GEOGRAPHY 12

EXAMINATION SPECIFICATIONS

SEPTEMBER 2004

Assessment Department

The information in this booklet is intended to be helpful for both teachers and students.
Teachers are encouraged to make this information available to all students.

GEOGRAPHY 12

The intent of the *Examination Specifications* is to convey to the classroom teacher and student how the Geography 12 curriculum will be tested on the provincial examinations. The Table of Specifications provides mark weightings for each of the curriculum organizers as well as the cognitive levels that are applied to questions. A detailed description of examinable material within each curriculum organizer will be found in the curriculum section of the *Geography 12 Integrated Resource Package (IRP), 1998* and in Appendix A of that package.

Replaces All Previous Versions of Geography 12 Examination Specifications

1. The Geography 12 Provincial Examinations conform to the curriculum organizers of the *Geography 12 Integrated Resource Package (IRP), 1998.* Teachers should thoroughly familiarize themselves with the contents of this package as well as the *Geography 12 Teacher Resource Book*, which has been organized and designed to complement and extend the *Geography 12 IRP*.
2. The multiple-choice and written-response values have been adjusted. The multiple-choice section is worth 53 marks; the written-response section is worth 37 marks. See **Description of the Provincial Examination** (page 1) and **Table of Specifications for the Provincial Examination** (page 2) for complete details.
3. It should be noted that electronic devices, including dictionaries and pagers are **not** permitted in the examination room.

It is expected that there will be a difference between school marks and provincial examination marks for individual students. Some students perform better on classroom tests and others on provincial examinations. School assessment measures performance on all curricular outcomes, whereas provincial examinations may only evaluate performance on a sample of these outcomes.

The provincial examination represents 40% of the student's final letter grade and the classroom mark represents 60%.

Acknowledgement

The Assessment Department wishes to acknowledge the contribution of British Columbia teachers in the preparation and review of this document.

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DESCRIPTION OF THE PROVINCIAL EXAMINATION

"Geography is a discipline that integrates many subjects and addresses both the physical and human-created systems of the world in the study of people, places, and environments. The geographically literate student is able to interpret the landscape and understand the interconnections between his or her own actions and the earth's physical systems." The provincial examination reflects this integrated approach and questions will focus on the interrelationships between geographic themes, systems and skills.

The Table of Specifications (page 2) outlines the curriculum organizers, sub-organizers, and the cognitive level emphases covered on the provincial examination. A detailed description of examinable material within each curriculum organizer will be found in the *Geography 12 Integrated Resource Package, 1998.*

All of the curriculum organizers are examinable; however, not all sub-organizers will appear on any one examination and some questions may assess more than one sub-organizer.

The provincial examination is divided into **two** parts:

PART A: **Multiple-choice** questions worth **59%** of the examination (53 marks).

These questions will require an understanding of basic geography definitions and concepts. Many of the questions will require students to use their knowledge and understanding of geography to interpret topographic maps, aerial and satellite images, charts, diagrams, graphs, maps, photographs, and tables as well as other data used by geographers.

PART B: **Written-response** questions worth **41%** of the examination (37 marks).

The written-response questions will require students to use their knowledge and understanding of geography to write short-answer or paragraph responses. Many of the questions will require students to interpret topographic maps, aerial and satellite images, charts, diagrams, graphs, maps, photographs, and tables as well as other data used by geographers.

Students will be expected to write a multi-paragraph composition that demonstrates their knowledge and understanding of geography through the analysis of a case study. A typical case study could include data, extracts, charts, diagrams, profiles, photographs and maps. (See Sample Case Study in the Sample Questions.*)*

Part B consists of the following four written-response questions with fixed values for each:

One question on The Nature of Geography **(Value: 10 marks)**
(Themes, Systems, Skills, Topographic Map)

One question on Systems of the Earth **(Value: 6 marks)**
(Weather, Climate, Tectonic Processes, Gradation Processes)

One question on Resources of the Earth **(Value: 6 marks)**
(Nature and Management of Resources)

One essay question based on a Case Study **(Value: 15 marks)**
The case study is an integration of geographic concepts, skills and processes and will examine an understanding of geographic principles rather than specific knowledge of a particular place.

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TABLE OF SPECIFICATIONS FOR THE PROVINCIAL EXAMINATION

CURRICULUM		COGNITIVE LEVEL			TOTAL MARKS
ORGANIZERS	SUB-ORGANIZERS	Knowledge	Understanding and Application	Higher Mental Processes	
1. The Nature of Geography	A. Themes B. Systems C. Skills	<——— 23 ———>			90
2. Systems of the Earth	A. Weather B. Climate C. Tectonic Processes D. Gradation Processes	<——— 40 ———>			
3. Resources of the Earth	A. Nature of Resources B. Management of Resources C. Sustainability of Resources	<——— 27 ———>			
	TOTAL MARKS	<——— 58 ———>		32	

General geography skills related to the interpretation of topographic maps, colour and/or black and white photographs, diagrams, charts, and profiles; sketching; constructing simple profiles; and the interpretation of graphs are examinable within all organizers.

The values in this table are approximate and may fluctuate.

Examination configuration: 53 marks in multiple-choice format
37 marks in written-response format

This examination is designed to be completed in **two hours**. *Students may, however, take up to 30 minutes of additional time to finish*.

DESCRIPTION OF COGNITIVE LEVELS

*The following three cognitive levels are based on a modified version of Bloom's taxonomy (*Taxonomy of Educational Objectives*, Bloom* et al.*, 1956). Bloom's taxonomy describes six cognitive categories: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. For ease of classification, the six cognitive categories have been collapsed into three.*

Knowledge

Knowledge is defined as including those behaviours and test situations that emphasize the remembering, either by recognition or recall, of ideas, material, or phenomena. Incorporated at this level is knowledge of terminology, specific facts (dates, events, persons, etc.), conventions, classifications and categories, criteria, methods of inquiry, principles and generalizations, theories and structures.

Understanding and Application

Understanding refers to responses that represent a comprehension of the literal message contained in a communication. This means that the student is able to translate, interpret or extrapolate. Interpretation involves the reordering of ideas (inferences, generalizations, or summaries). Extrapolation includes estimating or predicting based on an understanding of trends or tendencies.

Application requires the student to apply an appropriate abstraction (theory, principle, idea, method) to a new situation.

Higher Mental Processes

Included at this thought level are the processes of analysis, synthesis, and evaluation.

