Surname	Centre Number	Candidate Number		
First name(s)		2		



GCE AS

B480U20-1



THURSDAY, 26 MAY 2022 - MORNING

GEOLOGY – AS component 2 Foundation Geology

1 hour 30 minutes

For Examiner's use only					
Question	Maximum Mark	Mark Awarded			
1.	13				
2.	14				
3.	20				
4.	15				
5.	13				
6.	15				
Total	90				

ADDITIONAL MATERIALS

In addition to this examination paper, you will need:

• a calculator

• a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page. Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question. The assessment of the quality of extended response (QER) will take place in questions **3** and **5**.















Turn over.

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(c)	(i)	Usii and	ng Figure 2b , comp I grain B were depo	olete Table 2 showir sited.	ng the flow velocitie	s at which grain <i>i</i>	4 [1]	Examine only	r
			Grain	Size (mm)	Flow velocity at deposition (cm s ⁻¹)				
			А	3	•				
			В	11	•				
				Table 2					
	(ii)	Sta velo	te two features of g ocity at which a grai	rains, other than grains, other than grant and the second se	ain size, which migh	affect the flow	[2]		
		1.							
(d)	Expl	2. ain th	ne processes which	could erode and tra	ansport grain B .		[4]		B480U201 07
]
								14	



Turn over.



Examiner (ii) Using Figure 3a, calculate the percentage lithospheric thickening beneath point only X. Show your working. [2] (iii) With reference to Figure 3b, estimate the depth at which the model predicts granite will begin to melt. [2] With reference to Figure 3a and Figure 3b, explain the presence of granitic (iv) intrusions in orogenic belts. [4] Figure 3c is a metamorphic rock found at location Y in Figure 3a. cleavage planes 5 0 cm Figure 3c

9

(b) (i) State the name of the rock shown in **Figure 3c**.



[1]

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Examiner Explain the conditions which lead to the formation of the rock shown in Figure 3c. (ii) only [3] With reference to **Figure 3a** evaluate the statement 'the type of crustal deformation that occurs in collision zones is controlled **solely** by temperature'. [6 QER] (C) [6 QER] 20







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(c) Earlier in 2018 the Hawaiian volcano Kilauea, which is located in an intraplate setting, erupted. With reference to Figure 5a and the tectonic setting of both volcanoes, explain why the eruption in Hawaii was less explosive than that at Anak Krakatoa. [6 QER]	Exa o



Turn over.

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Examiner Refer to Figure 6a and Figure 6b. only Describe the texture of rock X in Figure 6b. (a) (i) [3] (ii) State the name of rock X. [1] Explain the processes that lead to the formation of boundary R shown in Figure 6a. [3] (b) (i) State the type of fault shown by fault **F1**. Give a reason for your answer. (C) [2] Calculate the vertical displacement of fault F2. Show your working. (ii) [2] (d) 'Fault F1 and fault F2 were formed by the same tectonic forces at the same time.' Evaluate this statement. [4] 15 **END OF PAPER**



Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examine only
		1
	······	



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Acknowledgements

- Figure 1a https://fineartamerica.com/featured/
- Figure 1b ESEU https://www.earthscienceeducation.com/
- Table 1grain A https://www.flickr.com/photos/udgeology/2315098493
- Figure 2a adapted from https://www.soinc.org/sites/default/files/uploaded_files/ MineralIDChartRM2013.pdf
- Figure 3c ESEU https://www.earthscienceeducation.com/

Figure 5a Google Earth

- Figure 5b https://www.bbc.co.uk/news/science-environment-46743362
- Figure 6b ESEU https://www.earthscienceeducation.com/





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