



Mark Scheme (Topic Test)

Technology and Software

Pearson Edexcel GCE
In Statistics (9ST0)

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General Marking Guidance

Total marks

The total number of marks for the paper is 80.

Mark types

The Edexcel Statistics mark schemes use the following types of marks:

- **M** **Method** marks,
awarded for 'knowing a method and attempting to apply it',
unless otherwise indicated.
- **A** **Accuracy** marks can only be awarded if the relevant method (M) marks
have been earned.
- **B** **Unconditional accuracy** marks are independent of M marks
- **E** **Explanation** marks

NOTE: Marks should not be subdivided.

Abbreviations

These are some of the marking abbreviations that will appear in the mark schemes.

- ft follow through
- PI possibly implied
- cao correct answer only
- cso correct solution only
(There must be no errors in this part of the question)
- awrt answers which round to
- awfw answers which fall within (a given range)
- SC special case
- nms no method shown
- oe or equivalent
- dep dependent (on a given mark or objective)
- dp decimal places
- sf significant figures
- * The answer is printed on the paper

Further notes

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied **positively**. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is **no ceiling** on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- All A marks are 'correct answer only' (cao), unless shown, for example, as A1ft to indicate that previous wrong working is to be followed through.
- All M marks are 'possibly implied' (PI) unless specifically stated otherwise in the 'Notes' column.
- After a **misread**, the subsequent A marks affected are treated as A1ft, but manifestly absurd answers should never be awarded A marks.
- **Crossed out** work should be marked UNLESS the candidate has replaced it with an alternative response.
- If **two solutions** are given, each should be marked, and the resultant mark should be the mean of the two marks, rounded down to the nearest integer if needed.

Question	Scheme	Marks	AO	Notes
1(a)	Subtract the value in cell K7 from cell K9	B1	1.1	Or “=K9 – K7”
1(b)	Use a formula to calculate the mean ...	B1	1.1	Formula and mean/average
	...of cells B8 to K8	B1	1.1	Correct cells
				May be seen as a formula for B1B1 e.g. “=AVERAGE(B8:K8)” oe
Total		3		

Question	Scheme	Marks	AO	Notes
2(a)	Use a formula which finds the mean ...	B1	1.1	Formula and mean/average
	...of cells C6 to M6	B1	1.1	Correct cells
				May be seen as a formula for B1B1 “=AVERAGE(C6:M6)” oe
2(b)	Produce a query ...	B1	1.1	Query
	Which sorts Fuel_Type in alphabetical order	B1	1.1	Sorts, correct field name and “alphabetical order” Allow “Ascending”
	Alternatively			
	SELECT * (FROM [Database])	(B1)		General SQL format * can be replaced with Fuel_Type NB: Table name not given so ignore any reference to table name
	ORDER BY Fuel_Type ASC;	(B1)		“ORDER BY” and SQL format, correct field name and ASC
				Condone no “;”
2(c)	Possible advantages (not exhaustive)			
	Data can be displayed in an easier / more user friendly way			
	There are more statistical functions / formulae in spreadsheets			
		E1	3.1a	Any reasonable advantage
	Possible disadvantages (not exhaustive)			
	There is a limit to how much data a spreadsheet can store			
	You have to access all the data instead of just certain aspects in a spreadsheet			
		E1	3.1a	Any reasonable disadvantage
Total		6		

Question	Scheme	Marks	AO	Notes
3	Produce a query ...	B1	1.1	Query
	...which filters PupilGender = “female” and SchoolYear = 8...	B1	1.1	Filter and one correct field and condition
		B1	1.1	Both correct fields and conditions
	...and sorts by PupilSurname (or PupilForename) in alphabetical order	B1	1.1	Sort and either field Allow “ascending”
	Alternatively			
	SELECT * FROM SchoolDatabase	(B1)		General structure of SQL * can be replaced with both PupilSurname, PupilForename
	WHERE PupilGender = “Female” AND SchoolYear = “8”	(B1)		“WHERE” in SQL format and one correct field condition
		(B1)		Both correct field conditions
	ORDER BY PupilSurname ASC;	(B1)		“ORDER BY” in SQL format, ASC and correct field name Also can use PupilForename Condone no “;”
Total		4		

Question	Scheme	Marks	AO	Notes
4(a)	Use a formula which adds/sums up...	B1	1.1	Formula and sum oe
	...the cells from B9 to H9	B1	1.1	Correct cells
				May be seen as a formula for B1B1 e.g. “=SUM(B9:H9)” oe
4(b)	Select the education column from both spreadsheets	B1	1.1	Condone “Column E”
	Copy both columns into a new sheet	B1	1.1	Idea of combining the data into the same sheet
	Copy the years column / column A into the new sheet	B1	1.1	Indication that the numbers are labelled and categorised
	Total	5		

Question	Scheme	Marks	AO	Notes
5(a)	Produce a query ...	B1	1.1	Query
	...which filters “gender” to “female”, “age” to “18 and under”, “geo_name” to “Northern Ireland” and “mid_year_to_mid_year” to “2018/2019”	B1	1.1	Filter and one correct field name and condition
		B1	1.1	Two correct field names and conditions
		B1	1.1	Three correct field names and conditions
		B1	1.1	All correct field names and conditions
	Alternatively			
	SELECT * (FROM [Database])	(B1)		General SQL format NB: Table name not given so ignore any table name
	WHERE gender = “Female” AND age <= 18 AND geo_name = “Northern Ireland” AND mid_year_to_mid_year = “2018/2019”;	(B1)		“WHERE” and SQL format and one correct field name and condition
		(B1)		Two correct field names and conditions
		(B1)		Three correct field names and conditions
		(B1)		All correct field names and conditions Condone no “;”
5(b)	Produce a query ...	B1	1.1	Query
	...which groups by geo_code	B1	1.1	Groups and geo_code
	Alternatively			
	SELECT * (FROM [Database])	(B1)		General SQL format
	GROUP BY geo_code;	(B1)		Group and geo_code
Total		7		