Analysis involves the ability to recognize unstated assumptions, to distinguish facts from hypotheses, to distinguish conclusions from statements that support them, to recognize which facts or assumptions are essential to a main thesis or to the argument in support of that thesis, and to distinguish cause-effect relationships from other sequential relationships.

Synthesis involves the production of a unique communication, the ability to propose ways of testing hypotheses, the ability to design an experiment, the ability to formulate and modify hypotheses, and the ability to make generalizations.

Evaluation is defined as the making of judgments about the value of ideas, solutions, and methods. It involves the use of criteria as well as standards for appraising the extent to which details are accurate, effective, economical, or satisfying. Evaluation involves the ability to apply given criteria to judgments of work done, to indicate logical fallacies in arguments, and to compare major theories and generalizations.

Questions at the *higher mental processes* level subsume both *knowledge* and *understanding and application* levels.

SAMPLE QUESTIONS

1. NATURE OF GEOGRAPHY

A. THEMES

Use the following description to answer question 1.

> "The natural vegetation of the Canadian prairies and Ukraine Steppe is short, temperate grass."

Knowledge **(PLO: 1A1)**

1. The statement above is an example of which geographic theme?

* A. region
B. movement
C. absolute location
D. human-physical interaction

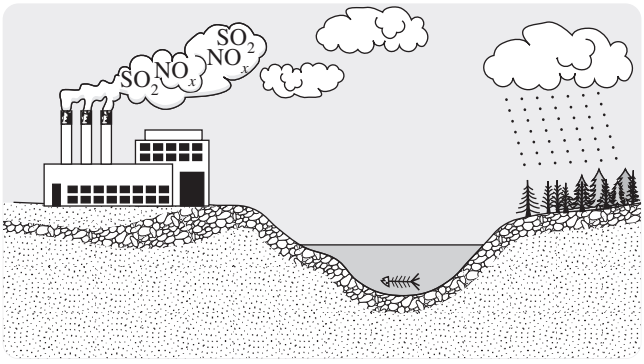
Knowledge **(PLO: 1A2)**

2. Which of the following would a seismologist be most interested in?

A. severe storms
B. ocean currents
* C. plate movement
D. rainforest destruction

B. SYSTEMS

Use the following diagram to answer question 3.



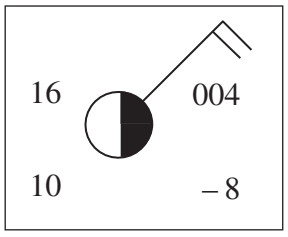
Understanding and Application **(PLO: 1B4; 2B5)**

3. Identify the main problem associated with the industrial activity illustrated in the diagram above.

* A. acidification of soil and lakes
B. increased methane levels in the water
C. destruction of forests due to ozone depletion
D. dropping lake levels caused by global warming

C. SKILLS

Use the following station model to answer question 4.



Understanding and Application **(PLO: 1C2; 2A3)**

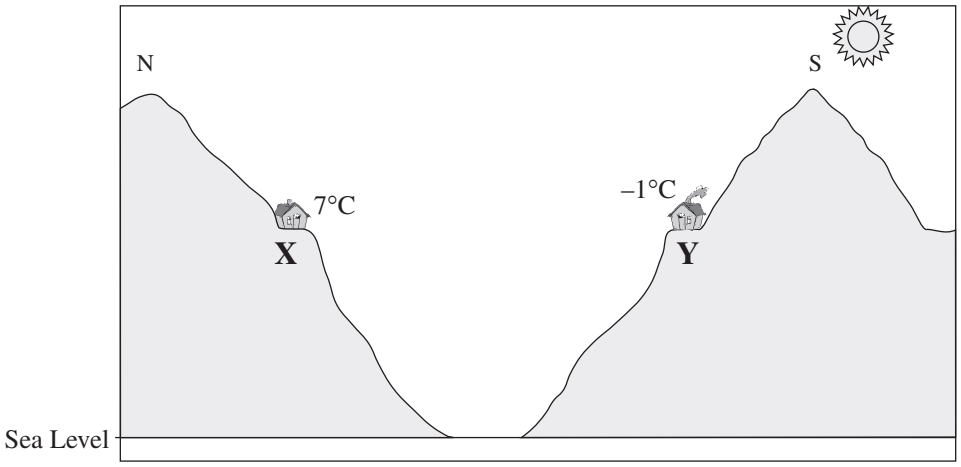
4. At the weather station above, the wind direction is from the

A. northwest.
* B. northeast.
C. southwest.
D. southeast.

2. SYSTEMS OF THE EARTH

B. CLIMATE

Use the following diagram to answer question 5.

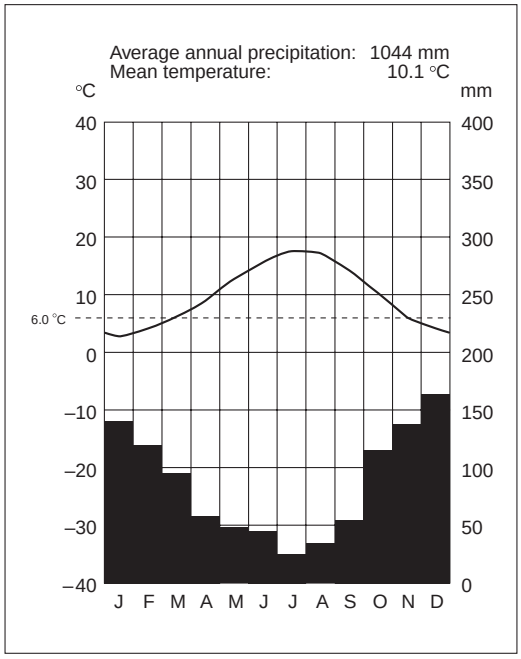


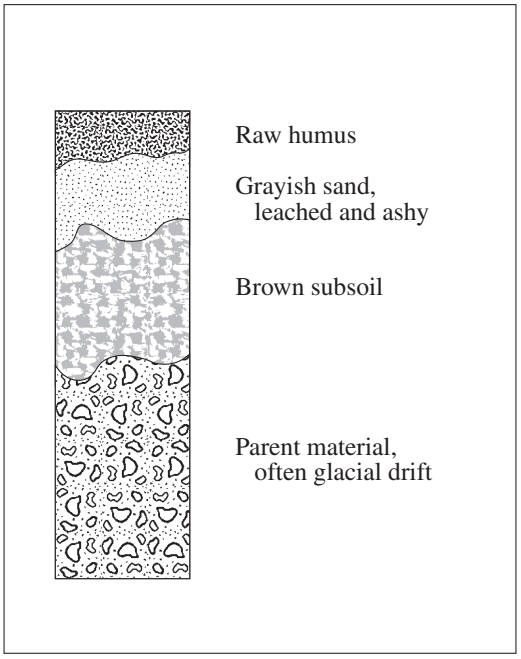
Understanding and Application **(PLO: 2B1)**

5. What accounts for the difference in air temperature between locations **X** and **Y**?

* A. aspect
B. altitude
C. latitude
D. continentality

Use the following climate graph and soil profile to answer question 6.





