Cambridge Assessment International Education

Cambridge International AS & A Level

INFORMATION TECHNOLOGY **9626/02**

Paper 2 Practical **February/March 2022**

MARK SCHEME

Maximum Mark: 90

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the February/March 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Task	Answer	Marks
See Task 1 below for example of Conceptual ERD		
1	Conceptual ERD contains entities/attributes…	**1**
	… with no data type	**1**
	… with no key fields	**1**
	… with no field lengths	**1**
	… drawn with rounded rectangles	**1**
	5 entities	**1**
	Entity names at top…	**1**
	… Teacher	**1**
	… Class	**1**
	… Lessons	**1**
	… Link	**1**
	… Students	**1**
	Links shown between entities/attributes…	**1**
	…Teacher-Lessons 1 to many	**1**
	…Class-Lessons 1 to many	**1**
	…Link-Lessons 1 to many	**1**
	…Link-Students 1 to many	**1**
	Teacher entity Teacher_ID/Payroll numer	**1**
	Name	**1**
	Class Class_ID	**1**
	Subject	**1**
	Lessons Lesson_ID	**1**
	Timetable slot	**1**
	Class_ID	**1**
	Teacher_ID	**1**
	Link Link_ID	**1**
	Lesson_ID	**1**

Task	Answer	Marks
1 (contd)	Student_ID	**1**
	Students Student_ID	**1**
	Forename	**1**
	Surname	**1**
	All elements consistent case/structure	**1**
	Available marks	**32**

Task	Answer	Marks
See Task 2 below for example of data dictionary		
2	**Data dictionary** Appropriate table name selected	**1**
	Student_ID …	**1**
	… Alphanumeric	**1**
	… Length 7 characters	**1**
	Compound key on Student_ID	**1**
	On Trip_ID	**1**
	1NF Name split into 2 fields	**1**
	Forename	**1**
	Surname/Family name	**1**
	Both name fields alphanumeric	**1**
	Trip_ID alphanumeric …	**1**
	… Length 3 characters	**1**
	Cost set as numeric/currency …	**1**
	… with 2 decimal places	**1**
	Paid set as currency with 2dp	**1**
	To pay data and field removed	**1**
	At least 1 appropriate validation routine	**1**
	Available marks	**17**

Task	Answer	Marks
See Task 3 below for example of database structure		
3	Same table name	**1**
	Fields match dictionary	**1**
	Data types match	**1**
	Field lengths match	**1**
	Key fields match	**1**
	269 records correctly imported	**1**
	Available marks	**6**

