INSERT STUDENT I.D. NUMBER (PEN)

STICKER IN THIS SPACE

JUNE 1999

PROVINCIAL EXAMINATION

MINISTRY OF EDUCATION

GEOGRAPHY 12

GENERAL INSTRUCTIONS

1. Insert the stickers with your Student I.D. Number (PEN) in the allotted spaces above and on the **back** cover of this booklet. **Under no circumstance is your name or identification, other than your Student I.D. Number, to appear on this booklet**.

2. Ensure that in addition to this examination booklet, you have a **Data Booklet** and an **Examination Response Form**. Follow the directions on the front of the Response Form.

3. **Disqualification** from the examination will result if you bring books, paper, notes or unauthorized electronic devices into the examination room.

4. All multiple-choice answers must be entered on the Response Form using an **HB pencil**. Multiple-choice answers entered in this examination booklet will **not** be marked.

5. For each of the written-response questions, write your answer in **ink** in the space provided in this booklet.

6. When instructed to open this booklet, **check the numbering of the pages** to ensure that they are numbered in sequence from page one to the last page, which is identified by

   END OF EXAMINATION.

7. At the end of the examination, place your Response Form inside the front cover of this booklet and return the booklet and your Response Form to the supervisor.

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GEOGRAPHY 12 PROVINCIAL EXAMINATION

	Value	Suggested Time
1. This examination consists of **two** parts:		
PART A: 40 multiple-choice questions	40	40
PART B: 11 written-response questions	50	80
Total	**90 marks**	**120 minutes**

2. Electronic devices, including dictionaries and pagers, are **not** permitted in the examination room.

3. The **Data Booklet** contains photographs, a topographic map and other information you will need to answer certain questions on this examination.

4. A ruler may be used during this examination.

5. The time allotted for this examination is **two hours**.

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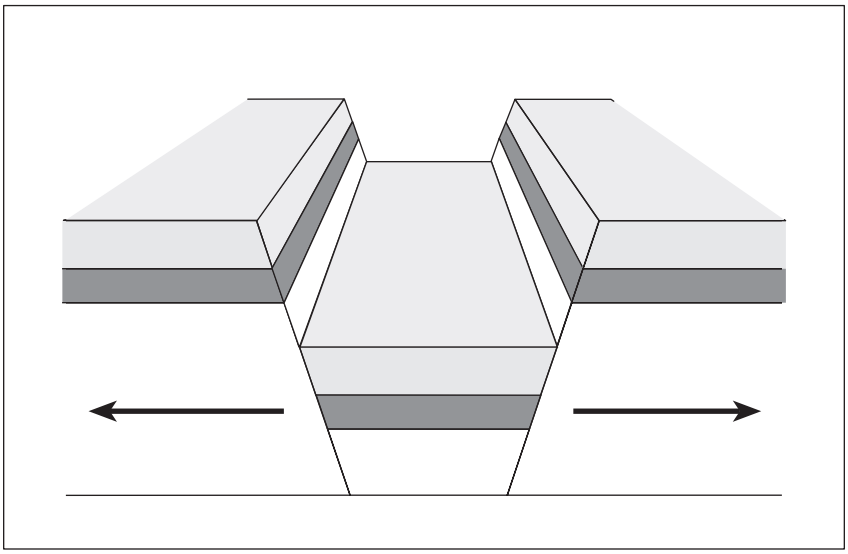
PART A: MULTIPLE CHOICE

Value: 40 marks **Suggested Time: 40 minutes**

INSTRUCTIONS: For each question, select the **best** answer and record your choice on the Response Form provided. Using an HB pencil, completely fill in the circle that has the letter corresponding to your answer.

Use the following diagram to answer question 1.

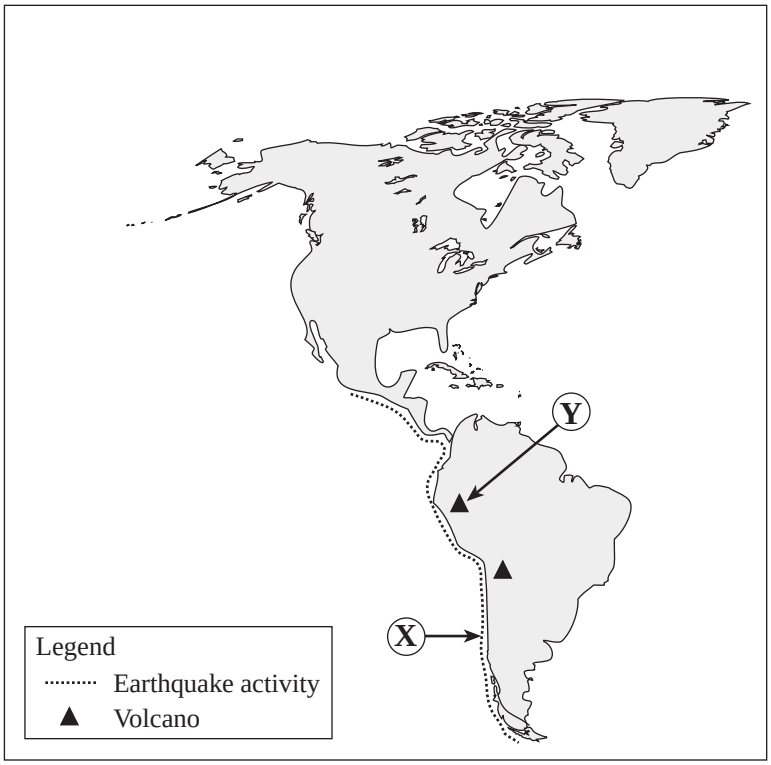


1. The process illustrated in the diagram above is

   A. rifting.
   B. folding.
   C. subduction.
   D. translocation.

OVER

Use the following map to answer questions 2 and 3.



