

SECTION B

Questions 5 - 8 relate to the **British Geological Survey 1:50,000 Geological Map** extract of **Hawes**.

Answer **all** questions in the spaces provided.

This Section should take approximately 1 hour to complete.

5. The **Geological Map** shows both the **solid** formations and **drift** deposits.

(a) (i) Explain what is meant by a **drift** deposit. [1]

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(ii) Name the type of drift deposit covering the greatest area of the **Geological Map**. [1]

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(iii) Complete the table below to indicate the probable order of superposition of the solid formation and drift deposits in Chapel-le-Dale at grid reference **(GR) 724760**. [2]

3. Youngest	•
2.	•
ROCK HEAD	
1. Oldest	•

(b) With reference to the Kingsdale valley (**GR 700770**), and valley sides describe and explain

(i) the distribution of alluvium; [2]

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(ii) the outcrop pattern of Carboniferous strata. [2]

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Total 8 marks

6. **Figure 6** is a field sketch of the spring line junction at the base of the Carboniferous Garsdale Limestone (GL).

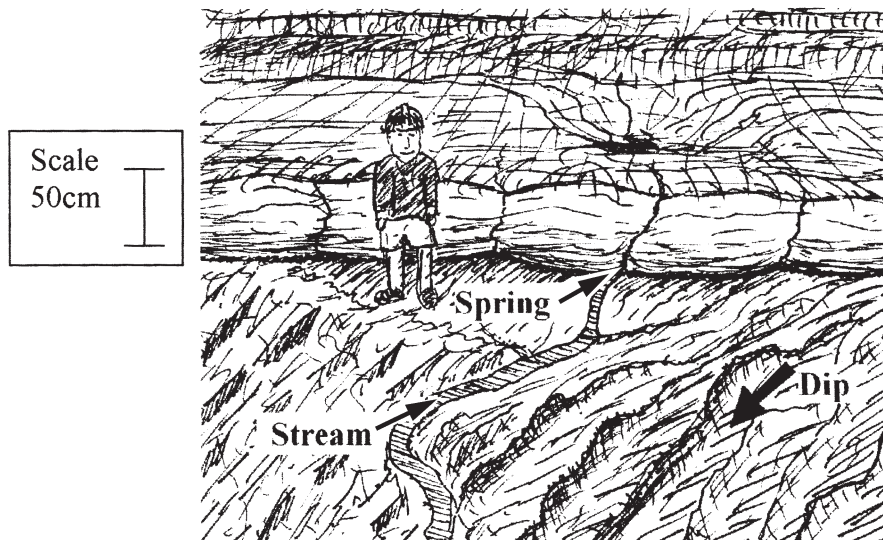


Figure 6

- (a) Refer to the **Geological Map** and **Figure 6**.

- (i) Identify, with a tick in the appropriate box, at which of the following locations the sketch was drawn. Explain your answer. [2]

Location grid reference	Orientation	Tick ONE box below
A. 695750	Looking NE	
B. 710753	Looking NW	
C. 717748	Looking SW	

Explanation

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- (ii) Label the field sketch to show details of significant **geological** features. [3]

- (iii) Give a geological explanation for the presence of a spring at this junction. [3]

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Total 8 marks

7. (a) Refer to the **Geological Map** and **Section**.(i) Describe the general trend of faulting on the **Geological Map**.

[1]

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(ii) Complete the table below to identify the characteristics of the following faults:

1. RF Hollintree Fault (Grid Square **6972**)2. South Craven Fault (Grid Square **6973**).

[6]

Fault characteristics	RF Hollintree Fault		South Craven Fault	
Dip direction and angle (degrees)	Direction SW	Angle (degrees) 74	Direction •	Angle (degrees) 82
Downdip direction	N.E		•	
Throw (in metres)	•		No data	
Orientation (direction) of the maximum principal stress component (σ_{\max})	•		Not required	
Fault type	•		•	

(b) (i) Describe the geological structure between the RF Hollintree Fault and the South Craven Fault.

[1]

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(ii) Using evidence from the **Geological Map** and **Section**, explain why the altitude of the land surface to the south of the South Craven Fault is generally lower than the altitude to the north.

[2]

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Total 10 marks

8. (a) The River Doe valley could be developed as a reservoir behind a dam located below Twisleton Scar End (GR 706753) and White Scars (GR 714744). **Figure 8** is a topographic section along the line of this possible dam site showing the estimated height of a reservoir.

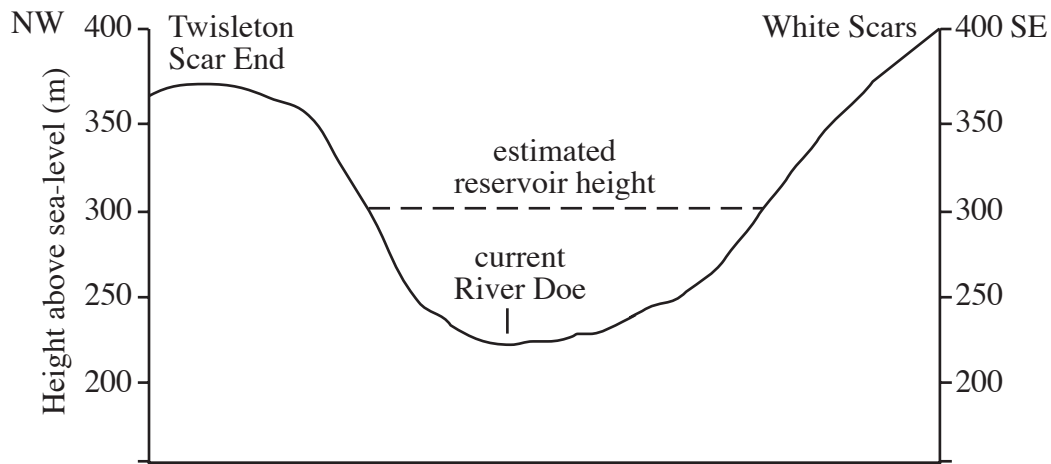


Figure 8

Refer to the **Geological Map** and **Section**.

- (i) Mark and label on **Figure 8** the base of the Garsdale Limestone (**GL**) that crops out at 250m in the Doe valley. [1]
- (ii) Describe the structure of the **solid** geology of the River Doe valley and sides from the dam site, NE to **Chapel-le-Dale** (GR 740772). [3]

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- (b) Assess the **geological** implications of developing the River Doe valley as a reservoir. (You should consider the **geological** suitability of both the dam and reservoir sites and refer to data given in previous questions in Section B). [6]

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Total 10 marks
Turn over.

