

**Advanced Subsidiary GCE**

**F793**

**GEOLOGY**

Unit F793: Centre-based Task

**Specimen Task**

**For use from September 2008 to June 2009.**

**All items required by teachers and candidates for this task are included in this pack.**

**INFORMATION FOR CANDIDATES**

- Centre-based Task

**INFORMATION FOR TEACHERS**

- Mark scheme.
- Instructions for Teachers and Technicians.

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**Advanced Subsidiary GCE  
GEOLOGY**

## F793

Unit F793: Centre-based Task

### Specimen Task

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Candidates answer on this task sheet.

Additional Materials:

- sieve stack
- electronic balance to 1dp or measuring cylinders
- sediment sample
- calculator
- protractor
- ruler

### INSTRUCTIONS TO CANDIDATES

- Answer **all** parts of the task.

### INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each part of the task.
- The total number of marks for this task is **20**.

### ADVICE TO CANDIDATES

- Read each part carefully and make sure you know what you have to do before starting your answer.

#### FOR TEACHER'S USE

Part	Max.	Mark
1	5	
2	10	
3	1	
4	4	
<b>TOTAL</b>	<b>20</b>	

This task consists of **9** printed pages and **1** blank page.

- 1 The geological map on the insert shows a deformed sequence of sedimentary rocks with igneous rocks and unconformities.

A sample of the unconsolidated sand and gravel shown in the south of the map has been collected for you. You will need to sieve this through a sieve stack in order to determine the environment in which it is likely to have formed. Use a representative 100g sample from the sediment provided.

- (a) Record your results in a table below

[3]

Sieve number / size	sediment in g	% of sediment

- (b) (i) Study sediment from the coarsest sieve and observe any differences in composition and colour from material in a finer sieve.

sediment from coarse sieve grain composition and colour	sediment from finer sieve grain composition and colour

[1]

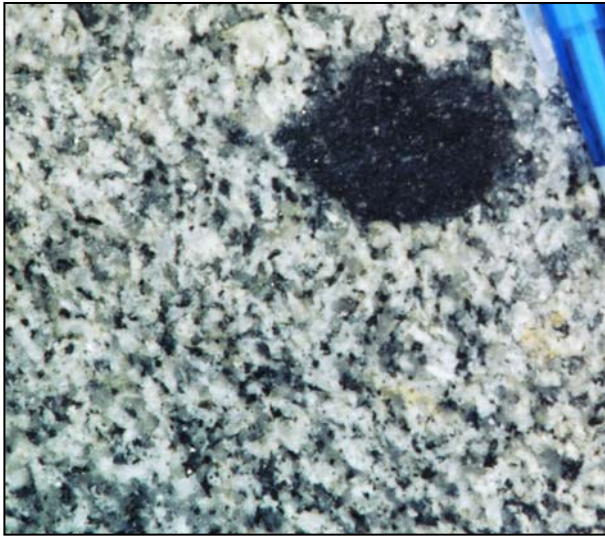
- (ii) Study sediment from the coarsest sieve and observe any differences in grain shape from material in a finer sieve.

sediment from coarse sieve grain shape	sediment from finer sieve grain shape

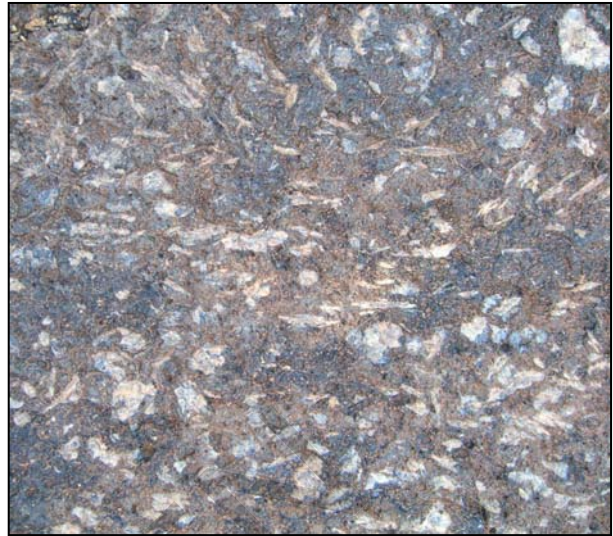
[1]