2. The earthquake activity at **X**, indicated on the map above, is the result of

   A. tear faulting.
   B. diverging plates.
   C. a transform fault.
   D. a subducting plate.

3. Volcanic rocks at **Y** are composed of

   A. basalt.
   B. granite.
   C. andesite.
   D. sandstone.

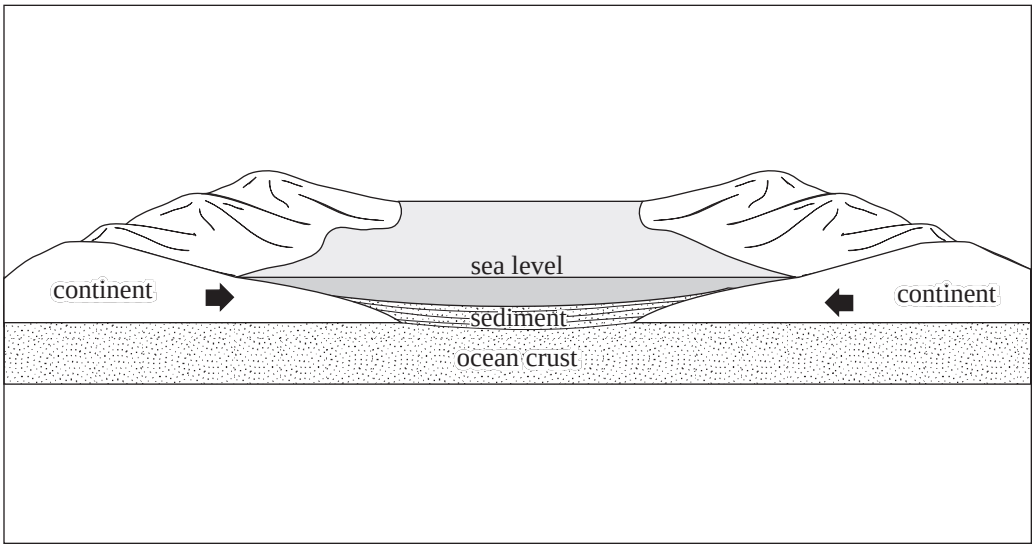
4. If during a violent eruption a volcano collapses, the resulting feature will be a

   A. sill.
   B. dike.
   C. geyser.
   D. caldera.

5. Where are both volcanism and earthquake activity currently taking place?

   A. Grand Canyon
   B. Canadian Shield
   C. Mid-Atlantic Ridge
   D. Himalayan Mountains

Use the following diagram to answer question 6.



6. If the process illustrated in the diagram above continues, the resulting feature will be a(n)

   A. island arc.
   B. rift valley.
   C. fold mountain.
   D. shield volcano.

OVER

REFERENCE
DATA BOOKLET

Use Photograph 1 to answer question 7.

7. The feature at **X** in the photograph formed as a result of

   A. saltation.
   B. corrasion.
   C. oxidation.
   D. carbonation.

---

8. Angular rock debris at the base of a cliff is called a(n)

   A. scree.
   B. esker.
   C. levee.
   D. tombolo.

REFERENCE
DATA BOOKLET

Use Photograph 2 to answer question 9.

9. When the ice at location **X** melts, the resulting feature will be a(n)

   A. kettle lake.
   B. crag and tail.
   C. truncated spur.
   D. hanging valley.

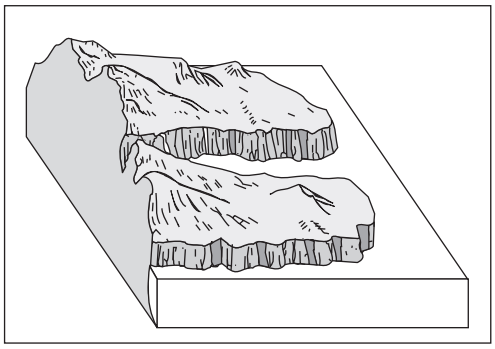
---

10. Which pair of features is the result of deposition by a continental glacier?

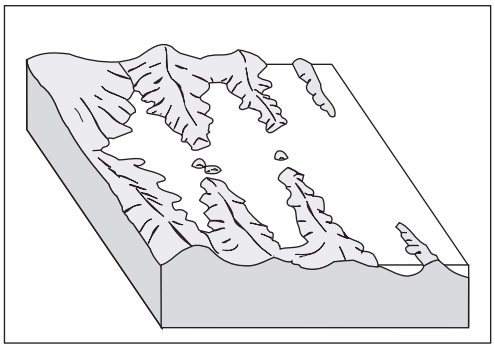
    A. eskers and arêtes
    B. cirques and kettles
    C. striations and erratics
    D. moraines and drumlins

11. Which diagram illustrates a fjord coastline?

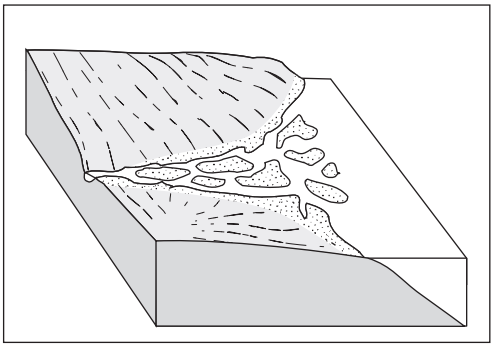
A.



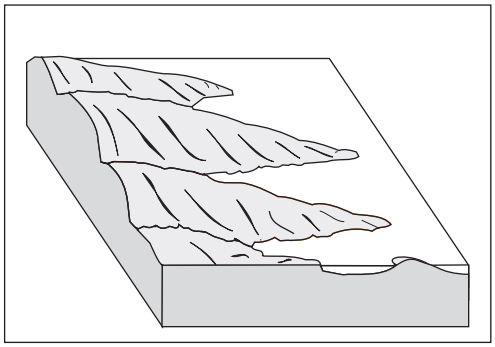
B.



C.

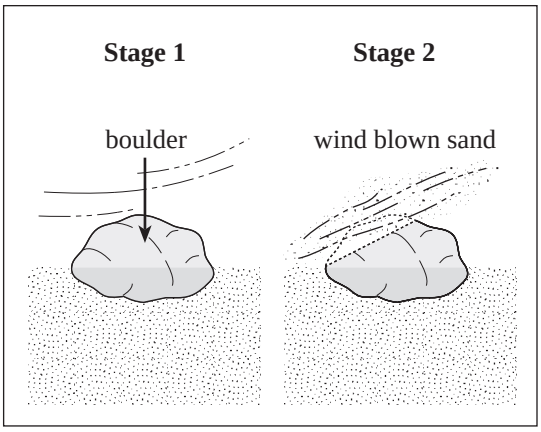


D.



OVER

Use the following diagram to answer question 12.



Based on a diagram from *Physical Geology (3rd Edition)* by Charles Plummer and David McGeary. Published by WMC Brown Publishers, College Division, 1985. P. 266.

