

Geography 12
August 2007 — Form A

Provincial Examination — Multiple-Choice Key

Note: The PLOs are coded using the 1998 IRP.

Topics	Weightings	Cognitive Processes	Question Types
1. The Nature of Geography	18%	K = Knowledge	53 = Multiple Choice (MC)
2. Systems of the Earth	50%	U = Understanding	5 = Written Response (WR)
3. Resources of the Earth	32%	H = Higher Mental Processes	

Question Number	Keyed Response	Cognitive Process	Mark	Topic	PLO	Question Type	Question Source
1.	D	K	1	3	3A1	MC	
2.	C	U	1	3	3A1	MC	
3.	A	U	1	3	3A2, 3B1	MC	
4.	A	U	1	1	1A1	MC	
5.	A	K	1	3	3B2	MC	
6.	D	K	1	1	1B4	MC	
7.	B	U	1	1	1B2	MC	
8.	C	K	1	1	1B1	MC	
9.	D	K	1	2	2A2, 1B2	MC	
10.	D	K	1	2	2B5	MC	
11.	C	U	1	2	2A3	MC	
12.	B	K	1	2	2A2	MC	
13.	D	U	1	2	2B4	MC	
14.	B	U	1	1	1C2, 2A3	MC	
15.	C	U	1	1	1C2, 2A3	MC	
16.	A	U	1	1	1C2, 2A3	MC	
17.	C	U	1	1	1C2, 2A3	MC	
18.	A	U	1	2	2B1	MC	
19.	C	U	1	2	2B2	MC	
20.	B	U	1	2	2B2	MC	
21.	D	U	1	2	2B2	MC	
22.	B	U	1	2	2B4	MC	
23.	C	U	1	2	2B3	MC	
24.	C	U	1	2	2B3	MC	

Question Number	Keyed Response	Cognitive Process	Mark	Topic	PLO	Question Type	Question Source
25.	B	U	1	3	3A1, 1B4	MC	
26.	B	U	1	1	1B1	MC	
27.	C	U	1	2	2C1e	MC	
28.	C	U	1	2	2C1d	MC	
29.	A	K	1	2	2C3	MC	
30.	B	U	1	2	2C1a	MC	
31.	C	K	1	2	2C1b	MC	
32.	C	U	1	2	2C1b	MC	
33.	B	U	1	2	2C1b	MC	
34.	B	U	1	2	2D1	MC	
35.	D	U	1	2	2D3	MC	
36.	D	U	1	3	3A1, 2D3a	MC	
37.	B	K	1	2	2D2	MC	
38.	D	U	1	2	2D3b	MC	
39.	D	U	1	2	2D3b	MC	
40.	C	U	1	2	2D3E	MC	
41.	C	U	1	2	2D3e	MC	
42.	C	U	1	2	2D3d	MC	
43.	B	U	1	2	2D3c	MC	
44.	D	U	1	2	2D3c	MC	
45.	A	1C1	1	1	1C1	MC	
46.	D	1C1	1	1	1C1	MC	
47.	B	1C1	1	1	1C1	MC	
48.	A	1C1	1	1	1C2	MC	
49.	C	2D3b	1	1	2D3b	MC	
50.	B	2D4	1	2	2D3b	MC	
51.	B	1C1	1	2	1C2	MC	
52.	A	1C1	1	1	1B4	MC	
53.	D	1B3	1	1	1B3	MC	

Geography 12

August 2007

Provincial Examination — Written-Response Key

Note: The PLOs are coded using the 1998 IRP.

Topics	Weightings	Cognitive Processes	Question Types
1. The Nature of Geography	18%	K = Knowledge	53 = Multiple Choice (MC)
2. Systems of the Earth	50%	U = Understanding	5 = Written Response (WR)
3. Resources of the Earth	32%	H = Higher Mental Processes	

Question Number	Keyed Response	Cognitive Process	Mark	Topic	PLO	Question Type	Question Source
1.	—	H	4	1	1B3	WR	
2.	—	H	6	1	1B4	WR	
3.	—	U	6	2	2B5	WR	
4.	—	H	6	3	3A2	WR	
5.	—	H	18	3	3C4	WR	

Geography 12
August 2007
Provincial Examination — Scoring Guide

PART B: WRITTEN RESPONSE

Value: 40 marks

Suggested Time: 65 minutes

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

**REFER TO
DATA PAGES**

Use the **Topographic Map and Air Photograph of Sault Ste Marie** to answer questions 1 and 2.