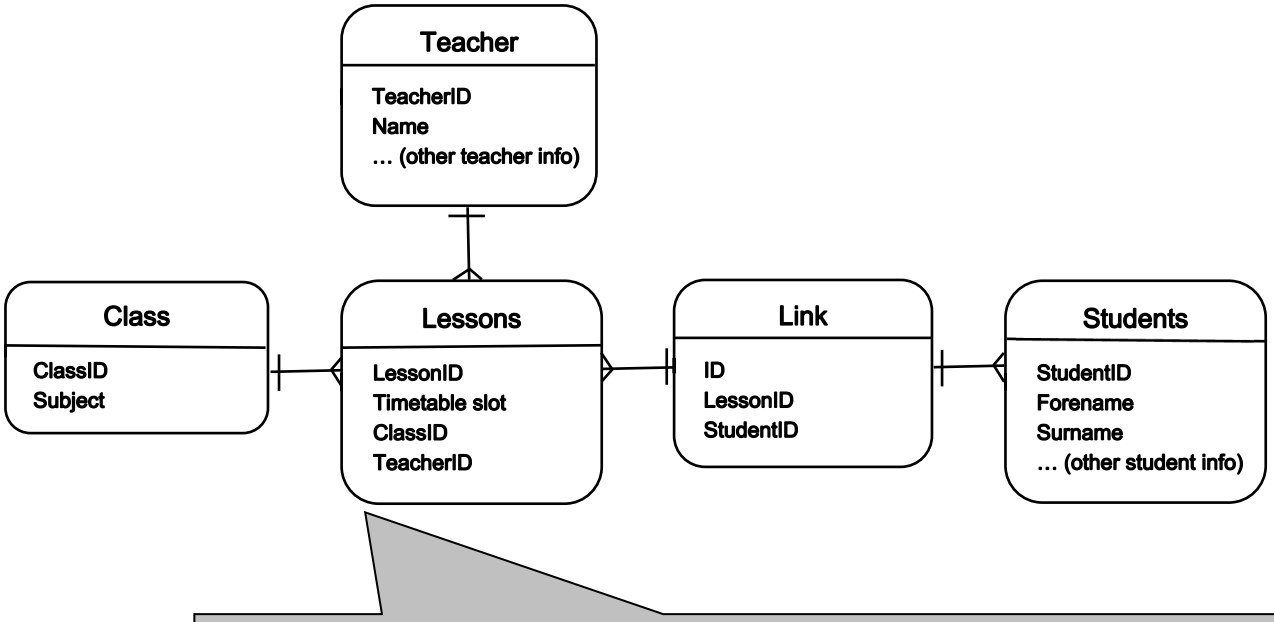
Task	Answer	Marks
See Task 4 below for example of relational database structure and tables		
4	**Database structure** 3 tables created	**1**
	Students, Trips and Link table	**1**
	Database saved as THS_3NF_ZZ999_9999	**1**
	Student table Student_ID as primary key field	**1**
	Only Student_ID, Forename, Surname	**1**
	All data types alphanumeric	**1**
	243 records correctly imported	**1**
	Link table New ID field as primary key field	**1**
	Only ID, Student_ID, Trip_ID, Paid	**1**
	Student_ID alphanumeric & 7 characters	**1**
	Trip_ID alphanumeric & 3 characters	**1**
	Paid set as currency to 2dp	**1**
	269 records correctly imported	**1**
	Trip table Trip_ID as primary key field	**1**
	Only Trip_ID, Destination, Cost	**1**
	Trip_ID & Destination alphanumeric	**1**
	Cost set as currency to 2dp	**1**

Task	Answer	Marks
	6 records correctly imported	**1**
4	**Relationships** Student.Student_ID to Link.Student_ID	**2**
	One-to-Many	**1**
	Trips.Trip_ID to Link.Trip_ID	**2**
	One-to-Many	**1**
	Available marks	**24**

Task	Answer	Marks
See Task 5 below for example of report		
5	**Report structure** Appropriate labelling for report title	**1**
	Grouped by destination	**1**
	Search Outstanding balance >0	**1**
	Correct calculated field /control	**1**
	Data sorted within group on outstanding balance…	**1**
	…into descending order	**1**
	Correct group totals	**1**
	Appropriate group total & grand total labels	**1**
	Correct grand total £22,390.00	**1**
	Candidate details on right at bottom of each page	**1**
	Correct data and all labels present and fully visible	**1**
	Available marks	**11**

Task 1

Conceptual ERD



Conceptual ERD contains entities/attributes with …		1 mark
	… no data type	1 mark
	… no key fields	1 mark
	… no field lengths	1 mark
	… drawn with rounded rectangles	1 mark
	5 entities	1 mark
	Entity names at top	1 mark
	… Teacher	1 mark
	… Class	1 mark
	… Lessons	1 mark
	… Link	1 mark
	… Student	1 mark
	Links shown between entities/attributes …	1 mark
	… Teacher-Lessons 1 to many	1 mark
	… Class-Lessons 1 to many	1 mark
	… Link-Lessons 1 to many	1 mark
	… Link-Students 1 to many	1 mark
Teacher entity	Teacher_ID / Payroll number	1 mark
	Name	1 mark
Class	Class_ID	1 mark
	Subject	1 mark
Lessons	Lesson_ID	1 mark
	Timetable slot	1 mark
	Class_ID	1 mark
	Teacher_ID	1 mark
Link	Link_ID	1 mark
	Lesson_ID	1 mark
	Student_ID	1 mark
Students	Student_ID	1 mark
	Forename	1 mark
	Surname	1 mark
All elements	Consistent case/structure	1 mark

