GCE AS MARKING SCHEME

AUTUMN 2020

AS
GEOLOGY - COMPONENT 1
B480U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2020 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCE AS GEOLOGY

COMPONENT 1 - GEOLOGICAL ENQUIRIES

AUTUMN 2020 MARK SCHEME

Specimens

Specimen C = Conglomerate
Specimen D = Basalt
Specimen G = Gneiss
Specimen H = Coral

Instructions for examiners of A Level Geology when applying the mark scheme

1 Positive marking

It should be remembered that candidates are writing under examination conditions and credit should be given for what the candidate writes, rather than adopting the approach of penalising him/her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Worthwhile answers that meet the requirements of the question, but do not appear on the mark scheme are to be given credit.

2 Tick marking

Low tariff questions should be marked using a points-based system. Each credit worthy response should be ticked in red pen. The number of ticks must equal the mark awarded for the sub-question. The mark scheme should be applied precisely using the marking details box as a guide to the responses that are acceptable. Do not use crosses to indicate answers that are incorrect.

3 Annotated diagrams

Where a candidate has answered a question wholly or partly by use of an annotated diagram, credit must be awarded to the annotations which form credit-worthy responses as outlined in the marking details box. Candidates must be credited only once for valid responses which appear both as annotations to diagrams and within a section of prose in the answer to the same question.

4. Banded mark schemes

Banded mark schemes are divided so that each band has a relevant descriptor. The descriptor for the band provides a description of the performance level for that band. Each band contains marks. Examiners should first read and annotate a learner's answer to pick out the evidence that is being assessed in that question. **Do not use ticks** on the candidate's response. Once the annotation is complete, the mark scheme can be applied. This is done as a two stage process.

Stage 1 – Deciding on the band

When deciding on a band, the answer should be viewed holistically. Beginning at the lowest band, examiners should look at the learner's answer and check whether it matches the descriptor for that band. Examiners should look at the descriptor for that band and see if it matches the qualities shown in the learner's answer. If the descriptor at the lowest band is satisfied, examiners should move up to the next band and repeat this process for each band until the descriptor matches the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the learner's response should be used to decide on the mark within the band. For instance if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content.

Examiners should not seek to mark candidates down as a result of small omissions in minor areas of an answer.

Stage 2 – Deciding on the mark

Once the band has been decided, examiners can then assign a mark. During standardising (marking conference), detailed advice from the Principal Examiner on the qualities of each mark band will be given. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a learner's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

Indicative content is also provided for banded mark schemes. Indicative content is not exhaustive, and any other valid points must be credited. In order to reach the highest bands of the mark scheme a learner need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
1	(a)	(i)	**Any two x (1) from:** • granular • rounded/oval grains • appropriate scale (0.5-2mm) • well sorted	2			2		2
		(ii)	x30 magnification and grain is approx. 6cm wide so: 6/30 (1) 0.2cm or 2mm (1)		2		2	2	2
	(b)		**Any three x (1) from:** • cement present • cement in pore spaces • precipitation from fluids • reference to lithification		3		3		
			Question 1 total	**2**	**5**	**0**	**7**	**2**	**4**

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
2	(a)	(i)	grains drawn rounded/subrounded (1) size of grains coarse (between 2mm and 4 cm) (1) poorly sorted (1)		3		3	1	3
		(ii)	Conglomerate (1)	1			1		
	(b)		High energy (1) **Any two x (1) from:** • coarse • poorly sorted/ matrix supported • rapid deposition/ sudden drop to lower energy • rounded/ subrounded		3		3		
			Question 2 total	**1**	**6**	**0**	**7**	**1**	**3**

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
3	(a)	(i)	Drawn to correct scale (1) Round shape of coral (1) Detail (septa drawn) (1)		3		3	1	3
		(ii)	Septa correctly labelled (1)	1			1		1
	(b)		**Indicative content** Photograph 1 is of an oolitic limestone which forms in shallow tropical/ subtropical marine, as does a coral. Both oolitic limestone and coral formed from calcium carbonate so could be the same carbonate-rich environment. Ooliths suggest a current, with the rounded grains showing oscillations/ wave action indicating shallow marine. Coral is colonial suggesting higher energy, which implies wave action so could be the same environment. Coral found in conglomerate so did not form in this environment (conglomerates form in rivers, beaches). Conglomerate is older than limestone so fossil cannot have come from photograph 1- limestone was deposited after the conglomerate. Conglomerate is older than limestone because it is underneath limestone on Map 1. Coral must be a derived fossil.			6	6		

