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Geological Survey of the United States, Department of the Interior

[illegible]

(While every effort is made to ensure fairness and reliability, costs, timing and other influences are requested to notify the Chief Executive, Survey and Mapping.)

[illegible]

FIGURE 3: GENERAL INFORMATION ON HUMANSDORP

Humansdorp is a small town, including the surrounding district, in the Eastern Cape of South Africa, with a population of around 29 000 according to the census of 2011. It is part of the Kouga Local Municipality of the Sarah Baartman District. The town is the centre of the district's light industry and farming. Humansdorp was founded in 1849 and was named after Johannes Jurie Human and Matthys Gerhardus Human. The town's residential streets are lined with trees that were planted before the First World War by the then mayor, Ambrose Saffery. The Apple Express passes through Humansdorp.



QUESTION 3

3.1 MAPWORK CALCULATIONS AND TECHNIQUES

3.1.1 Choose the correct word/phrase between brackets.

(a) The contour interval of the orthophoto map is (20 metres/5 metres).
(1 x 1) (1)

(b) The 1: 50 000 scale of the topographic map is 5 times
(larger/smaller) than the 1: 10 000 scale of the orthophoto map.
(1 x 1) (1)

- (c) The feature found at grid location $34^{\circ}04'55''\text{S}/24^{\circ}45'57''\text{E}$ is a (dam/trigonometrical beacon). (1 x 1) (1)

3.1.2 Refer to the feature numbered 1 on the orthophoto map.

Calculate in km^2 , the area of the feature numbered 1 on the orthophoto map. Show ALL calculations. Marks will be awarded according to your calculations. (4 x 1) (4)

3.1.3 Refer to block A5 on the topographic map.

- (a) Calculate the difference in height between spot height 209 and trigonometrical beacon number 139. (2 x 1) (2)

- (b) Is the slope steep or gentle between the two points named in QUESTION 3.1.3 (a)? (1 x 1) (1)

3.2 MAP AND PHOTO APPLICATION AND INTERPRETATION

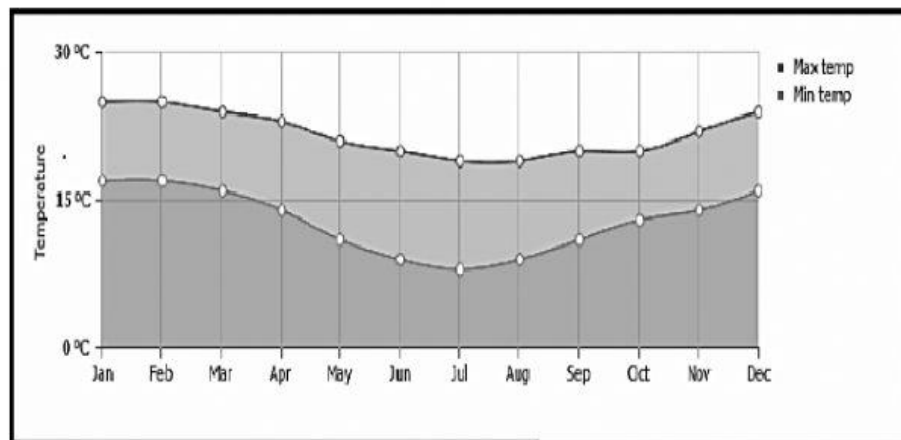
3.2.1 Refer to both the topographical and orthophoto map.

- (a) Identify the human-made feature found between points marked 3 and 4. (1 x 1) (1)

- (b) Name the river that joins the ocean in block I6. (1 x 1) (1)

- (c) What is the source of the water found in block B2? (1 x 1) (1)

FIGURE 3.2.2: TEMPERATURE GRAPH OF JEFFREY'S BAY



3.2.2 Study the temperature graph of Jeffreys Bay, FIGURE 3.2.2 together with block **C/D11** on the topographic map.

(a) State the month with the minimum temperature. (1 x 1) (1)

(b) In which month was the lowest monthly temperature range recorded? (1 x 2) (2)

3.2.3 Describe how excavation in block **B6** can be harmful to the environment and human activity (2 x 2) (4)

3.2.3 Suggest ONE reason why the people of KwaNomzamo settlement would consider the dams in block **C3** as a threat to their lives during flooding. (1 x 2) (2)

3.3 GIS

3.3.1 Write the acronym GIS in full. (1 x 1) (1)

3.3.2 Is the orthophoto map an example of a vertical or an oblique photograph? (1 x 1) (1)

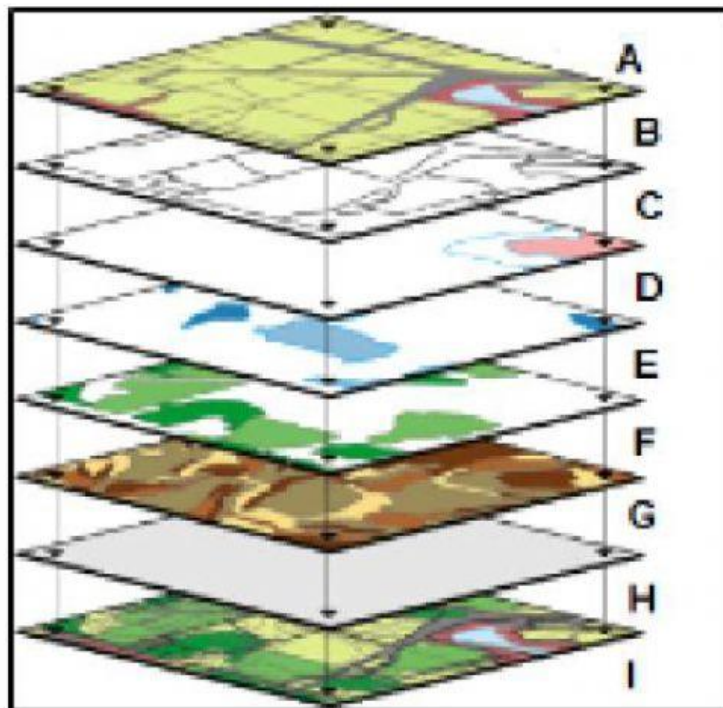
3.3.3 Refer to block C3 on the topographic map. Classify the following features under **node** (point), **linear** (line) and **polygon** (area).

Mark with an x in the correct classifying blocks

FEATURE	NODE	LINEAR	POLYGON
Cultivated land			
Reservoir			
Main road			

(3 x 1) (3)

FIGURE 3.3.4: DATA LAYERS



A	Topographic base
B	Pathway
C	Zoning
D	Floodplains
E	Wetlands
F	Land cover
G	Soils
H	Survey control
I	Composite overlay

3.3.4 Study the diagram in FIGURE 3.3.3 that shows data layers together with block D2.

(a) In GIS data layers are called ... (1 x 1) (1)

(b) Explain the importance of using GIS in today's fast-changing world. (1 x 2) (2)
[30]