Question	Scheme	Marks	AO	Notes
6(a)	Use a formula to find the mean ...	B1	1.1	Formula and mean/average
	...of cells E2 to E9	B1	1.1	Correct cells
				May be seen as a formula for B1B1 “=AVERAGE(E2:E9)” oe
6(b)	Use a formula to find...			
	... difference between the maximum and minimum ...			
	... difference between to the upper and lower quartile ...			
	...the variance...			
	...the standard deviation...			
		B1	1.1	Formula and one of the above spread measures Do not accept “range” or “interquartile range” without detail (since these functions are not standard in spreadsheet software)
	...of cells B2 to D9	B1	1.1	Correct cells
6(c)				May be seen as a formula for B1B1: “=MAX(B2:D9)-MIN(B2:D9)” “= QUARTILE(B2:D9,3) – QUARTILE(B2:D9,1)” “=VAR.S(B2:D9)” “=STDEV.S(B2:D9)”
	Add the cells B9, B10 and B11	B1	1.1	May be seen as a formula for B1B1 “=B9+B10+B11” Or “=SUM(B9:B11)”
Total		5		

Question	Scheme	Marks	AO	Notes
7(a)	Produce a query ...	B1	1.1	Query
	...which filters Ret_Category to “Food”...	B1	1.1	Filter and correct field name and condition
	...and sorts Description in alphabetical order.	B1	1.1	Sort, “alphabetical order” (allow “ascending”) and correct field
	Alternatively			
	SELECT Description (FROM [Database])	(B1)		General SQL format NB: Table name is not given so ignore any reference to table name
	WHERE Ret_Category = “Food”	(B1)		“WHERE” and SQL format with correct field name and condition
	ORDER BY Description ASC;	(B1)		“ORDER BY” and SQL format, ASC and correct field name.
				Condone no “;”
7(b)	Produce a query ...	B1	1.1	Query
	...which filters Ret_Category to “Household” and Ret_Subcategory to “Laundry”...	B1	1.1	Filter and one correct field name and condition
		B1	1.1	Both correct field names and conditions
	...and sums/adds up the numbers in Quant_In_Stock	B1	1.1	Sum and correct field name
	Alternatively			
	SELECT SUM(Quant_In_Stock) (FROM [Database])	(B1)		General SQL Format
		(B1)		SUM(Quant_in_Stock)
	WHERE Ret_Category = “Household”	(B1)		“WHERE” and SQL Format and correct condition
	AND Ret_Subcategory = “Laundry”;	(B1)		Both conditions correct
				Condone no “;”
Total		7		

Question	Scheme	Marks	AO	Notes
8(a)(i)	Add together cells D14 and E14			
	OR Subtract cell F15 from cell F16			
		B1	1.1	Either May be seen e.g. “=D14+E14” oe
8(a)(ii)	Add together cells B6, B12 and B16			
	OR sum cells B3 to B5, B8 to B11, B14 and B15			
		B1	1.1	Either May be seen e.g. “=B6+B12+B16” oe
8(a)(iii)	Divide cell B16 by the sum of B6, B12 and B16 (multiplied by 100)	B1	1.1	Method of finding a percentage
		B1	1.1	Correct cells
				May be seen as a formula for B1B1 “=B16/(B6+B12+B16)”
8(b)	Produce a query ...	B1	1.1	Query
	...which filters ...	B1	1.1	Filter
	...by Household_total + Non_household_total > 40 000	B1	1.1	Correct condition
	Alternatively			
	SELECT District (FROM [Database])	(B1)		General SQL formal NB: Table name not given so ignore any reference to table name
	WHERE	(B1)		“WHERE” in SQL format
	Household_total + Non_household_total > 40000	(B1)		Correct condition
Total		7		

Question	Scheme	Marks	AO	Notes
9(a)	Produce a query ...	B1	1.1	Query
	...which filters by Gender to “Male”, Ethnicity to “Indian” and Age to a value between 25 and 49 inclusive...	B1	1.1	Filter and one correct field name and condition
		B1	1.1	Two correct field names and conditions
		B1	1.1	All correct field names and conditions
	...and counts the number of records ...	B1	1.1	Count and Record
	...divided by 1000000	B1	1.1	
	Alternatively			
	SELECT COUNT(*)/1000000 FROM APS	(B1)		General SQL format
		(B1)		COUNT()
		(B1)		/1000000
	WHERE Gender = “Male” AND Ethnicity = “Indian” AND 25 <= Age <= 49;	(B1)		“WHERE” in SQL format and one correct condition
		(B1)		Two correct conditions
		(B1)		All correct conditions
				Condone no “;”
9(b)	Divide cell E5 by the sum of cells E5 to E10	B1	1.1	Method for calculating a percentage Cells do not have to be correct for this mark
		B1	1.1	Correct cells
				May be seen as a formula for B1B1B1 e.g. “=E5/SUM(E5:E9)”
9(c)	The percentages / data in E21 to 25 have been rounded to 1dp	B1	1.1	Indication of rounding error.
Total		9		