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
			5-6 marks A thorough answer. This response relates to both environments of deposition and age relationships. Response has strong explanation and description. *There is a sustained line of reasoning which is coherent, substantiated and logically structured. The information included in the response is relevant.* **3-4 marks** A sound answer. The response relates to environments of deposition and age relationships. Response lacks full explanation, focusing more on description. *There is a line of reasoning which is partially coherent, supported by some evidence and with some structure. Mainly relevant information is included but there may be some irrelevant information or minor errors*. **1-2 marks** A brief answer. The response refers to one of environments of deposition or age relationships. *There is a basic line of reasoning which is not coherent, supported by limited evidence and with very little structure. There may be significant errors or the inclusion of much irrelevant information.* **0 marks** No attempt made or no response worthy of credit						
			Question 3 total	**1**	**3**	**6**	**10**	**1**	**4**

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
4	(a)	(i)	Columnar Jointing	1			1		
		(ii)	Three appropriate measurements (1) e.g. 3.5, 3.7, 2.8 3 Measurement given (must include units in mm, cm or m) 830 mm, 83 cm, 0.83m (1)		2		2	2	2
		(iii)	5-7 sided shapes (1) Irregular formation i.e. not all hexagons with the same lengths of sides (1)		2		2	1	2
		(iv)	**Annotations to include any two x (1) from:** • lava/ magma cooling • contraction of lava/ magma as it cools • joints form from contraction/ tension • contract towards central cooling nucleus • random centres of contraction hence why joint pattern is not similar and symmetrical.	2			2		2

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
	(b)	(i)	Fine grained (1) Mafic/ dark in colour (1)	2			2		2
		(ii)	Basalt (1)	1			1		1
	(c)		Grid reference between 843 and 845, and 472 and 474 (in correct order) (1) **Any two x (1) from:** • base of D • beds dipping at 60° to south • limestone and conglomerate boundary • marble is contact metamorphosed limestone		3		3	1	3
			Question 4 total	**6**	**7**	**0**	**13**	**4**	**12**

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
5	(a)		Rock Unit G has foliation (1) Specimen G shows gneissose banding (1)		2		2		2
	(b)		Sequence of C, B, F is correct as oldest rock is in the centre of an anticline/ rocks dip towards youngest rocks (1) G is a regionally metamorphic rock (reference to foliation on map or description of qualities in specimen G), whereas C, B and F are sedimentary (1) G must be older as the other 3 rocks have not been metamorphosed (1) Credit reference to answers that discuss possibility that beds C, B, F are inverted			3	3		3
			Question 5 total	**0**	**2**	**3**	**5**	**0**	**5**

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
6	(a)		F1 F2 F3 Upwards (1) 90° (1) Strike-Slip (1) Normal (1)		4		4		4
	(b)		F1 is younger than the Rock Unit A and F3 (1)		1		1		1
			Question 6 total	**0**	**5**	**0**	**5**	**0**	**5**

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
7			Correct plot of pluton (1)		1		13	13	13
			Metamorphic aureole (1)		1				
			F1 at correct location and direction (1)		1				
			F2 at correct location, angle and direction (1)		1				
			Base of unconformity correct location and dip (1)		1				
			D/E boundary correct location and dip (1)		1				
			N limb of synform (boundaries of F-B and B-C in correct location and dipping at 60° towards Y) (1)			1			
			S limb of synform (boundaries of F-B and B-C in correct location and dipping at 30° towards X) (1)			1			
			N limb of antiform (boundaries of F-B and B-C in correct location and dipping at 30° towards X) (1)		1				
			S limb of antiform (boundaries of F-C and B-C in correct location and dipping at 60° towards Y) (1)			1			
			Synform correctly drawn and labelled (1)			1			
			Antiform correctly drawn and labelled (1)			1			
			Correct cross-cutting relationship of F2 with unconformity and/or with F1 (1)			1			
			Question 7 total	**0**	**7**	**6**	**13**	**13**	**13**
			Totals	**10**	**35**	**15**	**60**	**21**	**46**