12. Which process is responsible for shaping the boulder in the diagram above?

    A. traction
    B. abrasion
    C. corrosion
    D. hydration

---

13. Stream deposition is a result of

    A. increased volume.
    B. increased velocity.
    C. decreased bedload.
    D. decreased velocity.

Use the following description to answer question 14.

> They act like sponges, soaking up rain and snowmelt while releasing water in the dry season. They reduce soil erosion, slow run-off from spring thaws and filter the water of lakes and rivers.

14. The description above refers to

    A. aquifers.
    B. wetlands.
    C. areas of permafrost.
    D. tropical rain forests.

15. What is the main source of global atmospheric moisture?

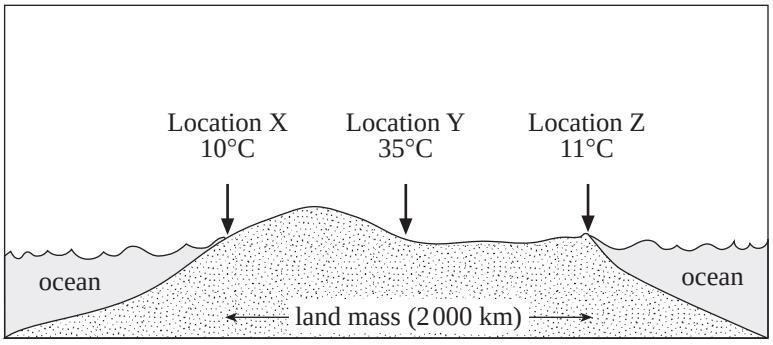
A. oceans
B. aquifers
C. lakes and rivers
D. tropical rain forests

16. Increasing skin cancer cases in Australia have been linked to the

A. use of coal as an energy source.
B. emission of automobile exhaust.
C. destruction of the tropical rain forests.
D. release of CFCs (chlorofluorocarbons).

Use the following diagram to answer question 17.

Range of Temperatures at 49° N



Based on Figure 8.20 from *Planet Earth: A Physical Geography* by Gary Birchall and John McCutcheon. Reprinted with permisssion of ITP Nelson. ©1993.

17. Differences in the ranges of temperatures in the locations above are due to

A. aspect.
B. latitude.
C. continentality.
D. mountain barriers.

REFERENCE DATA BOOKLET

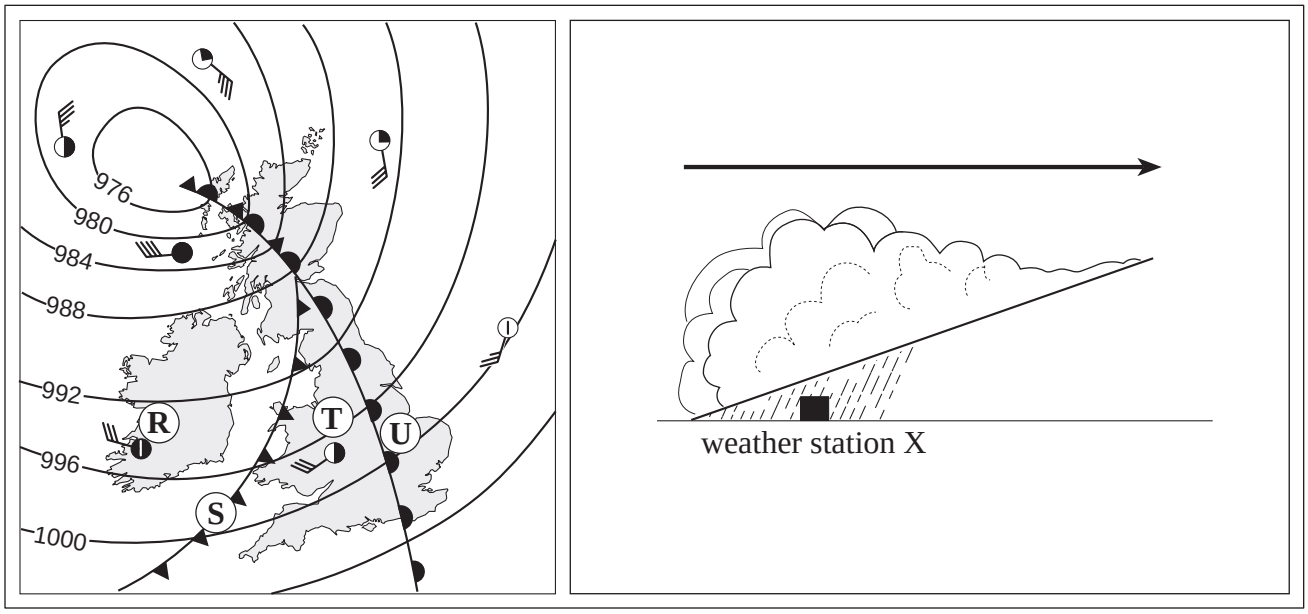
Use Photograph 3 to answer question 18.

18. The cloud in the photograph would **most likely** produce

A. heavy, short-lived showers.
B. light showers lasting several hours.
C. a steady rainfall lasting a couple of days.
D. intermittent showers lasting several hours.

OVER

Use the following map and diagram to answer questions 19 to 21.



19. At weather station **R** on the map, the wind is from the

    A. east.
    B. west.
    C. north.
    D. south.

20. According to information on the map, the warmest air temperature would be at location

    A. R.
    B. S.
    C. T.
    D. U.

21. The conditions at weather station **X** indicated in the diagram would be found at map location

    A. R.
    B. S.
    C. T.
    D. U.

22. An ecosystem is **best** described as

A. the physical environment.
B. the climax vegetation of a particular species.
C. a community of living things interacting with the natural environment.
D. a broad geographical region inhabited by characteristic plant and animal species.

23. Which of the following describes the progression of energy in a food chain?

A. producers, decomposers, consumers
B. photosynthesis, producers, consumers
C. decomposers, producers, photosynthesis
D. consumers, photosynthesis, decomposers

24. The greatest biodiversity is found in

A. deciduous forests.
B. tropical rain forests.
C. temperate rain forests.
D. northern coniferous forests.

OVER

Use the following climate data to answer questions 25 and 26.