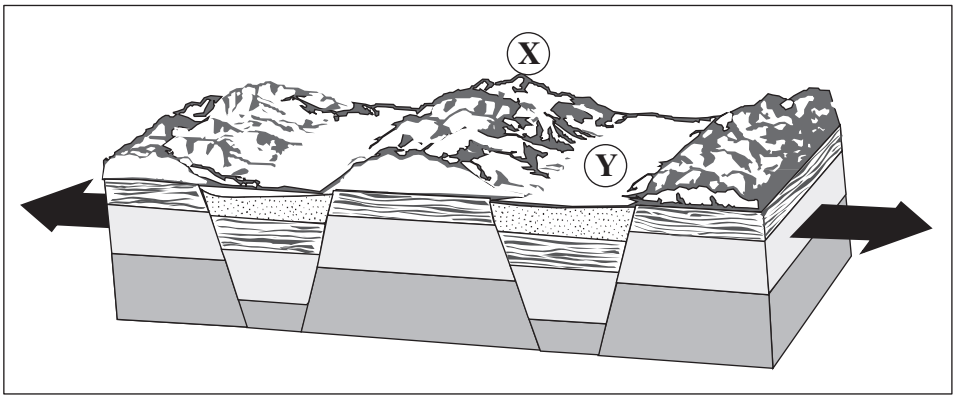
Understanding and Application **(PLO: 2B3)**

6. What is the vegetation and type of soil commonly represented by the data?

   A. grasses and chernozem
   B. xerophytes and sierozem
* C. coniferous trees and podzols
   D. broadleaf evergreens and laterites

C. TECTONIC PROCESSES

Use the following diagram to answer question 7 and 8.



Understanding and Application **(PLO: 2C2)**

7. Identify features **X** and **Y** in the diagram above.

* A. horsts and grabens
B. sills and batholiths
C. anticlines and synclines
D. block and fold mountains

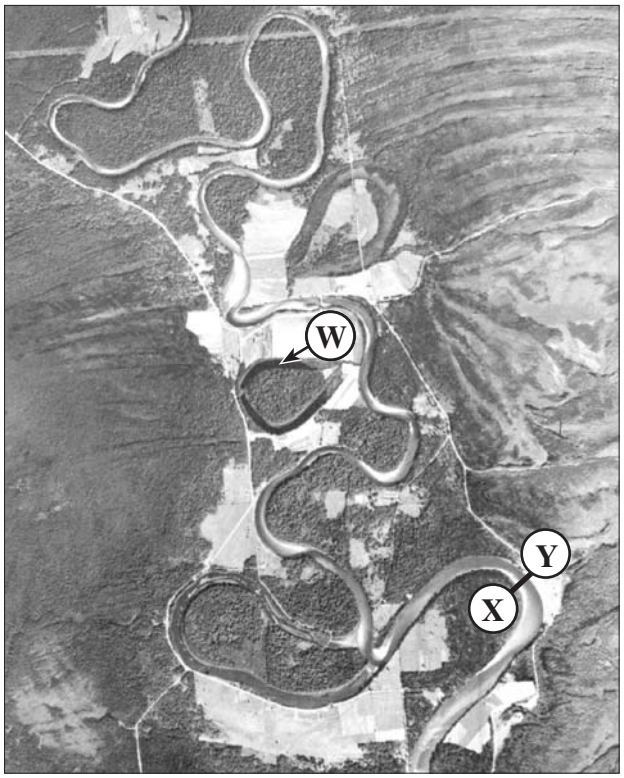
Understanding and Application **(PLO: 2C1a)**

8. Which process is illustrated in the diagram?

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

D. GRADATION PROCESSES

Use the following photograph to answer questions 9 and 10.



Understanding and Application **(PLO: 2D3b)**

9. Identify the feature labelled **W** in the photograph above.

* A. oxbow lake
B. braided stream
C. diversion channel
D. irrigation reservoir

Understanding and Application **(PLO: 2D3b; 1C1)**

10. Which of the following represents the cross section between **X** and **Y** ?

A.


* B.


C.


D.


3. RESOURCES OF THE EARTH

A. NATURE OF RESOURCES

Understanding and Application **(PLO: 3A4)**

11. Global fresh water resources could **best** be conserved through improvements in

* A. irrigation techniques.
B. domestic water regulations.
C. the disposal of liquid and solid wastes.
D. regulations to reduce industrial effluents.

Understanding and Application **(PLO: 3A1)**

12. Which of the following activities is involved in the processing of a non-renewable resource?

A. fishing
B. ranching
* C. mining and smelting
D. pulp and paper manufacturing

1. NATURE OF GEOGRAPHY

C. SKILLS

Use the Topographic Map and the Air Photograph of Lake Louise on the following pages to answer questions 13 and 14.