Task 2

Trips table

Field	Data type	Field size	Other metadata – input mask, validation, default value etc.		
Student_ID	Alphanumeric/Text	7	Compound key		
Forename	Alphanumeric/Text				
Surname	Alphanumeric/Text				
Trip_ID	Alphanumeric/Text	3	Compound key	Validation - list of 6 trips	
Cost	Currency		2dp	Validation >0	
Paid	Currency		2dp	Validation >=0	
Destination	Alphanumeric/Text				

Data dictionary	Appropriate table name selected	1 mark
	Student_ID …	1 mark
	… Alphanumeric	1 mark
	… Length 7 characters	1 mark
Compound key	on Student_ID	1 mark
	on Trip_ID	1 mark
1NF	Name split into 2 fields	1 mark
	Forename	1 mark
	Surname/Family_Name	1 mark
	Both name fields alphanumeric	1 mark
	Trip_ID alphanumeric …	1 mark
	… Length 3 characters	1 mark
	Cost set as numeric/currency …	1 mark
	… with 2 decimal places	1 mark
	Paid set as numeric/currency with 2dp	1 mark
To Pay	data and field removed	1 mark
	At least 1 appropriate validation routine	1 mark

Task 3

Database structure: Flat file database

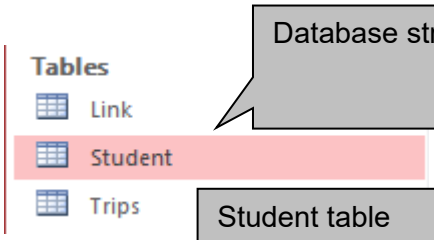
Trips

Field Name	Data Type
Student_ID	Short Text
Forename	Short Text
Surname	Short Text
Trip_ID	Short Text
Cost	Currency
Paid	Currency
Destination	Short Text

Database structure	Same table name	1 mark
	Fields match dictionary	1 mark
	Data types match	1 mark
	Field lengths match	1 mark
	Key fields match	1 mark
	269 records correctly imported	1 mark

Task 4

Relational database structure



Database structure	3 tables created	1 mark
	Students, Trips and Link table	1 mark
	Database saved as THS_3NF_ZZ999_9999	1 mark

Student table	Student_ID as primary key field	1 mark
	Only Student_ID, Forename, Surname	1 mark
	All data types alphanumeric	1 mark
	243 records correctly imported	1 mark

Student

Field Name	Data Type
Student_ID	Short Text
Forename	Short Text
Surname	Short Text

Link table	New ID field as primary key field	1 mark
	Only ID, Student_ID, Trip_ID, Paid	1 mark
	Student_ID alphanumeric & 7 characters	1 mark
	Trip_ID alphanumeric & 3 characters	1 mark
	Paid set as currency to 2dp	1 mark
	269 records correctly imported	1 mark

Link

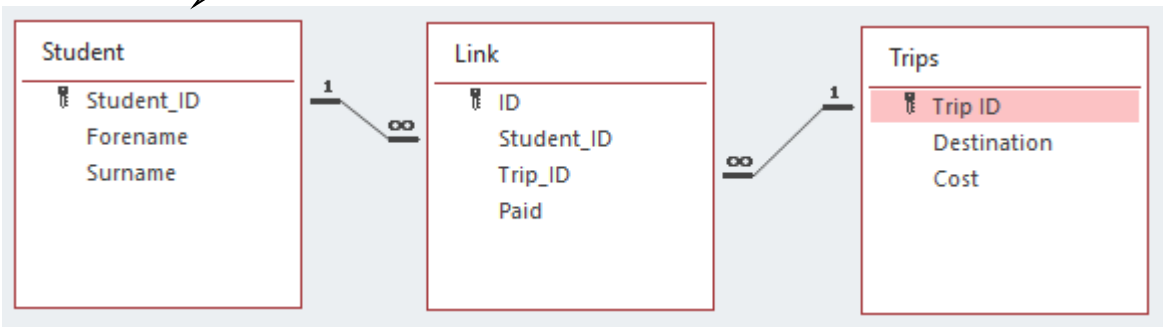
Field Name	Data Type
ID	AutoNumber
Student_ID	Short Text
Trip_ID	Short Text
Paid	Currency