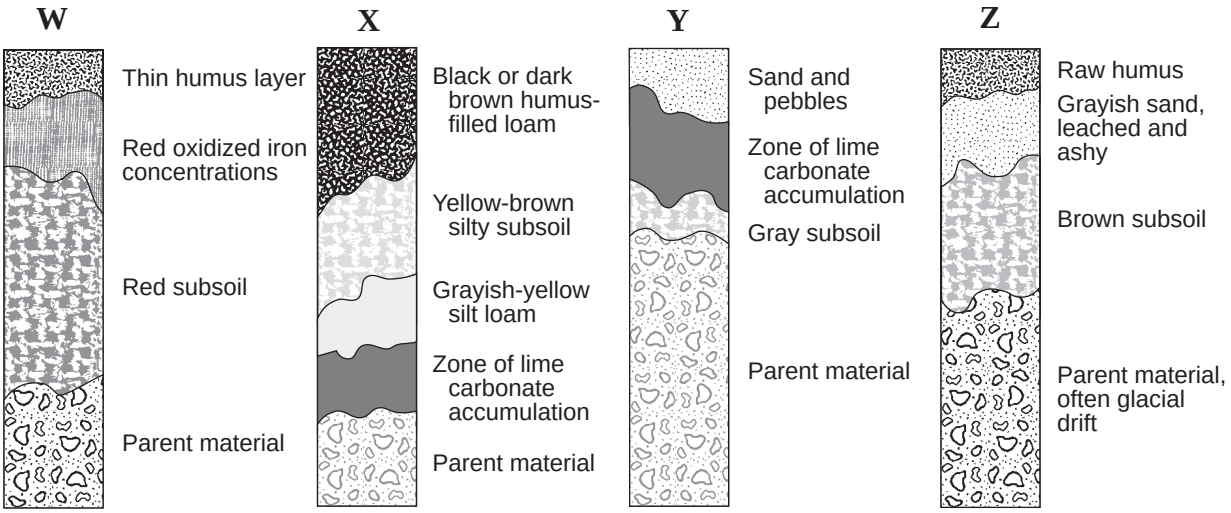
	J	F	M	A	M	J	J	A	S	O	N	D	Annual
Temperature	–17.2	–15.4	–7.9	3.7	11.3	15.4	19.2	17.5	11.6	5.2	–5.7	–13.3	2.0° C
Precipitation	19	18	16	24	34	52	51	48	34	17	21	18	352 mm

25. ~~The climate region associated with the data above is~~
QUESTION DELETED
   A. ~~desert.~~
   B. ~~cold climate.~~
   C. ~~mediterranean.~~
   D. ~~warm climate-dry.~~

26. Which of the following activities is associated with the region represented by the climate data above?

   A. growing rice
   B. wheat cultivation
   C. shifting cultivation
   D. extraction of hardwoods

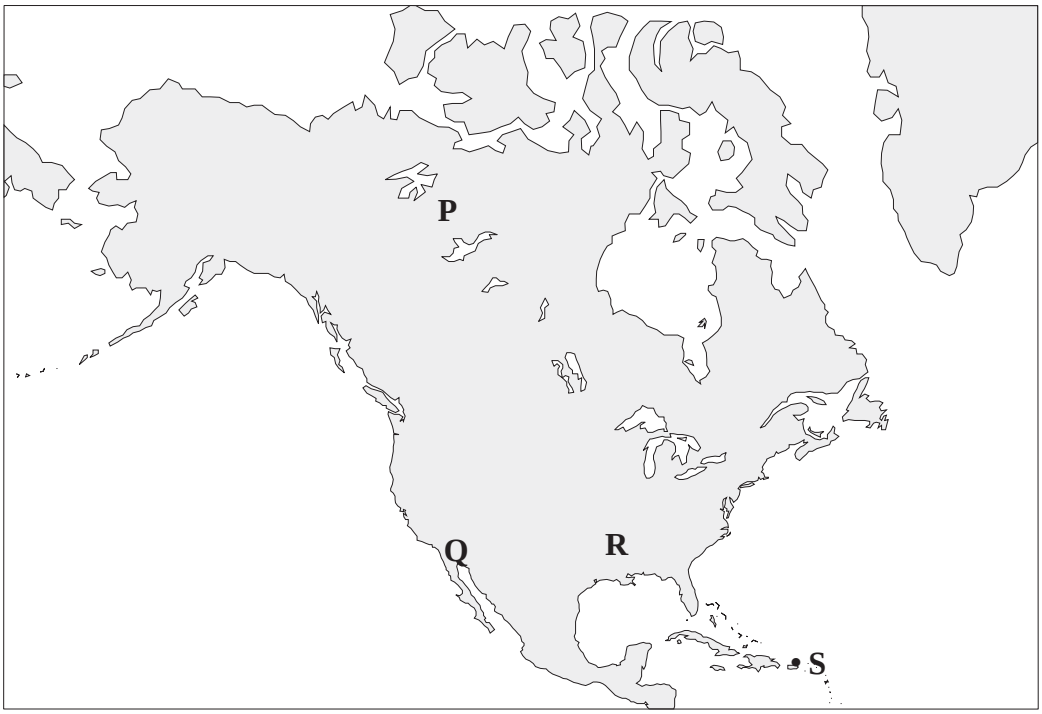
Use the following soil profiles to answer question 27.



27. Which of the profiles above represents a podzol soil?

   A. W.
   B. X.
   C. Y.
   D. Z.

Use the following map to answer questions 28 and 29.



28. Xerophytic vegetation and sierozem soils are associated with location

A. P.
B. Q.
C. R.
D. S.

29. Tornadoes occur most often in location

A. P.
B. Q.
C. R.
D. S.

OVER

30. The nature of geography is best described as

A. being primarily concerned with location.
B. mainly devoted to environmental concerns.
C. having a body of exclusive geographical terms.
D. an integrated study of physical and human elements.

31. Developing countries have relied on fuelwoods as an energy source more than developed countries because

A. it was abundant and inexpensive.
B. it was renewable and non-polluting.
C. their fossil fuel reserves were depleted.
D. their rivers were not suitable for hydro-electric dams.

32. Major contributors to acid rain are

A. nuclear power plants.
B. thermal power stations.
C. emissions of chlorofluorocarbons.
D. methane gases from domesticated animals.

Use the following description to answer question 33.

The buried remains of tropical plants, over millions of years,
were changed by intense pressure into the world's most abundant fossil fuel.

33. Which of the following **best** matches the description above?

A. coal
B. biomass
C. petroleum
D. natural gas

REFERENCE
DATA BOOKLET

Use Photograph 4 to answer question 34.