Understanding and Application **(PLO: 1C1)**

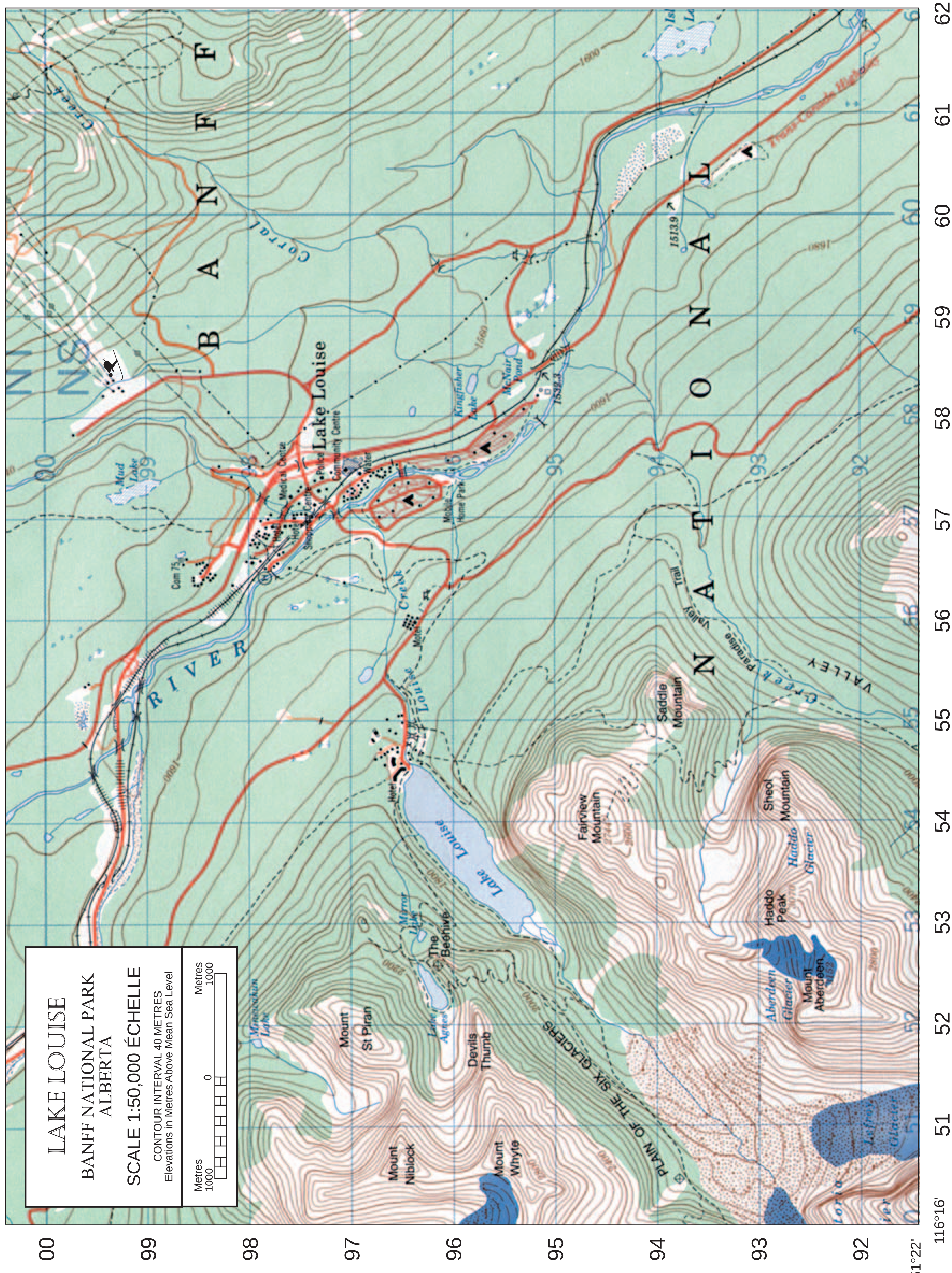
13. The elevation of the top of Mount St. Piran (5196) is approximately

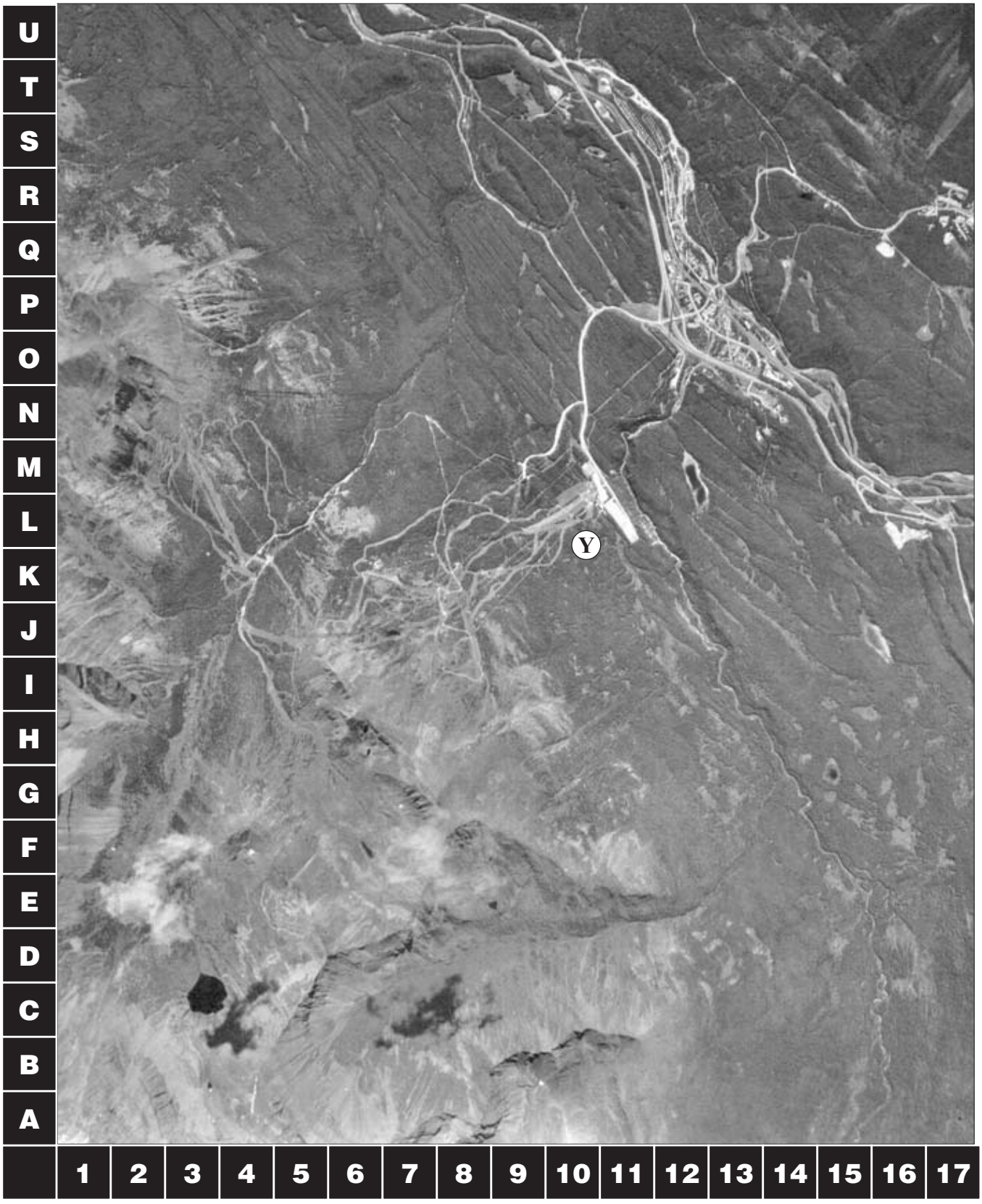
A. 2410 m.
B. 2560 m.
* C. 2610 m.
D. 2880 m.