2 (a) Outcrops of both granite and quartz porphyry are shown on the geological map. Use the photographs below to help you answer the questions.

granite



quartz porphyry



0 20 mm

(i) Measure the maximum size of the xenolith in the granite.  
..... mm

Measure the maximum size of the white crystals in the porphyry.  
..... mm [1]

(ii) Describe the textures of the rocks shown in the photographs.  
granite .....  
.....  
quartz porphyry .....  
..... [1]

(iii) Explain how the xenolith in the granite formed.  
.....  
.....  
.....  
..... [1]

(b) Mark and label on the geological map

- the chilled margin of the granite
- the metamorphic aureole
- the axial plane trace for both the folds
- the older unconformity.

[2]

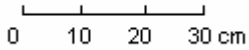
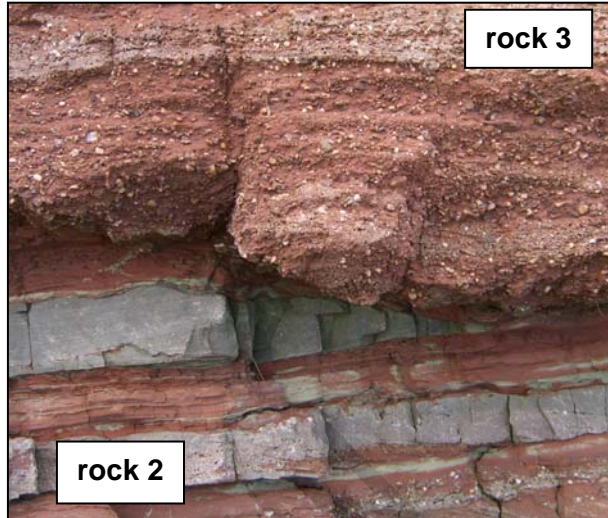
[Turn Over

(c) The photographs below show three of the rocks labelled in the key to the map. Both the vertical and horizontal scales are the same.

rock 1



rocks 2 and 3



(i) Describe and identify the rocks above using measurements and observations from the photographs.

rock 1 identification .....

rock 1 description .....

.....

.....

.....

rock 2 identification .....

rock 2 description .....

.....

.....

.....

rock 3 identification .....

rock 3 description .....

.....

.....

..... [3]

**(ii)** Describe a possible environment in which the rocks shown were deposited. Give reasons, using your observations from the photographs, for your answers.

.....  
.....  
.....  
.....  
..... [1]

**(d)** Using the observations of your sieved sediment sample is the environment in which the sediment formed similar to the environment in which rocks 1, 2 and 3 formed? Give reasons for your answers.

.....  
.....  
.....  
.....  
..... [1]

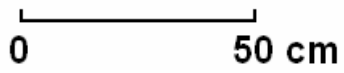
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3 In the space below, draw a fully labelled sketch to show measurements and observations of the structural features shown on the photograph.

West

East



West

East



[4]



4 Describe hazards that may be encountered in the field when making observations and taking measurements in the area where the photograph for question 3 was taken.