34. Identify the resource ethic being demonstrated at location **3K**.

A. exploitation
B. preservation
C. multiple use
D. conservation

OVER

REFERENCE DATA BOOKLET

Use Photograph 5 and the topographic map to answer questions 35 to 40.

35. The height of the land at grid reference 245486 is approximately

A. 2 050 feet.
B. 2 100 feet.
C. 2 175 feet.
D. 2 250 feet.

36. In relation to the topographic map, what direction is the top of the photograph?

A. north
B. south
C. east
D. west

37. The scale of the air photograph is approximately

A. 1 : 25 000
B. 1 : 50 000
C. 1 : 100 000
D. 1 : 125 000

38. The feature which lies between the bluffs at 240440 and 263430 is a(n)

A. peneplain.
B. flood plain.
C. oxbow lake.
D. drainage basin.

39. The natural vegetation typical of this region has adapted to the climate by

A. shedding leaves in the hot, dry season.
B. storing water in their trunks for drought conditions.
C. developing extensive horizontal and deep root systems.
D. reducing transpiration through evergreen needle-bearing trees.

40. Evidence suggesting that the region was once covered by an inland sea is the presence of

A. natural gas wells.
B. deposition in the river.
C. underground reservoirs.
D. an entrenched meandering river.

PART B: WRITTEN RESPONSE

Value: 50 marks **Suggested Time: 80 minutes**

INSTRUCTIONS: Answer each question in the space provided. You may not need all of the space provided. Answers should be written in **ink**. **Comprehensive answers are required for full marks**.

REFERENCE DATA BOOKLET

Select either feature X or feature Y on the topographic map to answer question 1. Indicate your selection with a ✓.

☐ Erosional feature X ☐ Depositional feature Y

1. a) **Name** the erosional or depositional feature selected. _____ **(1 mark)**

   b) With the aid of a clearly labelled diagram, **explain** how the feature you have selected was formed. **(3 marks)**

Place Diagram Here

Explanation: _____

_____

_____

_____

_____

OVER

REFERENCE
DATA BOOKLET

Use Photograph 5 and the topographic map to answer question 2.

2. Medicine Hat was established in 1883, shortly after Canada became a nation. Over the course of a hundred years, people have been influenced by the physical environment of the region and, in turn, have influenced the environment through their activities.

   Explain the influence that physical geography and human activity have had on each other in this environment. You must address both the physical and human influences to receive full marks. Answer in **paragraph** form. **(6 marks)**

3. **Identify** and **explain** ways that oceans and the atmosphere transfer heat. **(2 marks)**

Oceans: _____

_____

Atmosphere: _____

_____

REFERENCE DATA BOOKLET

Use Photograph 6 and the climate graph to answer question 4.

4. a) **Identify** the natural vegetation zone associated with this climate region. **(1 mark)**

_____

b) Vegetation in this biome has adapted to the physical conditions in several ways. **Explain** the reason for each of the following adaptations. **(2 marks)**

i) Shallow roots: _____

_____

_____

ii) Stunted growth: _____

_____

_____

OVER

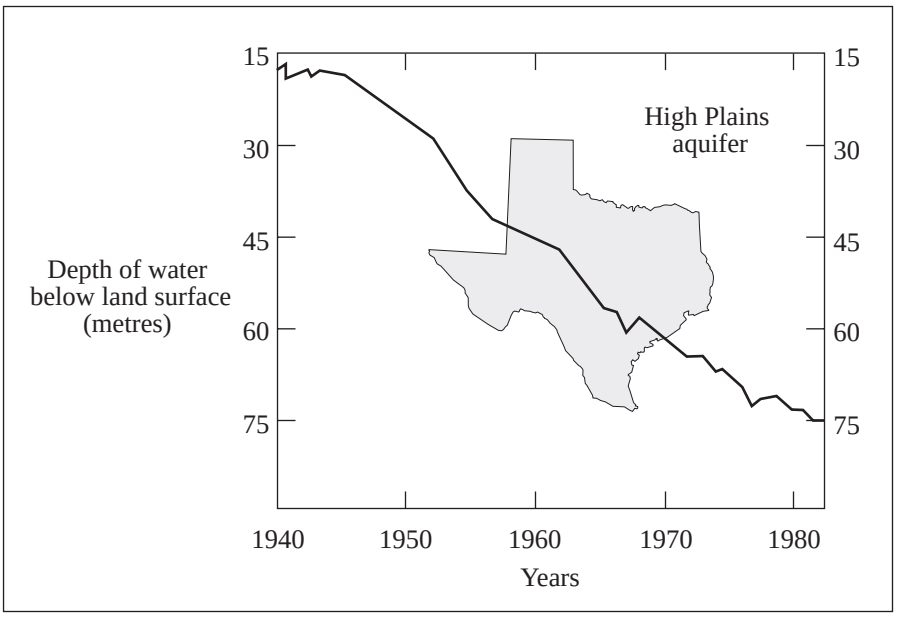
Select one of the following resources to answer question 5.
Indicate your selection with a ✓.

☐ Coniferous Forest ☐ Renewable Energy Sources

5. Mismanagement of resources is a global problem. **Discuss** the problems associated with the choice you have selected and **propose** ways to better manage the resource. Answer in **paragraph** form. **(6 marks)**

Use the following graph to answer question 6.

Water level in High Plains aquifer
Southern USA



U.S. Geological Survey *Water Supply Paper No. 2275*

6. a) Identify the trend indicated in the graph above. **(1 mark)**

_____

_____

b) Suggest **two** reasons that might explain the trend illustrated above. **(2 marks)**

i) _____

_____

ii) _____

_____

c) Outline **two** ways that this problem can be addressed. **(2 marks)**

i) _____

_____

ii) _____

_____

OVER

REFERENCE DATA BOOKLET

Use Photograph 4 to answer question 7.

