

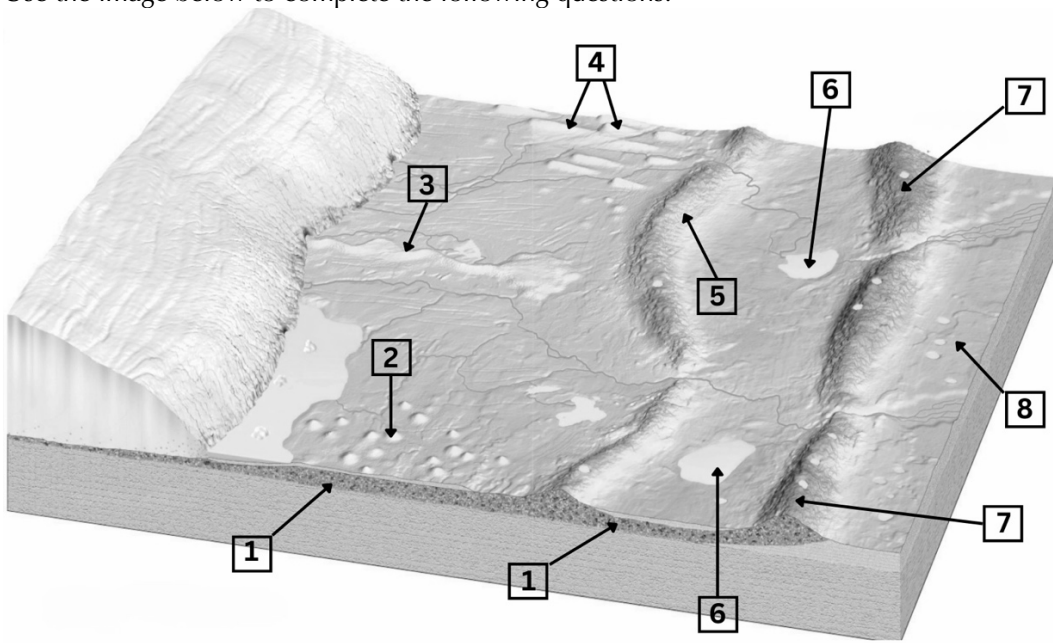


General instructions –

Respond to each of examination questions in the space provided on the Answer Document. **Only answers written in the appropriate space on the Answer Document will be marked.** Images for the exam are on the Resource Document – refer to them when necessary to respond to questions. Where appropriate, you should write sentences or phrases instead of single words. If a question or section asks for a specific number of reasons or answers, give only the number of answers specified. Please write clearly and legibly.

Section 1 – Glacial Landforms [23 points]