.....  
.....  
.....  
.....  
..... [1]

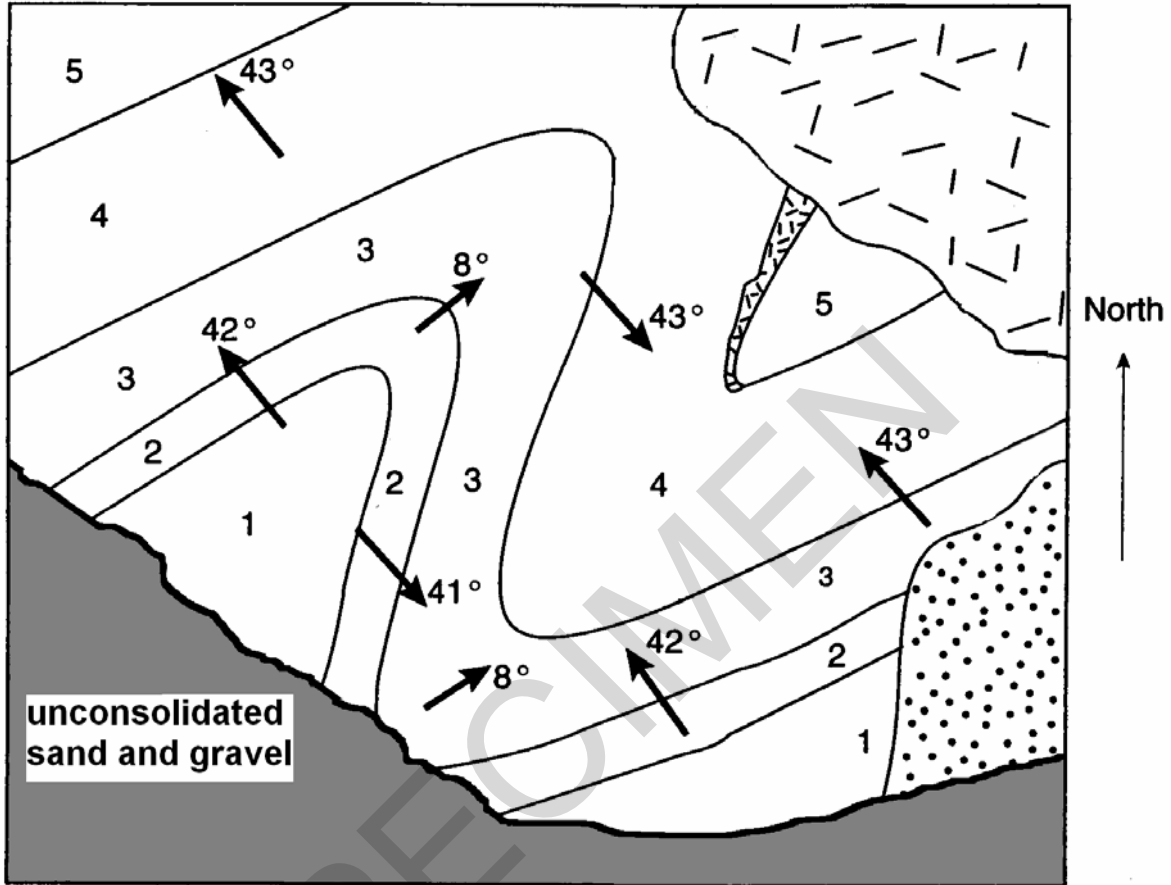
**Total [20]**

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**[Turn Over**

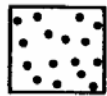
Insert

Geological Map for use in all questions.



Key

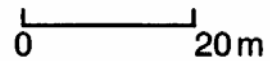
5	youngest
4	
3	
2	
1	oldest



sandstone



quartz porphyry



unconsolidated sand and gravel



granite

END OF TASK

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The maximum mark for this task is **20**.

