KU	PS

1. A local school use a spreadsheet package to help them decide on final costs for school trips. An example from last years two day trip to Disneyland is shown below.

	A	B	C	D	E	F
1	TRIP	Disneyland				
2						
3	Number		Expenses			
4	of Pupils		Item	Number	Cost	Total
5						
6	40		Coach Hire	1	£ 650.00	£ 650.00
7			Entrance Tickets	40	£ 54.00	£ 2,160.00
8			Meals at Station	40	£ 14.00	£ 560.00
9			Insurance	40	£ 12.00	£ 480.00
10						
11			GRAND TOTAL			£ 3,850.00
12						
13			PUPIL COST			£ 96.25

(a) What formula would have been entered in cell **F13**? **1**

(b) The formula in cell D7 has been copied into cells D8 and D9. Would the reference to cell A6 in the formula be an *absolute* or a *relative* reference? **2**

Explain your answer.

(c) The spreadsheet has been set up so that the user cannot accidentally change the formulas in columns F. What is the name given to this feature? **1**

(d) Two pupils have dropped out of the trip at the last moment. Explain how the spreadsheet can help calculate a new cost per pupil easily? **2**

(e) A teacher in another school has asked for a copy of the spreadsheet to help with their own trip next year. Should the spreadsheet be faxed or e-mailed? **2**

Explain your answer.

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2. Ann Duncan is a Food Scientist who is conducting an experiment on the effect of taking extra vitamins. Each volunteer takes one pill a day of either Vitamin A, C or E, and each volunteer has his or her own record in the Volunteers File. Volunteers are tested on mental arithmetic before and after taking part in the study. Part of the record of a Volunteer taking Vitamin A is shown below.

Volunteer number:	054
Forename:	Muriel
Surname:	Midgely
Sex:	F
Age:	31
Vitamin taken:	A
Test Score 1:	80
Test Score 2:	109
Test score improvement:	29

(a) Explain why the Volunteer number field is included. **1**

(b) Ann wishes to produce a printed alphabetical list of the surnames of all <u>women</u> who have been taking Vitamin A. Explain fully how Ann could produce the list using the above record format.

(c) The field Test score improvement shows how much the volunteers score has changed during the testing period. It is a *computed field.* Explain the term *computed field*. **1**

(d) Describe how the database could be used to find the volunteer who made the largest improvement over the testing period.

(e) Any of the scientists can read the Volunteer File but amendments can only be made by Ann. Describe how the security system should be organised to allow this to happen.

(f) What rights of access does an individual volunteer have to the information held about him or her on file? **2**

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3. A school's PE department has carried out time trials to decide who will represent the school in the forthcoming interschool cross country championship. The information can be stored in either a database or a spreadsheet as shown below:

Database

Name	:	Robertson R.
Time 1	:	45
Time 2	:	50
Average	:	47.5

Spreadsheet

	A	B	C	D
1	**Name**	**Time 1**	**Time 2**	**Average**
2	Robertson R.	45	50	47.5
3	Brown T.	42	41.5	41.75
4	Conway J.	46.5	42	44.25

(a) (i) A record from the database is shown above. What part of the spreadsheet holds the same information? **1**

(ii) The record from the database has 4 fields. Which part of the spreadsheet holds information on one field? **1**

(b) (i) A spreadsheet can use *relative* or *absolute replication* to copy formulae. Explain the difference between these. **2**

(ii) What type of replication would be used to copy the **Average** formula in the spreadsheet above? **1**

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3. *(c)* The school has decided to use the spreadsheet to store the details. Another column has been added to show who have been accepted for the cross country championships.

	A	B	C	D	E
1	**Name**	**Time 1**	**Time 2**	**Average**	**Accepted**
2	Robertson R.	45	50	47.5	No
3	Brown T.	42	41.5	41.75	Yes
4	Conway J.	46.5	42	44.25	No

A formula has been entered into column E to work out who have been successful. If the pupils have an average time of less than 42 minutes then they will be successful.

Write down the formula that would be entered into cell E2. **3**

(d) It has been decided to use *cell protection* in column E. What is meant by *cell protection?* **1**

(e) The teacher wants to draw up a list of team members and reserves. The teacher requires the spreadsheet to be sorted in order of average time, with the lowest average time at the top, and within that in alphabetical order of name.

List the steps you would take to do this. **4**