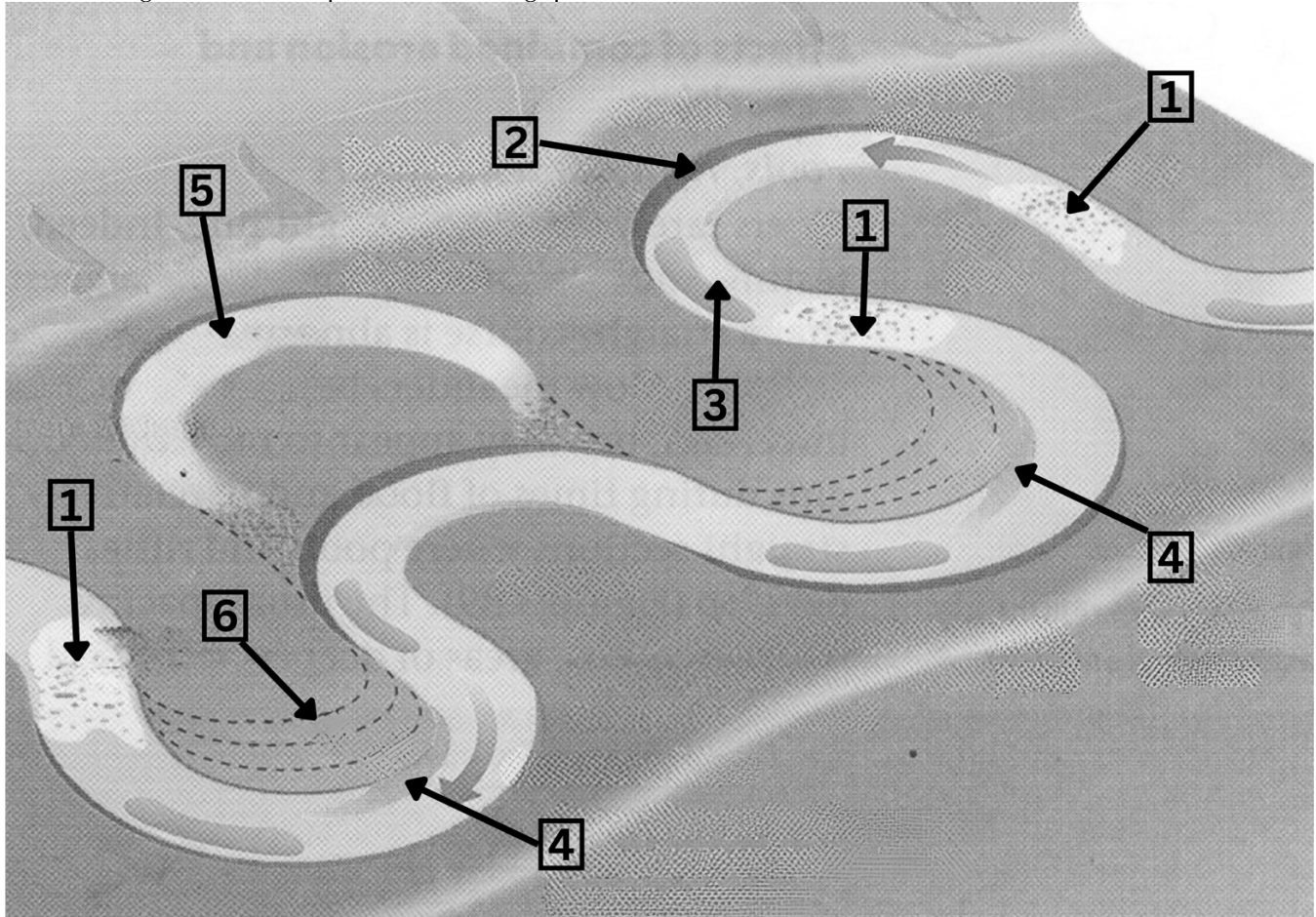
Use the image below to complete the following questions.



1. Identify by number each of the following – esker, terminal moraine, kettle lake, outwash plain, ground moraine, kame, drumlin, recessional moraine [8 points]
2. Identify whether each of the following landforms is created by deposition or erosion – drumlin, cirque, arete, outwash fan, esker, striations [6 points]
3. Given the information in this image, is this glacier retreating or advancing? Explain your answer as thoroughly as possible in the space provided. [3 points]
4. Define the term drumlin. Explain in the space provided how a drumlin would be formed by a glacier. [3 points]
5. Define the term paternoster lake. Explain how paternoster lakes form from glacial action. [3 points]

Section 2 – Rivers and Fluvial Landforms [18 points]

Use the image below to complete the following questions.