Understanding and Application **(PLO: 1C1, 1C2)**

14. The cultural feature **Y** on the air photograph is a

* A. ski hill.
B. mining operation.
C. logging operation.
D. power transmission line.


LAKE LOUISE
BANFF NATIONAL PARK
ALBERTA
SCALE 1:50,000 ÉCHELLE
CONTOUR INTERVAL 40 METRES
Elevations in Metres Above Mean Sea Level
Metres 1000
0
Metres 1000
BANFF NATIONAL
Lake Louise
Community Centre
Medical Centre
Mobile Home Park
Kingfisher Lake
McNair Pond
Mud Lake
Corral Creek
RIVER
Louise Creek
Lake Louise
Mirror Lake
The Beehive
Lake Agnes
Mount St Piran
Devils Thumb
Mount Niblock
Mount Whyte
PLAIN OF THE SIX GLACIERS
Fairview Mountain
Saddle Mountain
Paradise Valley Trail
Paradise Creek
VALLEY
Sheol Mountain
Haddo Glacier
Haddo Peak
Mount Aberdeen
Aberdeen Glacier
Lefroy Glacier
Trans-Canada Highway
1513.9
1532.3
116°16'
51°22'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Y

1. NATURE OF GEOGRAPHY

Higher Mental Processes **(PLO: 1B4, 3C1)**

Use the Topographic Map and the Air Photograph of Lake Louise on the previous pages to answer question 1.

1. Recently, concerns have been expressed about the ability of the Lake Louise region, one of North America's most popular tourist spots, to withstand the pressures of human activity. Explain how increased human activity threatens the park. Discuss management strategies that would help protect the region. Answer in **paragraph** form. **(10 marks)**

Response:

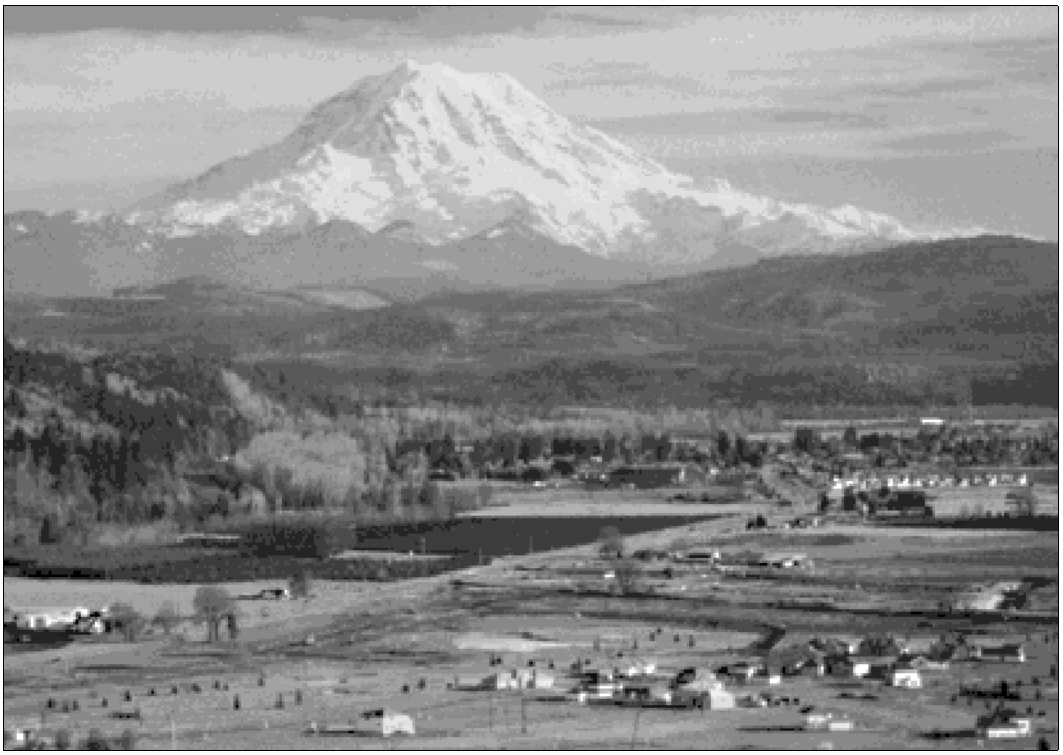
Threats of Human Activity to the Park	• more people means more effluent in the river • more garbage and litter to dispose of in nearby dumps • increased traffic on the Trans Canada Highway (more pollution) • more acid precipitation from increased traffic • more run-off from the transportation systems along the river • increased use of salts on the roads to keep them safe in winter • need for protection of wildlife from the roadways which interfere with migration patterns (fencing and tunnels) • pressures to expand the commercial and residential developments will threaten the sensitive landscapes along the river (loss of plant and animal habitat) • limited space to expand • more runs and service facilities will be needed for skiers and snow boarders (will reduce habitat) • increased pressure and damage on the trail system and hillsides from hikers and mountain bikers • more people angling on the rivers and streams, reducing stocks • human/animal confrontation (bears) • avalanche/landslides/mass wasting due to human actions • deforestation due to urban/recreation expansion • possible overuse/shortage of fresh water due to future expansion • forest fires • visual/aesthetic pollution

Management Strategies that Would Protect the Region	• controlled growth of the town and its businesses • vertical not horizontal development in the town site (if only to limit sprawl) • wildlife corridors and overpasses for the migration of animals • restrictions on the use of the facilities in the park • limitations on the numbers of hikers/bikers on the trails • strict building and development code • sophisticated waste treatment facilities • improved design of road and highway drainage • strict guidelines governing the guiding operators in the park • education of tour operators and tourists • quota/user fees, more policing and management • increase the number of park rangers • laws and enforcement • limit car traffic — use buses/carpool etc. • guided tours to control park use • tolls/increased tolls

2. SYSTEMS OF THE EARTH

Higher Mental Processes **(PLO: 1A3, 1C3, 2C1a, 2C1b, 2C3)**

Use the following photograph to answer question 2.



