vacancies have more part-time vacancies.	A1		
(d) Product moment correlation coefficient.	A1		
(e) 0.925	A2		
(f) There is a strong positive correlation between the number of full-time vacancies and part-time vacancies each month so months with more full-time vacancies have more part-time vacancies.	A2		
	Total		
			10
			80