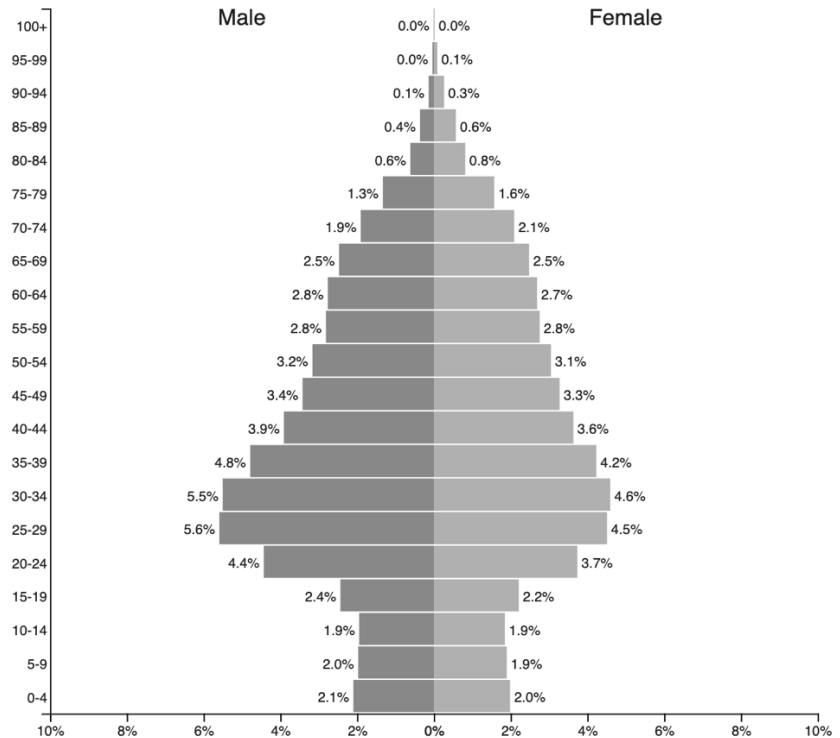
1. Identify by number each of the following – cut bank, oxbow lake, meander, riffle [4 points]
2. Define the term meander. [3 points]
3. In the space provided, explain the formation of an oxbow lake as seen in this image. [3 points]
4. Riffles are shallow areas inside of a moving stream or river. In the space provided, compare each of the following in riffles to the main channel of the river or stream – discharge rate and sediment size. [4 points]
5. Sometimes, states or countries use rivers as natural borders. In the space provided, briefly explain why changes in the course or direction of rivers can be important in international or national law. [4 points]

Section 3 – Population [31 points]

Use the data below to complete the following questions.

Country A		
Age	Male	Female
0-4	2,001,358	1,944,486
5-9	1,628,248	1,587,671
10-14	1,397,007	1,362,153
15-19	1,175,920	1,145,637
20-24	964,557	948,715
25-29	828,039	823,975
30-34	680,765	680,382
35-39	534,665	539,181
40-44	417,907	426,296
45-49	342,430	353,930
50-54	281,099	294,801
55-59	206,935	222,931
60-64	147,314	164,297
65-69	97,773	112,722
70-74	59,958	72,010
75-79	31,526	39,600
80-84	13,488	17,960
85-89	4,563	6,710
90-94	1,004	1,689
95-99	211	317
100+	69	71