2. a) **Explain** the processes that have created this volcanic cone. **(2 marks)**

Response:

Description of Plate Activity	• composite cone — created by subduction — as an ocean plate subducts (slides) under another plate (continental or oceanic) it melts, sending bubbles of magma towards the surface (over a long period of time, a series of eruptions will create a cone composed of layers of ash, cinder and lava) • convergence

b) **Outline** one physical and one economic threat of volcanic activity. **(2 marks)**

Response:

Physical Threats from Volcanic Activity	• loss of life, destruction of buildings and infrastructure from – seismic activity – tsunamis – lava flows – mud flows (lahars) – siltation of rivers – flooding – nuée ardentes (pyroclastic flows) • climate change (temporary and long-term) – ash increases albedo rate and atmospheric absorption of insolation – ash decreases surface radiation • alters weather patterns – increased precipitation from particulate • sulphuric acid increases acid precipitation • ash affecting air traffic • destruction of forests • damage to people and buildings from falling ash and tefra
Economic Threats from Volcanic Activity	• clean-up costs • loss of property • loss of tourist dollars • cost of insurance will increase • destruction of buildings and infrastructure • loss of jobs and tax revenue (income) due to businesses closing • loss of resources (forests, agricultural land, minerals, fish, fresh water) • disruption of transportation and communication (reduced trade) • taxes may increase to cover the cost of evacuation, clean-up and reconstruction • cost of repairs to – dikes – roads and bridges – communication links – vehicles and aircraft engines – gas, water, sewage, power lines • damage to recreational areas • medical expenses • government has to pay for clean-up (taxes increase to pay for damage)

c) **Suggest** two ways that people could prepare for a volcanic eruption. **(2 marks)**

Response:

Ways to Prepare for a Volcanic Eruption	• create lava and lahar spillways • use GPS and satellites to monitor path of eruption • monitor and measure emissions of gas, ash, or steam • plan evacuation routes and practice evacuation procedures • reinforce and heighten dikes along rivers draining volcanic landscapes • create and enforce zoning laws so that development is restricted in high-risk areas • use seismographs to monitor seismic activity (earthquake swarms indicate the movement of magma) • use laser beams, tiltmeters and surveying instruments to monitor any change to the shape of the mountain (lava dome on Mt. St. Helens) • use satellites (remote sensing) and thermal measurements to monitor the temperature of nearby hot springs (a temperature increase may mean magma is approaching the surface) • determine the volcano's past eruption history, the pattern could be used to forecast future eruptions (scientists predicted that Mt. St. Helens could erupt before the end of the century) • education • improved communications (radio, TV warnings) • purchase insurance • don't live there/move away

3. RESOURCES OF THE EARTH

Higher Mental Processes **(PLO: 3A3, 3B2)**

Select one of the following activities to answer question 3.
Indicate your selection with a ✓.

☐ Fishing ☐ Agriculture

3. a) **Describe** three threats to the activity that you have selected. **(3 marks)**

Threats to Fisheries	• global warming — the warming of coastal waters has a profound impact on the elimination of certain species of fish (salmon) and the introduction of new species (mackerel) — ultimately impacts species above and below on the food chain • lack of sufficient precipitation in the fall impacts fish spawning rivers • spread of disease could eliminate fish stocks — farmed Atlantic salmon could infect wild Pacific salmon stocks • aquaculture/fish farm competition with native species • introduction of foreign species • overpopulation of predatory species — increase in seal populations has a direct impact on fish stocks • overfishing/overharvesting • improved technology for fishing — factory ships, use of drift nets, use of satellites for tracking schools of fish • oil spills • threat of offshore oil drilling along coastlines and potential spills • fisheries Department overestimates fish stock • change in climate influences fish habitat — global warming, El Niño, UV rays • ozone depletion — destroys plankton (food source) • logging may increase river sediment, covering spawning beds • foreign and domestic fishermen disregard conservation methods • destruction of wetlands due to urban and industrial development • competition with international fishers • harvesting techniques • industrial run-off into streams and coastal areas • dam construction — damage to spawning grounds • competition for dwindling stocks

Threats to Fisheries (continued)	• new net sizes • catch and release programs • predator species introduced (bass in BC lakes, Atlantic salmon) • new technology — more fish caught (better sonar, GPS) • eutrophication • conflicts between user groups (natives vs. commercial vs. sports fisheries) • toxic run-off from agriculture
Threats to Agriculture	• climate change/global warming — the fluctuation of weather patterns directly impacts growing seasons (warmer, drier summers create drought conditions on the Prairies) • soil erosion due to unsustainable practices • insect infestations — destroy crops by decreasing yield and quality • hail storms, floods and other extreme weather phenomena destroy crops or render them unmarketable • the elimination of groundwater sources for irrigation purposes (Ogallala Aquifer) • poor agricultural practices: overgrazing, overcultivation, lack of crop rotation • excessive application of chemical fertilizers, pesticides and herbicides (agrocides) • excessive irrigation/salinization • urban development such as housing, transportation, recreation (golf courses taking over farmland), industry, urban sprawl • economic tariffs • lack of subsidies granted to Canadian farmers for international competition • overreliance on monocultures and genetically modified seeds • ground level (ozone) pollution reduces crop yields • desertification • overmechanisation — leads to destruction of topsoils • removing land from the Agricultural Land Reserve • huge debt loads force North American farmers into unsustainable practices • young people — don't want to farm • farmers — quitting and moving to urban areas for employment • flooding • diseases (mad cow) • exploitation ethic • diseases in crops

b) **Suggest** three strategies that could help sustain this activity for future generations.

(3 marks)

Response:

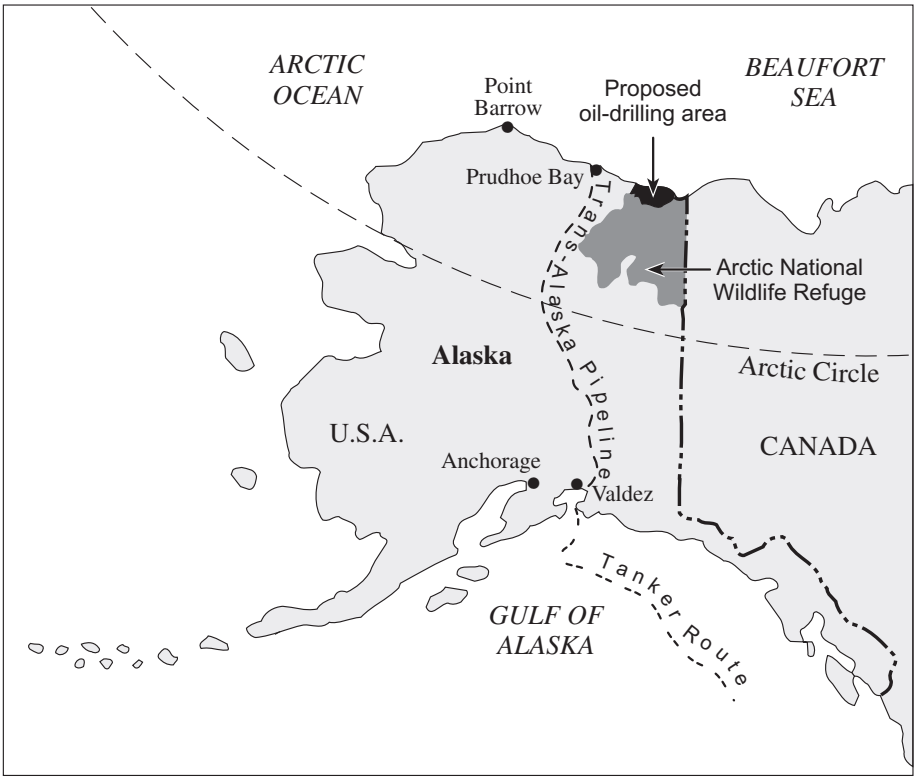
Strategies to Sustain Fisheries	• expand the egg-take and hatchery programs • bring together stakeholder groups (the Department of Fisheries and Oceans, Aboriginal Groups, Fishers, Salmonid Conservation Groups) to establish annual quotas and/or closures of areas • create fish ladders, utilize fish ferries • develop fish hatcheries • catch-and-release programs in the sports fishery • increase costs for fishing licences • restrict forestry along spawning rivers (100 metre buffer zone) • ban dam construction on spawning rivers • convert areas with spawning rivers to parks • implement salmon enhancement programs • use tertiary sewage treatment (do not dispose of sewage in streams) • limit the catch for all groups (sport, native and commercial fishers); reduce the annual allowable catch • negotiate a conservation treaty with the United States (and other international stakeholders) • impose large fines and jail terms on foreign fishers in Canadian waters • place a moratorium on fishing (prohibit fishing for extended periods of time to allow fish stocks to replenish) • use aquaculture (could decrease pressure on wild stocks, but could also endanger wild stocks if mismanaged) • place size restrictions on catches (put smaller, immature fish back) • increase awareness through education programs • reduce air and water pollution • restrictions on emissions from boat engines • only let fish farms raise local stocks (no Atlantic salmon) • buying back commercial licences • more pressure from lobby groups (Greenpeace/David Suzuki) • liming of lakes (buffer)

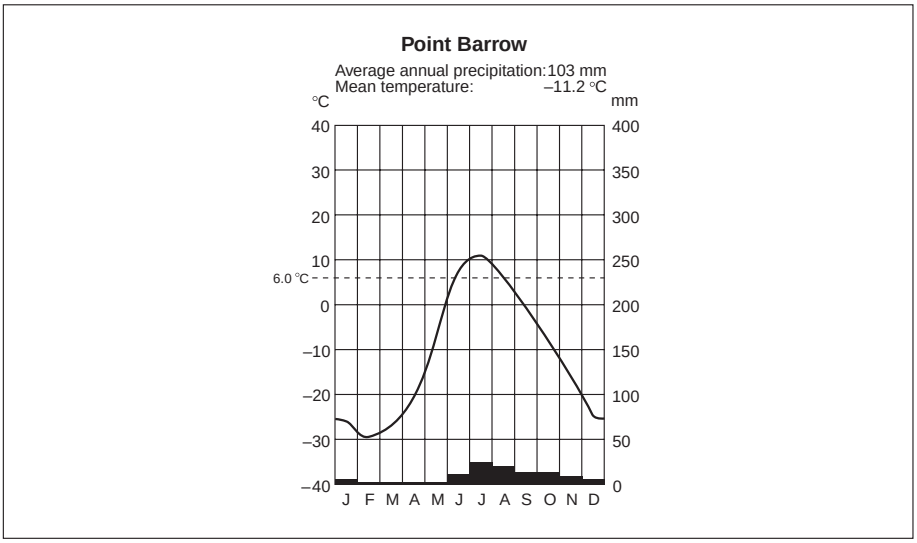
Strategies to Sustain Agriculture	• grow crops that can adapt to the changing climatic conditions within a region (strains of wheat that are drought resistant) • examine the introduction of genetically modified crops — ones that increase yield potentials and are pest and disease resistant • expand the use of efficient, water conserving irrigation systems (drip irrigation techniques) • expand the use of natural fertilizers and biological agents to fight pests and disease • soil conservation strategies (contour ploughing, terracing, shelterbelts, field rotation, crop rotation, intercropping, organic methods) • establishing Agricultural Land Reserve • expansion of educational programs • reducing soil erosion • subsidizing agriculture to ensure sustainable practices (reducing debt loads) • small-scale organic agriculture • greenhouses • leaving ground cover/laying hay over fields

Use the following Case Study to answer question 4.

CASE STUDY

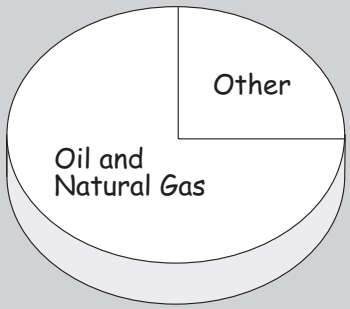
Proposed Oil and Gas Development for the Arctic National Wildlife Refuge





Arctic lowlands are the newest place for oil exploration and development. In addition to the American activities in and along the Alaskan coast, Russia and Canada currently have active oil programs.

Alaskan State Revenues by Industry



Species File

Inhabitants of the Arctic National Wildlife Refuge:

- caribou
- grizzlies
- wolves
- 36 fish species
- 36 land animals
- 9 marine mammals
- 160 different bird species (both migratory and resident)

Opponents of any further oil exploration and development in the Arctic National Wildlife Refuge claim that the amount of oil is insufficient to either meet any perceived or real shortage, or reduce American dependence on imported oil. More importantly, they argue that the economic boost cannot outstrip the inevitable environmental costs.

A proposal has been made that the U.S. government allow the extraction of oil and gas from the Arctic National Wildlife Refuge.