7. a) **Identify** the activity at **3K** in the photograph. **(1 mark)**

_____

b) **Describe two** benefits people in this region would gain from this activity. **(2 marks)**

i) _____

_____

_____

ii) _____

_____

_____

c) **Outline two** impacts this activity may have on the biosphere. **(2 marks)**

i) _____

_____

_____

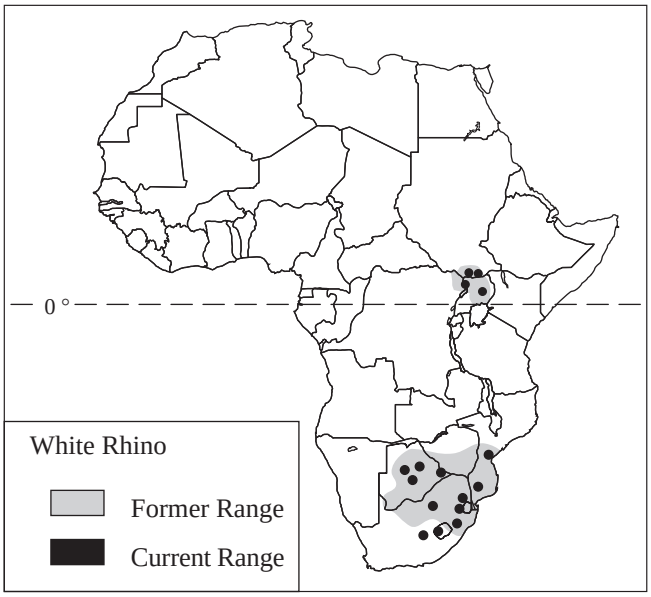
ii) _____

_____

_____

Use the following map to answer question 8.

White Rhino Habitat



8. a) **Propose two** specific conservation measures that can be taken to reverse the trend illustrated on the map. **(2 marks)**

i) _____

_____

ii) _____

_____

b) **Give two** reasons why it is difficult to implement conservation measures. **(2 marks)**

i) _____

_____

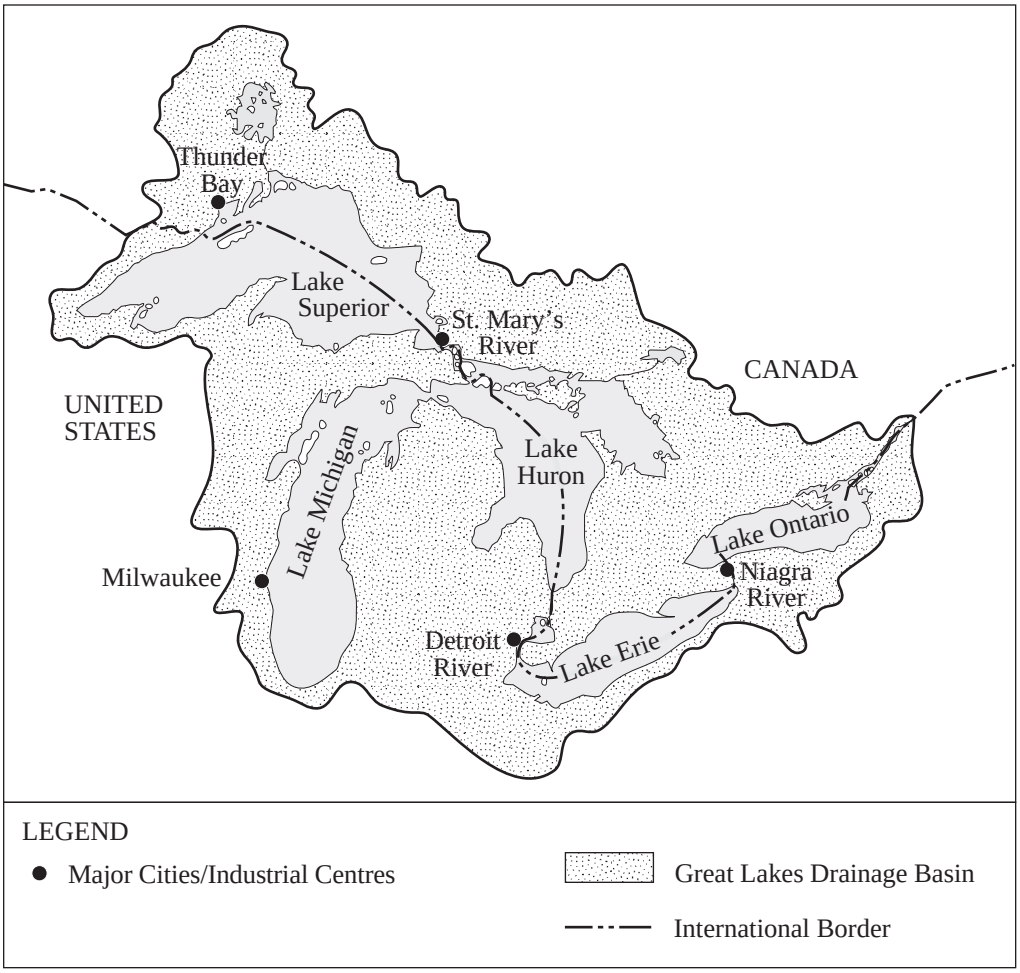
ii) _____

_____

OVER

Use the following map to answer question 9.

The Great Lakes Basin



9. a) **Identify two** toxic substances that contaminate the Great Lakes. **(2 marks)**

i) _____

_____

ii) _____

_____

b) **Explain two** effects that these toxins have on the environment. **(2 marks)**

_____

_____

_____

_____

c) **Suggest two** reasons why solutions are difficult to implement. **(2 marks)**

i) _____

_____

ii) _____

_____

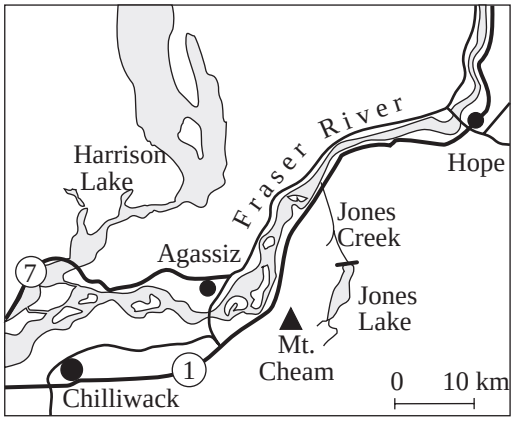
OVER

Use the following information to answer question 10.