Trip table	Trip_ID as primary key field	1 mark
	Only Trip_ID, Destination, Cost	1 mark
	Trip_ID & Destination alphanumeric	1 mark
	Cost set as currency to 2dp	1 mark
	6 records correctly imported	1 mark

Trips

Field Name	Data Type
Trip_ID	Short Text
Destination	Short Text
Cost	Currency

Relationships		
	Student.Student_ID to Link.Student_ID …	2 marks
	… One-to-Many	1 mark
	Trips.Trip_ID to Link.Trip_ID …	2 marks
	… One-to-Many	1 mark



Task 5

Report

Students with outstanding trip balances

Destination	Student_ID	Forename	Surname	Outstanding balance
Cambridge - population demography				
	THS0048	David	Ging	£560.00
		Yannick	Sommer	£560.00
	THS0235	Clemens	Thoeny	£380.00
	THS0109	Mattia	Kaufmann	£380.00
	THS0158	Suzanne	Miller	£380.00
	THS0244	Andri	Gunten	£310.00
	THS0272	Emilia	Leupp	£310.00
	THS0225	Moritz	Seidl	£310.00
	THS0157	Christian	Michlig	£310.00
	THS0107	Lara	Kaufmann	£310.00
	THS0194	Martin	Resch	£190.00
	THS0150	Fabian	Mayer	£130.00
	THS0002	Salma	Abdulrahman	£130.00
	THS0089	Tomas	Jacobs	£130.00
	THS0176	Lauren	Patel	£130.00
	THS0120	Lea	Kogler	£130.00
	THS0025	Toni	Fernandez	£70.00
	THS0156	Arda	Messerli	£70.00
	THS0203	Maximilian	Riegler	£70.00
Total balance outstanding for Cambridge - population demography				£7,250.00
Cambridge - river pollution				
	THS0247	Linda	Watson	£40.00
	THS0254	Johannes	Wieser	£480.00
	THS0134	Dominik	Lichty	£480.00
	THS0163	Nikos	Nicolaides	£480.00
	THS0228	TimSommer	£420.00	
	THS0145	Lorenz	Mair	£420.00
	THS0242	TimUnger	£360.00	
	THS0032	Amelie	Forrer	£360.00
	THS0197	Lina	Riedl	£360.00
	THS0221	Thomas	Schweiger	£300.00

Report structure	Appropriate labelling for report title	1 mark
	Grouped by Destination	1 mark
Search	Outstanding balance >0	1 mark

	Correct calculated field /control	1 mark
	Data sorted within group on outstanding balance …	1 mark
	…into descending order	1 mark