4. Using your understanding of geography and the data provided:

   - **describe** the physical characteristics that make the Arctic National Wildlife Refuge a fragile ecosystem;
   - **outline** the economic benefits associated with oil extraction and development in the refuge;
   - **assess** the consequences of proceeding with this proposal.

   Answer in **multi-paragraph** form. **(10 marks)**

Response:

Physical Characteristics	• large commercial gas and oil deposits • cold Arctic climate — bitter cold winters, dominated by a polar high-pressure system; short, cool summers affected by a weak sub-polar low pressure system; marginal precipitation, with most precipitation occurring in the short summer months • tundra vegetation is sparse; only mosses, lichens, ground-hugging vegetation, short flowers and shrubs are able to grow in this northern Arctic environment (summers are incredibly short — there are only 10 to 12 weeks when temperatures rise above freezing; short growing season) • azonal soil — tundra soil: permafrost dominates as the length of summer is insufficient to thaw the complete horizon; there is little to no humus and boggy soils; inceptisol soil type • natural landscape ranges from mountain foothills to entirely flat terrain; coastal location; marine environment • Arctic National Wildlife Refuge — home to numerous species of animals, including caribou, wolves, grizzly bears, 36 indigenous species of fish and land mammals, 9 species of marine mammals, and 160 different types of migratory and resident birds (many of these animals are endangered) • seismically active area

Economic Benefits	• drilling in the Arctic National Wildlife Refuge — will help satisfy America's appetite for fossil fuel sources, thus reducing reliance on imported petroleum resource (OPEC oil) • oil industry — Alaska's primary revenue generator — providing as much as 73% to 86% of the state's total revenues • further oil exploration and development — supported by a large number of Alaska's business groups as the industry provides enormous direct and indirect employment opportunities • improvements in the means of extraction and transportation of petroleum products — keep environmental damage to a minimum • oil deposits within the Arctic National Wildlife Refuge and along the Alaskan coast — easily accessible; relatively affordable • as long as the oil remains untapped, Americans will have to pay more money for imported petroleum resources • cheaper to transport because of improved technology • exporting (profit)

Consequences	• further oil exploration and development — continue to threaten this fragile ecosystem • both exploration and development — adverse effects on animal, fish and fowl habitats • impact on other industries (fishing) from oil spills • species depletion (disruption of food chain) • the loss of migratory species — impacts the lifestyle and income of many Alaskans (notably on aboriginal peoples) • continued dependence on fossil fuels — further delays the development of alternative energy sources (solar, wind, tidal, fuel cell technologies) • environmental repercussions — may be irreversible • continued consumption of fossil fuels — adds to our growing global emission problems (global warming) and acid precipitation concerns • increase in solifluction/mass wasting • risk of ocean pollution due to the use of oil tankers • threat of spills on the coastal plain from drilling operations • destruction of fragile ecosystem (permafrost) • disruption of aboriginal lifestyle • political issues arising between state and federal governments • changes to flora and fauna • political activism • accidental mishaps • international conflict • potential seismic activity • airborne pollutants could move • stricter laws governing resource extraction • creates boom/bust towns • increased jobs • increased road construction making the area more accessible • increased infrastructure • cultural and social changes to aboriginal archeological systems • detrimental to the sustainability of the region

APPENDIX I: SCORING GUIDE FOR THE CASE STUDY

The 5 Response:	• Thesis is clear, relevant and valid with references to the topic throughout. • Excellent interpretation of the data, which demonstrates a broad understanding of the concepts of geography. • Precise selection of supporting detail and where assessment is required, insightful analysis is provided. • Expression is clear and fluent.
The 4 Response:	• Thesis is evident and the topic is addressed throughout. • Interpretation of the data is proficient with a sound understanding of geographic concepts. • Appropriate selection of supporting detail with some analysis. • Expression is clear and fluent.
The 3 Response:	• Thesis is attempted but may be unclear or ambiguous. • Repetition of data with organization and planning but limited interpretation and adequate understanding of geographic concepts. • Expression is satisfactory.
The 2 Response:	• Thesis is unfocused and the writer is off topic. • Limited or no interpretation of data with a flawed understanding of geographic concepts. • Expression is awkward and simplistic.
The 1 Response:	• No attempt at a thesis. • Data used incorrectly or not at all in demonstrating little or no understanding of geography.
The 0 Response:	• While writing is evident, no discernible attempt has been made to address the topic.
The NR Response:	• A blank paper with no response given.

APPENDIX II: KEY WORDS

Students frequently lose marks by not addressing the question as given. It is important for teachers to instruct their students in how to read questions and answer them in a fully developed way. The following list of frequently used "Key Words" will help teachers and students to read, analyze and respond to open-ended or short-answer questions more effectively. When markers evaluate answers to questions using these words, they generally have the following definitions in mind:

AGREE OR DISAGREE	Support or contradict a statement; give the positive OR negative features; express an informed opinion one way or the other; list the advantages for OR against.
ASSESS	Estimate the value of something based on some criteria; present an informed judgement. Command words such as assess strongly suggest to the student that two schools of thought exist about a given subject. These questions often involve weighing the relative merit of conflicting points of view; e.g., negative vs. positive, strong vs. weak components, fundamental vs. immediate, etc.
COMPARE	Give an estimate of the similarity of one event or issue to another, give an estimate of the relationship between two things. Often used in conjunction with CONTRAST.
CONTRAST	Give an estimate of the difference between two things. See COMPARE.
DESCRIBE	Give a detailed or graphic account of an object, event, or sequence of events.
DISCUSS	Present the various points of view in a debate or argument; write at length about a given subject; engage in written discourse on a particular topic.
EXPLAIN	Give an account of what the essence of something is, how it works, or why something is the way it is. This task may be accomplished by paraphrasing, providing reasons or examples, or by giving a step-by-step account.
IDENTIFY	Clearly establish the identity of something based on an understood set of considerations; recognize the unique qualities of something and state the criteria used to identify it; simply provide the name of something.
ILLUSTRATE	Give concrete examples to clarify a point or an idea.
LIST	Give a catalogue, in some specified order, of names, ideas, or things that belong to a particular class of items.
OUTLINE	Give a verbal description of only the main features; summarize the principal parts of a thing, an idea, or an event.
SHOW (THAT)	Give facts, reasons, illustrations or examples, to support an idea or proposition.
STATE	Give the key points with supporting reasons.
SUGGEST	To identify and propose; to present viable alternatives, options and solutions.
SUPPORT	Defend or agree with a particular, predetermined point of view; give evidence, reasons, or examples.