World Examiner

November 4, 1996

After Disastrous Meddling, Time Runs Out for Crucial Salmon Stream



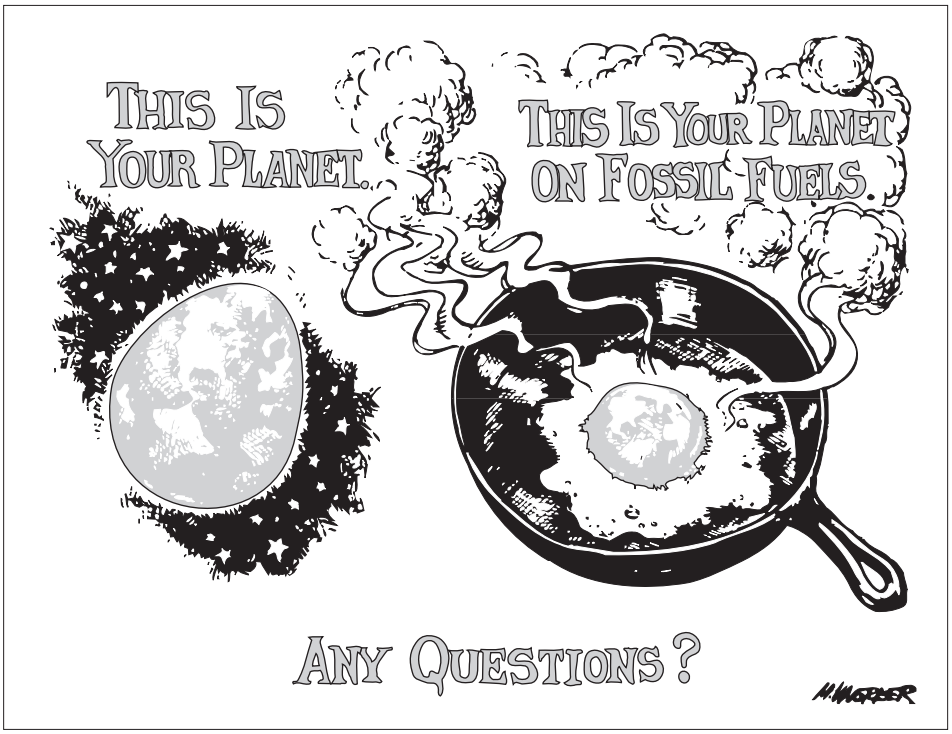
The chum salmon that spawn in Jones Creek are one of the wonders of the world. They are the earliest migrating stock in the world's biggest producer of wild salmon, the Fraser River. But they are on the brink of extinction! Despite all the political speeches about saving the Pacific salmon, humans have destroyed in a few decades what nature protected for over 10 000 years. Historically, this small tributary supported runs of 5 000 pinks, 500 chum, sockeye and hundreds of coho, steelhead, and cutthroat trout. Logging of the watershed began in the 1930s and a dam was built on the creek in 1954. Years of cooperative efforts by B.C. Hydro, logging companies, environmental groups and Environment Canada have failed to rescue the runs.

Based on information taken from: "After Disastrous Meddling Time Runs Out for Crucial Salmon Stream." *The Vancouver Sun*, November 4, 1996. Courtesy of *The Vancouver Sun*.

10. Make recommendations to avoid the mistakes of the past and to ensure that watersheds remain sustainable despite development. Answer in **paragraph** form. **(6 marks)**

OVER

Use the following cartoon to answer question 11.



11. a) In your own words, describe the problem the cartoonist is addressing. **(1 mark)**

_____

_____

b) Discuss **two** consequences of this problem. **(2 marks)**

i) _____

_____

ii) _____

_____

END OF EXAMINATION

INSERT STUDENT I.D. NUMBER (PEN)

STICKER IN THIS SPACE

GEOGRAPHY 12

June 1999

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GEOGRAPHY 12

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Score for Question 1: 1. _____ (4)	Score for Question 7: 7. _____ (5)
Score for Question 2: 2. _____ (6)	Score for Question 8: 8. _____ (4)
Score for Question 3: 3. _____ (2)	Score for Question 9: 9. _____ (6)
Score for Question 4: 4. _____ (3)	Score for Question 10: 10. _____ (6)
Score for Question 5: 5. _____ (6)	Score for Question 11: 11. _____ (3)
Score for Question 6: 6. _____ (5)	

GEOGRAPHY 12

JUNE 1999

DATA BOOKLET

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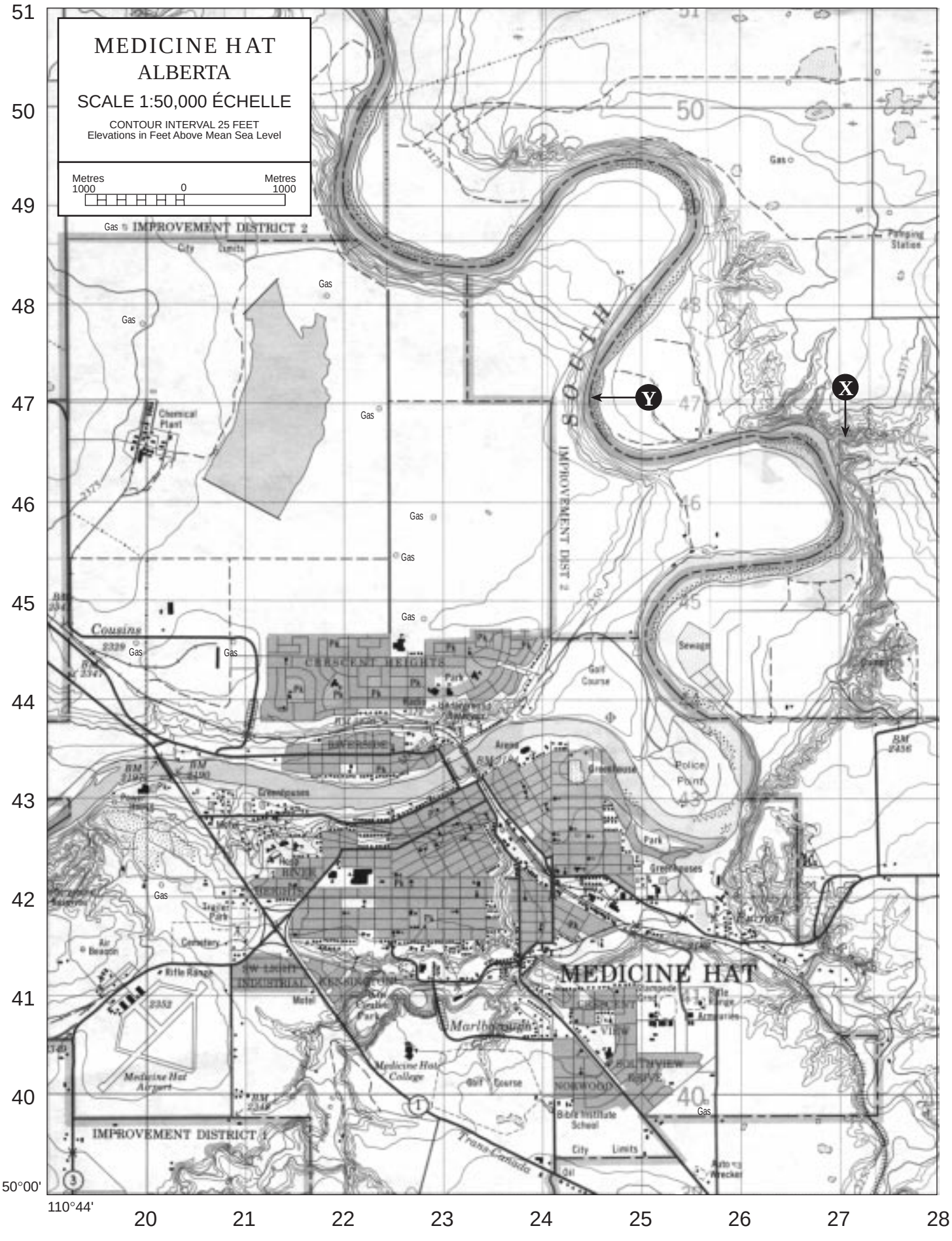
PHOTOGRAPH 1