1. **Explain** four different ways the geography of the Sault Ste Marie region has contributed to the economic success of the community. **(4 marks)**

Response:

- | | |
|--|---|
| | <ul style="list-style-type: none">• Cheap water transportation• Hydro-electricity from the St. Mary's River• River used as a waste disposal system• River used for cooling in the steel-making process• Located near natural resources, such as iron ore, coal, limestone and softwood lumber• Nearness to the markets of the heartland of North America• Access to skilled labour from the heartland of North America• Good natural drainage reduces threat of flooding• Flat land for development, infrastructure and expansion• Gravel for construction and transportation routes |
|--|---|

2. What impact have the industrial activities had upon the Sault Ste Marie environment?

Answer in **paragraph** form.

(6 marks)

Response:

	<ul style="list-style-type: none">• Thermal pollution of the river when water is used for cooling, then returned to the river.• Effluent from the steel mill is dumped into the river and can severely affect the river ecology with heavy metals (persistent toxic substances, benzene and polycyclic aromatic hydrocarbons).• Acid rain from the chemicals and mill emissions.• Sewage and septic effluent is dumped into the river with serious threats to the river ecology.• Effluent from the St. Mary’s Pulp Mill may include organo chlorines, dioxins and furans.• Oil spills and leakage associated with transportation of steel and raw materials.• Iron ore and gravel mining may be open pit, thus habitat loss and potential acid rock drainage concerns.• Chemical contamination from the lumber mill and agricultural activities.• Restrictions on fish and wildlife consumption.<ul style="list-style-type: none">– Bioaccumulation of heavy metals (trout-lead).• Threats to organisms in the food chain, thus degraded fish and wildlife population.• Industrial activities threaten river:<ul style="list-style-type: none">– Eutrophication or undesirable algae.– Restrictions on water consumption.– Beach closures.• Aesthetically unpleasant.• Hydro-electric power generation has altered the St. Mary’s River ecology.• Steel mill slag heap is “contained” by the dike.<ul style="list-style-type: none">– Potential for leaching into the river.• Domestic run-off.
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Use the following information to answer question 3.

Arctic sea ice melting at a rate of 74 000 square kilometres a year is comparable to the size of Lake Superior.

3. **Outline** three different effects of rapid Arctic ice loss and explain three different reasons why this issue is difficult to solve. **(6 marks)**

Response:

Effects	<ul style="list-style-type: none"> • habitat loss for species • change in the organisms found in the warmer waters • invader species will move into the new habitat and take it over • alteration of the food chain • loss of prey for consumers such as polar bears • change is so rapid that animals are unable to adapt • easier transport—opening up of Northwest Passage • loss of potential fresh water source • change of currents • threats to oil rigs from icebergs • rise of water levels—coastal flooding and increase in storm damage
Difficulties	<ul style="list-style-type: none"> • climate change is a global warming issue • failure of countries such as Canada to meet the goals of Kyoto and other agreements • increased emissions of greenhouse gases into the atmosphere from various sources (point and non-point pollution) • loss of snow and ice changes albedo • open ocean is dark, therefore more absorption of radiation from the sun, thus a warmer body of water • dependence on fossil fuels for industry and transportation • global economy/politics depends on oil and gas

Use the following information to answer question 4.

Controversy surrounds the fact that clear-cut logging is still the dominant forest harvesting method used in Canada.

4. **Assess** reasons why clear-cut logging should continue **and** why it should not continue.
Answer in **paragraph** form. **(6 marks)**

(full marks will not be awarded unless both sides of the controversy are addressed)

Response:

<p>Continue Using Clear-Cutting</p>	<ul style="list-style-type: none">• economic benefits<ul style="list-style-type: none">– creates jobs (direct and indirect)– generates revenue (profits and taxes)– provides wood and paper products (commodities for trade)– government collects stumpage fees• effective harvesting method<ul style="list-style-type: none">– lower labour requirements further reducing production costs– safer for workers– larger trees are easier to extract– most economical way to remove large trees– little planning or site preparation required– size of cut can be varied to best match the topography of the region• improved health of forest<ul style="list-style-type: none">– dead trees can be removed reducing the spread of disease or infestation– where there is a forest fire history clear-cut reduces the threat of fire– creates a fire break between forested areas– for some forests (lodge pole, jack pine, black spruce, aspens, poplars) clear-cutting mimics natural processes more closely than other harvesting methods• reforestation<ul style="list-style-type: none">– wood is a renewable resource– allows easier replanting and tending of the regenerating forest– genetically improved forest species (silviculture)– government can establish and enforce guidelines and regulations to ensure forest companies comply• improved access for public land via logging roads<ul style="list-style-type: none">– hunting, fishing, hiking and other outdoor activities• land is available for development
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**Discontinue Using
Clear-Cutting**

- reduced air quality and climate change
 - large forests are a major producer of oxygen and filter pollutants from the air
 - wood debris (crowns and stumps) decompose releasing carbon dioxide
- alteration of water cycle
 - reduced infiltration and transpiration rates
 - increased surface run-off and chance of flooding
 - soil compaction from heavy equipment reduces infiltration and increases erosion
- increased rates of erosion
 - greater likelihood of mass wastage
 - siltation and turbidity of riparian zones
 - harms fish-spawning grounds
- diminished water quality
 - siltation
 - logs, stumps and wood debris in the water
 - fuel leaks from harvesting equipment
 - changes to water temperature (trees no longer provide shade)
- alteration, fragmentation and destruction of habitat
 - alters the food web or chain
 - loss of biodiversity
 - interruption of migration
 - new plant growth (saplings and seedlings) are exposed to wind
 - removes cover needed by wildlife for protection from predators and hunters
- conflicts with other activities
 - fishing
 - tourism (loss of scenic resources)
 - cultural identity and spiritual events for indigenous people and those who inhabit or live near the forest
 - intergenerational value (value attributed to old-growth forests has changed over human history; it is the obligation of current generations to sustain forests for future generations)

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

- **Describe** the physical characteristics of the Los Angeles region.
- **Explain** the impact of natural hazards and environmental threats upon the people of the Los Angeles region.
- **Propose** strategies that could be implemented to reduce the impact of these threats in the Los Angeles region.

Answer in **essay** form.

(18 marks)

Response:

<p>Physical Environment</p>	<p>Topography</p> <ul style="list-style-type: none"> • Tectonic processes and resource extraction have caused land subsidence. • The San Andreas Fault as well as a number of other smaller faults have formed as the Pacific plate moves northward against the North American plate. Los Angeles itself was built on several of these smaller faults. • Coastal location makes area susceptible to tsunamis. • Santa Monica and San Gabriel Mountain chains can trap air in the Los Angeles basin; this can cause very poor air quality. • Slopes are susceptible to landslides. • Plate movement has produced several large earthquakes in the region. • Xerophytic vegetation is susceptible to fire damage. <p>Climate</p> <ul style="list-style-type: none"> • Region of low annual precipitation occurring in winter. • Santa Ana winds blow offshore. • The Mediterranean climate with its drought resistant (xerophytic) vegetation. • Region to the east is desert, contributing to hot, dry winds.
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Impact of Natural Hazards and Environmental Threats

Earthquakes

- High population densities are close to major fault lines, increasing chances of damage.
- Earthquakes increasingly cause considerable damage often in the billions of dollars.
- Well-developed infrastructure, (freeways, communications, gas lines, power lines) are very susceptible to earth transfers. Damage from earthquakes and related fire/gas problems can be widespread and extensive.

Tsunamis

- Coastal development threatened by possible earthquake.

Subsidence

- The removal of ground resources such as oil and ground water has caused parts of this region to drop in elevation.

Landslides and Mudflows

- Damage by landslides has been compounded by development of coastal and mountainous areas. For example: road construction and vegetation removal has occurred in sloped areas, and rivers have been channelled, reducing infiltration.

Run-Off

- Further upslope, removal of vegetation, brush fires and development has increased surface run-off. This causes extreme fluctuations in river flow.

Droughts

- An extensive system of reservoirs and aqueducts has been constructed to bring water to the city, but, with increased development, pressures will mount on water resources and drought will have increased effects.