	Correct group totals	1 mark
	Appropriate group total & grand total labels	1 mark

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Destination	Student_ID	Forename	Surname	Outstanding balance
	THS0050	Mali	Gopaul	£300.00
	THS0039	Fabio	Fuchs	£300.00
	THS0084	Noah	Holler	£240.00
	THS0020	Holly	Chase	£180.00
	THS0003	Mohamed	Akula	£180.00
	THS0038	Alexander	Frueh	£180.00
	THS0263	Lara	Winter	£180.00
	THS0227	Daniu	Smith	£180.00
	THS0123	Julia	Konig	£180.00
	THS0143	Helena	Maier	£180.00
	THS0133	Jasmine	Lewis	£180.00
	THS0209	Sandy	Rydell	£120.00
	THS0239	Friederike	Trommler	£120.00
	THS0059	Alessandro	Haby	£120.00
	THS0201	Luca	Riegler	£60.00
	THS0117	John	Koch	£60.00
	THS0177	Peter	Perfection	£60.00
	THS0204	Alina	Rim	£60.00
	THS0034	Raphael	Friedl	£60.00
	Total balance outstanding for Cambridge - river pollution			£8,700.00
Cliff erosion				
	THS0029	Magdalena	Fink	£95.00
	THS0190	Markus	Reisinger	£95.00
	THS0172	Laura	Ortner	£95.00
	THS0205	Arda	Roser	£85.00
	THS0129	Elena	Laqua	£85.00
	THS0008	Lydia	Blenkinsop	£85.00
	THS0214	Isabella	Schneider	£85.00
	THS0231	Benjamin	Stager	£85.00
	THS0267	Andri	Wurgler	£85.00
	THS0001	Alice	Aebi	£75.00
	THS0042	Naomi	Gale	£75.00
	THS0192	Jakob	Reiter	£75.00
	THS0119	Tobias	Kofler	£65.00
	THS0013	Kamol	Brown	£65.00
	THS0004	Evert	Bayer	£65.00
	THS0068	Kilian	Hauser	£55.00
	THS0186	Camille	Ramseyer	£55.00
	THS0010	Livio	Bohm	£45.00
	THS0017	Saanvi	Campbell	£35.00
	THS0165	Arne	Nufer	£35.00
	THS0105	Marie	Karner	£35.00
	THS0072	Fatima	Hegde	£35.00
	THS0171	Pablo	Onyancha	£25.00

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Destination	Student_ID	Forename	Surname	Outstanding balance
	THS0065	Tobias	Hager	£25.00
	THS0212	Gunther	Schmitt	£15.00
	THS0261	Gabriel	Winkler	£15.00
	THS0265	Max	Winter	£15.00
	THS0249	Raphael	Weis	£15.00
			Total balance outstanding for Cliff erosion	£1,620.00
Mountain geology				
	THS0153	Marcel	Mayrhofer	£190.00
	THS0078	Mattia	Hofbauer	£190.00
	THS0049	Christoph	Gisi	£190.00
	THS0063	Ben	Haener	£190.00
	THS0062	Mia	Hackl	£190.00
	THS0081	Leonardo	Hofmann	£170.00
	THS0046	Annika	Ganz	£150.00
	THS0196	Duncan	Rhodes	£150.00
	THS0142	Dragos	Macdonald	£130.00
	THS0057	Lei	Gunn	£130.00
	THS0031	Florian	Fischer	£130.00
	THS0028	Leandro	Fink	£130.00
	THS0137	Eugenio	Lopez	£110.00
	THS0116	Mohamed	Khaled	£110.00
	THS0088	Clara	Isch	£110.00
	THS0022	Elliot	Cotterill	£110.00
	THS0124	Lisa	Konig	£90.00
	THS0037	Niklas	Fritz	£90.00
	THS0100	Valentina	Kainz	£90.00
	THS0218	Nico	Schober	£90.00
	THS0050	Mali	Gopaul	£70.00
	THS0082	Marlene	Hofmann	£50.00
	THS0092	Holly	Jenkinson	£50.00
	THS0198	Matteo	Riedl	£30.00
	THS0154	Nathan	Mayrhofer	£30.00
			Total balance outstanding for Mountain geology	£2,970.00
Sedimentary rivers I				
	THS0184	Pat	Pushing	£40.00
	THS0095	Kate	Jones	£40.00
	THS0233	Noah	Strobl	£40.00
	THS0114	Lukas	Kern	£40.00
	THS0141	Emma	Lutz	£40.00
	THS0101	Julian	Kaiser	£40.00
	THS0252	Fred	Wells	£30.00
	THS0171	Pablo	Onyancha	£30.00
	THS0009	Julian	Bohm	£30.00
	THS0148	Manuel	Maurer	£30.00