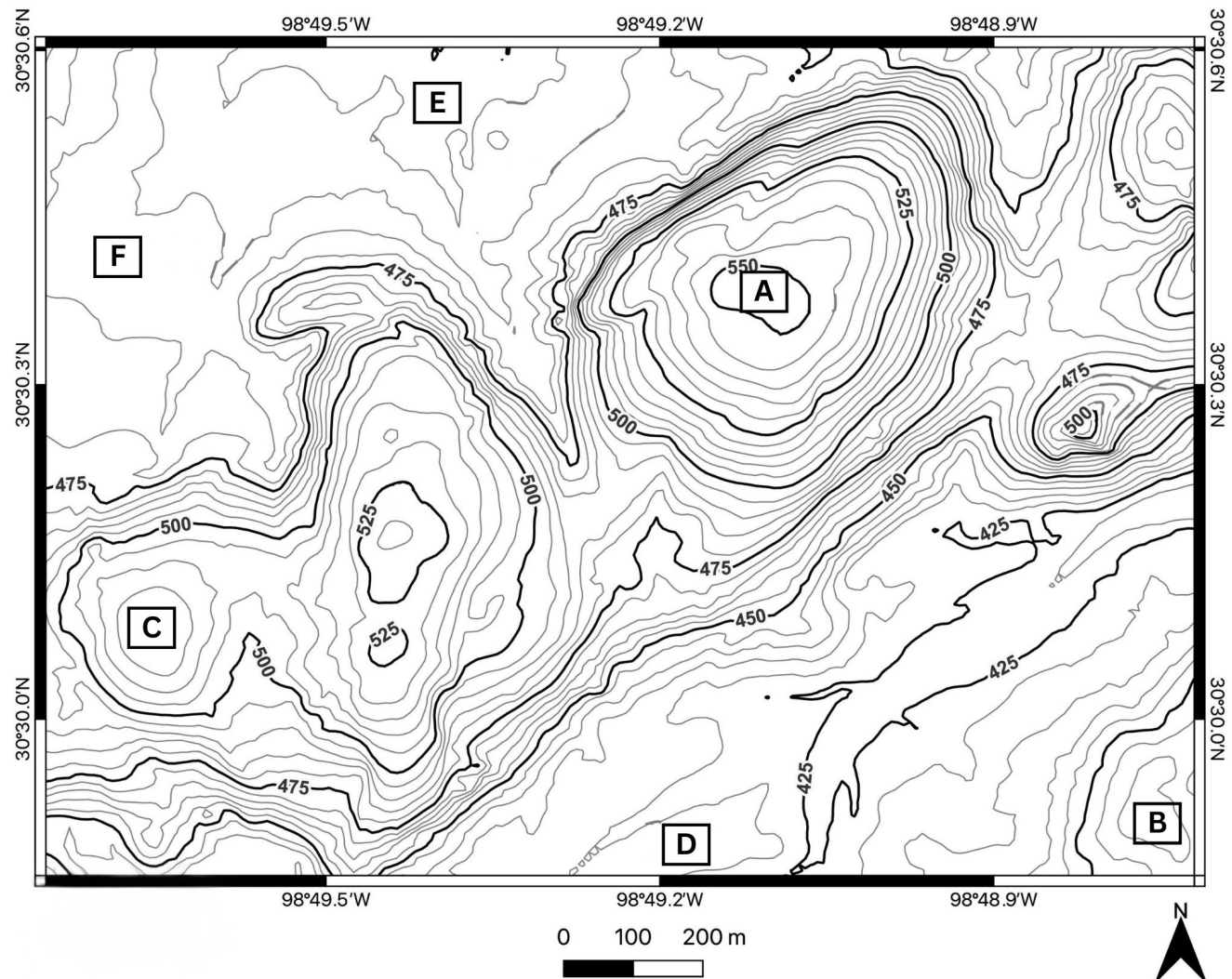
Country B



1. In the space provided on the answer document construct a population pyramid for Country A. Label your pyramid clearly and present the data as accurately as possible for both countries. You can use the pyramid for Country B as an example. [13 points]
2. Given the information in the data, answer each of the following about both Country A and Country B: [6 points]
 - Is its population growing or shrinking?
 - Is its average age above or below the world average of 31 years old?
 - Is its total fertility rate above or below the world average of 2.39?
3. Given the information in the data, identify and explain TWO economic or social problems that Country A might experience because of its demographics and population growth or decline. [4 points]
4. How might the government of Country A respond to ONE of the economic or social problems you identified in the previous question with a reasonable public policy or law? Be as specific as possible in the space provided. [2 points]
5. Given the information in the data, identify and explain TWO economic or social problems that Country B might experience because of its demographics and population growth or decline. [4 points]
6. How might the government of Country B respond to ONE of the economic or social problems you identified in the previous question with a reasonable public policy or law? Be as specific as possible in the space provided. [2 points]

Section 4 – Topography [22 points]

Use the image below to complete the following questions. This image shows a topographic map of part of Enchanted Rock State Park outside of Fredericksburg, Texas.



1. Define the term isoline. What change in elevation do the isolines on this map represent? [3 points]
2. Give TWO reasons why hikers in the park might find this specific type of map useful. [2 points]
3. The coordinates for the summit of Enchanted Rock at A are 98° 49.1'W, 30° 30.4'N. Give the coordinates of each of the following points on this map (be as precise as possible) – B, C, D, E, and F [5 points]
4. For each of the following pairs, identify which point is at a HIGHER elevation – A and B, B and D, B and E, A and C, E and F [5 points]
5. What is the distance in meters of a hike from the parking area at D to the top Enchanted Rock at A on the most direct route? How many meters of elevation gain would a person experience on this hike? [4 points]
6. The summit of Little Rock is located at roughly 98° 49.6'W, 30° 30.2'N. What is the elevation in meters of the summit of Little Rock? What is the difference in elevation between the summit of Enchanted Rock and the summit of Little Rock? [3 points]

Section 5 – Urban Heat Islands [16 points]

1. Define the term urban heat island. [2 points]
2. Identify and explain TWO characteristics of cities that are major causes of the urban heat island effect. Be as detailed as possible in the space provided. [4 points]
3. Identify and explain TWO specific effects of urban heat islands on public health. [4 points]
4. Identify and explain ONE impact of urban heat islands on power consumption in cities. [2 points]
5. Identify and explain TWO specific, reasonable strategies cities might use to help control or eliminate the urban heat island effect. [4 points]

This is the end of the exam.