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Question Number	Answer	Max Mark
1(a)	table of results completed for sample provided by centre sieving carried out accurately results recorded correctly % calculated	[1] [1] [1]
1(b)(i)	colour and composition of sample fractions observed accurately	[1]
1(b)(ii)	grain shape of sample fractions observed accurately	[1]
2(a)(i)	measuring crystal sizes: xenolith 35 mm phenocrysts 8 mm	[1]
2(a)(ii)	textures described: granite equigranular and coarse quartz porphyry porphyritic with phenocrysts of white crystals and fine groundmass	[1]
2(a)(iii)	fragments of country rock partially assimilated / fell into magma / by stoping	[1]
2(b)	chilled margin within granite at edge aureole outside granite edge parallel to granite must stop before u/c axial plane trace in centre of both folds running NE – SW Unconformity on edge of sandstone in SE of map	[1] [1] [1]
2(c)(i)	rock 1 rounded particles, up to 30 mm in size, poorly sorted, red matrix so conglomerate	[1]
	rock 2 fine grained, beds of grey and red clay with some green/ grey reduction spots, up to 15 mm thick, jointed	[1]
	rock 3 sub rounded pebbles, in red matrix, poorly sorted, pebbly sandstone, bedded, base of bed is cross cutting / unconformable	[1]
2(c)(ii)	fluvial / river environment as coarse channel sands, fine flood plain clays. Rock 1 is the oldest in core of anticline	[1]
2(d)	sample sediment as chosen by centre may be dune or beach or glacial should be chosen to be different from fluvial sand in photo	[1]
3	dip of lower and upper limbs 25°, axial plane near horizontal, recumbent fold, fold is tight / closed, small fault at crest with displacement of 10 cm, competent beds (sandstone) jointed – tension joints, white mineral veins along joints, shale bed plastic - varies in thickness, cleavage planes in shale parallel to axial plane (4 marks for clear, recognisable features drawn with minimum of 6 labelled, 3 marks for recognisable features drawn with minimum of 4 labelled, 2 marks for recognisable features drawn with minimum of 2 labelled, 1 mark for recognisable features drawn with minimum of 1 labelled)	[4]
4	overhang / falling rock - helmets	[1]
	<b>Total</b>	<b>[20]</b>



**Oxford Cambridge and RSA Examinations  
Advanced Subsidiary GCE**

**GEOLOGY**

**F793**

Unit F793: Centre-based Task

**Instructions for Teachers and Technicians**

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**This task relates to Module 2 and 3 of Unit F792 and Module 4 of Unit F791. There is no time limit but it is expected that it can be completed within one timetabled session.**

It is assumed that you will have completed the teaching of the above module before setting your students this task. This module has links to other modules which contain related learning experiences – please refer to your specification.

Candidates may attempt more than one Centre-based Task with the best mark from this type of task being used towards the overall mark for Unit F793.

### **Preparing for the assessment**

It is expected that before candidates attempt Centre-based Task (Unit F793) they will have had some general preparation in their lessons. They will be assessed on a number of skills such as demonstration of skilful and safe practical techniques using suitable qualitative methods, the ability to make and record valid observations, and the ability to organise results suitably. It is therefore essential that they should have some advance practice in these areas so that they can maximise their attainment.

### **Preparing candidates**

At the start of the task the candidates should be given the task sheet.

Candidates must work on the task individually under controlled conditions with the completed task being submitted to the teacher at the end of the lesson. Completed tasks should be kept under secure conditions until results are issued by OCR.

Candidates should not be given the opportunity to redraft their work, as this is likely to require an input of specific advice. If a teacher feels that a candidate has under-performed, the candidate may be given an alternative task. In such cases it is essential that the candidate be given detailed feedback on the completed assessment before undertaking another Centre-based Task. Candidates are permitted to take each task **once** only.

### **Assessing the candidate's work**

The mark scheme supplied with this pack should be used to determine a candidate's mark out of a total of 10 marks. The cover sheet for the task contains a grid for ease of recording marks. To aid moderators it is preferable that teachers mark work using red ink, including any appropriate annotations to support the award of marks.

### **Notes to assist teachers with this task**

Teachers must trial the task before candidates are given it, to ensure that the apparatus, materials, chemicals etc provided by the centre are appropriate. The teacher carrying out the trial must complete a candidate's task sheet showing the results obtained, and retain this, clearly labelled, so that it can be provided to the moderator when requested.

### **Health and Safety**

Attention is drawn to Appendix C of the specification.