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Destination	Student_ID	Forename	Surname	Outstanding balance
	THS0136	Valentin	Lindner	£30.00
	THS0127	Jonathan	Krenn	£30.00
	THS0207	Karl	Roth	£30.00
	THS0253	Chloe	Weston	£30.00
	THS0257	Valerie	Wiesinger	£30.00
	THS0116	Mohamed	Khaled	£30.00
	THS0080	Viktoria	Hoffmann	£30.00
	THS0103	Matteo	Kaiser	£30.00
	THS0166	Emely	Oberlin	£30.00
	THS0128	Johanna	Lackner	£30.00
	THS0077	Luca	Hofbauer	£20.00
	THS0014	Jana	Brunner	£20.00
	THS0082	Marlene	Hofmann	£20.00
	THS0086	Bex	Hull	£20.00
	THS0001	Alice	Aebi	£20.00
	THS0215	Olga	Schneider	£20.00
	THS0250	Jonas	Weiss	£20.00
	THS0259	Yo-Yo	Williams	£20.00
	THS0270	Livio	Kaiser	£20.00
	THS0206	Karl	Roth	£20.00
	THS0109	Mattia	Kaufmann	£10.00
	THS0066	Lotte	Hall	£10.00
	THS0053	Adi	Green	£10.00
	THS0016	Chaka	Burke	£10.00
	THS0108	Luca	Kaufmann	£10.00
	THS0243	Lauren	Vercoe	£10.00
	THS0228	Tim	Sommer	£10.00
	THS0106	Nico	Karner	£10.00
		Total balance outstanding for Sedimentary rivers I		£940.00
Sedimentary rivers II				
	THS0085	Samuel	Horvath	£42.00
	THS0006	Friedhelm	Beyer	£42.00
	THS0164	Liam	Norfolk	£42.00
	THS0173	Luis	Ortner	£42.00
	THS0181	Leon	Posch	£42.00
	THS0191	Nico	Reisinger	£42.00
	THS0019	Sara	Charles	£42.00
	THS0185	Oliver	Rainer	£42.00
	THS0073	Anna-Lena	Hegler	£32.00
	THS0216	Leon	Schober	£32.00
	THS0156	Arda	Messerli	£32.00
	THS0249	Raphael	Weis	£32.00
	THS0094	Dawid	Jones	£32.00
	THS0078	Mattia	Hofbauer	£32.00

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Destination	Student_ID	Forename	Surname	Outstanding balance
	THS0045	Emily	Gantert	£32.00
	THS0021	Louis	Claes	£32.00
	THS0079	Thomas	Hoffmann	£32.00
	THS0159	Simon	Mullner	£22.00
	THS0010	Livio	Bohm	£22.00
	THS0036	Matteo	Fritz	£22.00
	THS0052	Pia	Grabner	£22.00
	THS0118	Sophia	Kofler	£22.00
	THS0217	Maria	Schober	£22.00
	THS0199	Nina	Riedl	£22.00
	THS0271	Sarah	Klein	£12.00
	THS0260	Jasmin	Wimmer	£12.00
	THS0251	Gerhardt	Weissmuller	£12.00
	THS0222	Vanessa	Schweiger	£12.00
	THS0219	Nora	Schwaiger	£12.00
	THS0135	Sophie	Lindner	£12.00
	THS0007	Adrian	Bircher	£12.00
	THS0087	Selina	Hutter	£12.00
	THS0072	Fatima	Hegde	£12.00
	THS0033	Sebastian	Frank	£12.00
	THS0151	Jan	Mayr	£12.00
			Total balance outstanding for Sedimentary rivers II	£910.00
			Total amount outstanding	£22,390.00

Correct grand total 1 mark

Candidate details on right at bottom of each page 1 mark
Correct data and all labels present and fully visible 1 mark

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