PHOTOGRAPH 2

PHOTOGRAPH 3

PHOTOGRAPH 4

PHOTOGRAPH 5


MEDICINE HAT
ALBERTA
SCALE 1:50,000 ÉCHELLE
CONTOUR INTERVAL 25 FEET
Elevations in Feet Above Mean Sea Level
Metres 1000 0 Metres 1000
IMPROVEMENT DISTRICT 2
IMPROVEMENT DISTRICT 1
SOUTH
IMPROVEMENT DIST 2
MEDICINE HAT
CRESCENT HEIGHTS
Cousins
Chemical Plant
Golf Course
Police Plant
Sewage
Marlborough
Medicine Hat College
Medicine Hat Airport
Trans-Canada
Bible Institute School
City Limits
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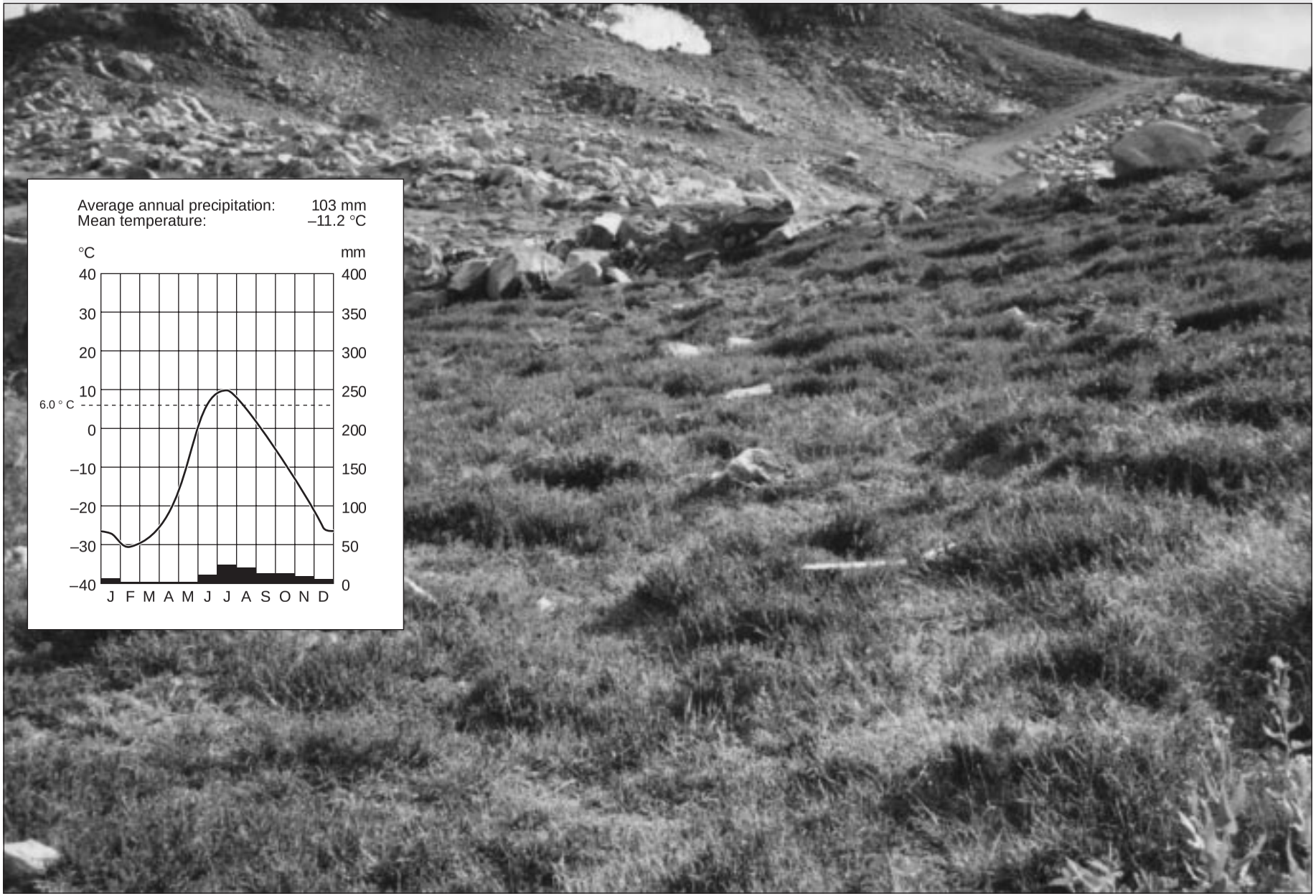
PHOTOGRAPH 6



ACKNOWLEDGEMENTS

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Photograph 5 is based on information taken from the collection of the National Air Photo Library – Photograph A25237-41 (Medicine Hat), ©1979 Her Majesty the Queen in Right of Canada, reproduced with permission of Natural Resources Canada.

The topographic map is based on information taken from the National Topographic System map sheet number: 72 L/02 Edition 2 (Medicine Hat), ©1975 Her Majesty the Queen in Right of Canada, reproduced with permission of Natural Resources Canada.