Wildfires

- Urban development in dry regions can increase damage due to brush fires.
- Removal of natural vegetation.
- Chances of human-caused fires increase with urban settlement.

Fog and Smoke

- Poor atmospheric quality is the result of interdependent factors:
 - High urban density throughout the region brings industrial and domestic air pollutants.
 - Temperature inversions can result when warm air is trapped in the valley under cooler air.
 - With nowhere to go, the heat builds and causes photo-chemical smogs throughout the region.
 - Global warming increases potential for wildfire and coastal flooding.

**Strategies to
Reduce Threats
of Natural Hazards**

- Building permits and development regulations.
 - Retro-fit existing buildings to reduce damage due to subsidence and earthquakes.
 - Major engineering works (overpasses, bridges, freeways) must be built to high construction standards to minimize damage from subsidence and earthquakes.
 - Control development in areas with soft soil base (coarse sand, fine silt in deltas) to reduce damage due to liquefaction and subsidence.
 - Control development in sloped areas prone to landslides and flooding.
 - Evaluate benefits of “hard” shoreline structures such as seawalls/dikes that protect coastal communities.
 - Strict building codes to reduce damage in storm prone/high wind areas (correct roof strapping, etc.).
 - In wildfire areas, maintain home/vegetation buffer zones to reduce domestic damage.
- Evaluate long-term costs/supplies/demands on water resources. Management options such as water conservation, xerophytic landscaping, watershed restoration and flood plain restoration need to be continually examined for long-term sustainability.
- Stop vegetation removal and increase reforestation and replanting efforts to reduce soil erosion and mass wastage in sensitive areas.
- Increase public health education and warnings about poor air quality, introduce “air care” policies.
- Public campaigns to reduce power consumption will bring power use down and improve air quality.
 - Banning two-stroke engines
 - Incentives to dispose of old engines
 - Reduce driving by using public transportation
 - Air emissions testing for vehicles
 - Use water-based paints/solvents rather than oil-based
 - Use energy-efficient lighting and reduce energy use for heating/air conditioning
- Reduce power use by better urban space planning, (more trees for shade and recreation, with a higher albedo than asphalt).
- Institute stronger industrial and domestic emission controls for better air quality.
- Refine preparedness programs to ensure cities/states work in cooperative ways in case of any major emergency.

SCORING GUIDE FOR THE CASE STUDY

An essay may or may not conform to each and every descriptor within a particular scale point. The marker should classify the response into a category based on general impression rather than by checking off each descriptor. **This is a first draft response and should be assessed holistically.**

6

- Thesis is clearly developed and provides a focus for discussion throughout.
- Superior interpretation and synthesis of the data demonstrates an extensive understanding of geographic concepts.
- Insightful supporting detail and analysis provided; meaningful conclusions are drawn.
- Expression is clear and fluent; the response need not be error free.

5

- Thesis is relevant, providing direction for discussion throughout.
- Excellent interpretation and analysis of the data presents a proficient and broad understanding of geographic concepts.
- Relevant use of supporting detail and analysis; effective conclusions are drawn.
- Expression is clear and fluent; the response need not be error free.

4

- Thesis is relevant providing for an appropriate discussion.
- Competent interpretation of the data showing a satisfactory understanding of geographic concepts.
- Appropriate use of supporting detail with some analysis; adequate conclusions may be drawn or attempted.
- Expression is generally clear and fluent; errors may be present but are seldom distracting.

3

- Thesis is attempted, but may be unclear or ambiguous.
- Simplistic interpretation and repetition of the data demonstrates limited understanding of geographic concepts.
- Minimal use of supporting data with little or no analysis; conclusions may be weak or non-existent.
- Expression is simplistic; errors impede meaning.

2

- Thesis is unfocused and off topic.
- Inadequate interpretation of the data demonstrates a flawed understanding of geography.
- Irrelevant use of supporting detail; analysis is not evident.
- Expression is awkward; errors impede meaning.

1

- No attempt at thesis.
- Limited or no interpretation of the data demonstrates no understanding of geography.
- Absence of supporting detail with no analysis.
- Expression is unclear and makes understanding difficult.

0*

- While writing is evident, no discernible attempt has been made to address the topic given or the writing is illegible.
- * Any zero paper must be cleared by the table head.

NR

- A blank paper with no response given.