

# Geography 12

## January 1999 Provincial Examination

### ANSWER KEY / SCORING GUIDE

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- Topics:**
1. Focus 1 – Environments and People
  2. Focus 2 – Physical and Biological Processes
  3. Focus 3 – Resources
  - Focus 4 – Challenges of the Future

#### Part A: Multiple Choice

<b>Q</b>	<b>K</b>	<b>C</b>	<b>T</b>	<b>CGR</b>	<b>Q</b>	<b>K</b>	<b>C</b>	<b>T</b>	<b>CGR</b>
1.	A	K	2	2B1a	21.	B	U	2	2A2d
2.	C	K	2	2B2e	22.	D	U	2	2A2g
3.	B	K	2	2B1b	23.	A	U	2	2A2c
4.	C	U	2	2B2a	24.	B	U	2	2A2h
5.	D	U	2	2B2e, f	25.	D	K	2	2C1a
6.	C	U	2	2B4f	26.	A	K	2	2C2a
7.	D	K	2	3Ca	27.	B	U	2	2A3b
8.	C	U	2	2B3d	28.	B	U	2	2C2f
9.	C	U	2	2B3g, 2C3b	29.	A	U	2	2C2e
10.	A	K	3	2B3n, 3Ae	30.	D	U	2	2C2c
11.	C	U	2	2B3j, k	31.	C	K	1	1Ca
12.	D	U	2	2B3e	32.	C	K	1	1Bb
13.	B	U	2	2B3f	33.	D	K	3	3Ag
14.	A	K	2	2B3e	34.	D	K	3	3Cb
15.	B	K	2	2B3o	35.	D	K	3	3Ci
16.	D	K	2	2A3g	36.	C	U	3	4Ad
17.	C	K	2	2B3h	37.	D	U	3	4Ad
18.	D	K	2	2A2b	38.	C	U	3	2C3b, 4Ad
19.	D	K	2	2A1b, c	39.	B	U	2	2B3i
20.	C	U	2	2A3a	40.	C	U	2	2B4h

**Multiple Choice = 40 marks**

## Part B: Written Response

<b>Q</b>	<b>B</b>	<b>C</b>	<b>S</b>	<b>T</b>	<b>CGR</b>
1.	1	U	4	2	2B3k
2.	2	H	6	1	1Bd
3.	3	U	6	3	3Cf
4.	4	U	3	2	2C2b
5.	5	H	6	3	3Cd
6.	6	H	3	2	2C2i
7.	7	U	3	2	2B2d
8.	8	H	5	3	3Ci
9.	9	H	5	3	3Ai, 4Bb
10.	10	H	6	3	4Ah
11.	11	U	3	2	2B1d

**Written Response = 50 marks**

Multiple Choice = 40 (40 questions)

Written Response = 50 (11 questions)

**EXAMINATION TOTAL = 90 marks**

### **LEGEND:**

**Q** = Question Number

**C** = Cognitive Level

**T** = Topic

**K** = Keyed Response

**S** = Score

**CGR** = Curriculum Guide Reference

**B** = Score Box Number

**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.**

<b>REFERENCE DATA BOOKLET</b>	<b>Select either coastal feature X or coastal feature Y from Photograph 6 to answer question 1. Indicate your selection with a ✓.</b>
	<input type="checkbox"/> Coastal Erosional Feature X <input type="checkbox"/> Coastal Depositional Feature Y

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

**Response:**

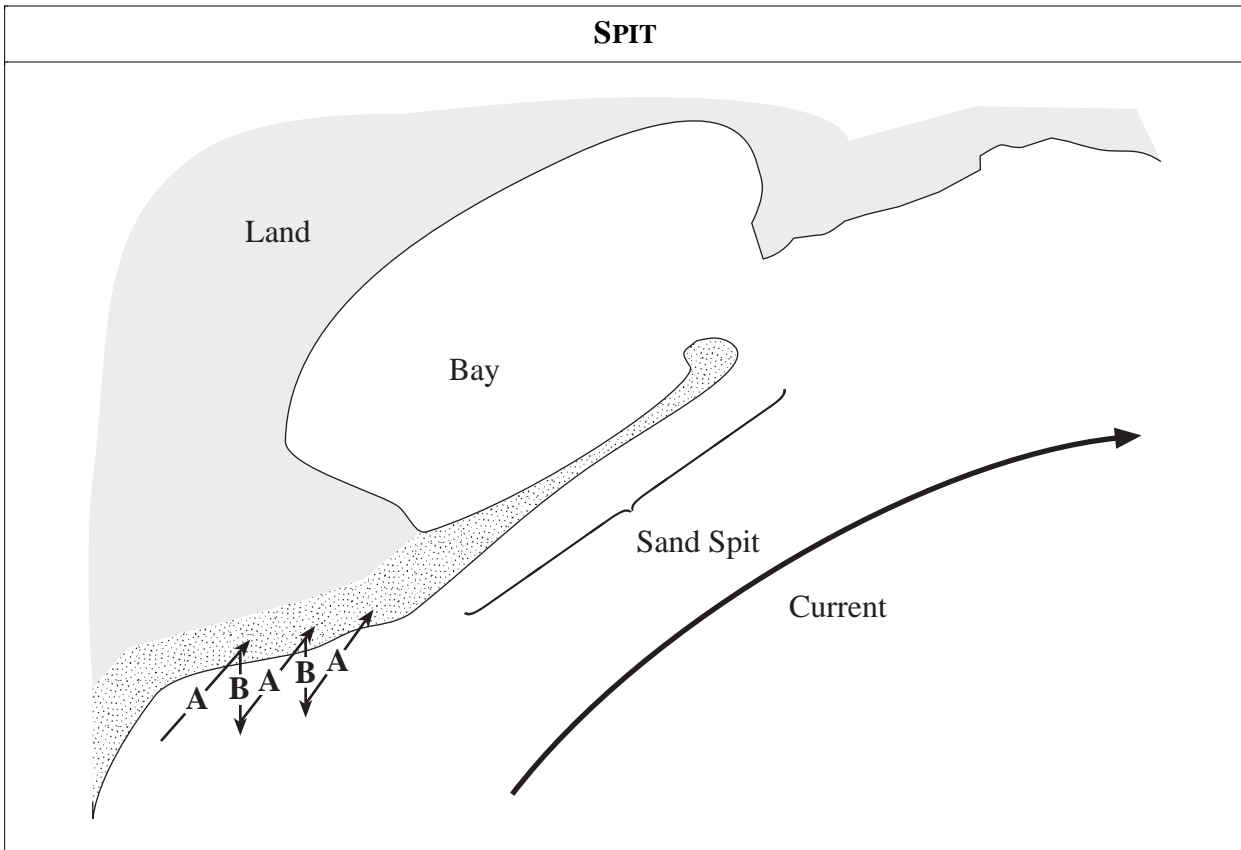
<b>Feature X</b>	<ul style="list-style-type: none"><li>• headland, sea cliff, wave-cut platform, resistant rock, bluff, cave, point</li></ul>
<b>Feature Y</b>	<ul style="list-style-type: none"><li>• spit, development of a baymouth bar</li></ul>

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

**Response:**

<b>HEADLAND</b>	
	<ul style="list-style-type: none"> <li>• Wave action results in the erosion of soft rock on either side of the resistant rock, creating a headland.</li> <li>• Wave erosion is the result of corrasion/abrasion and hydraulic action.</li> <li>• Corrasion/abrasion: Waves pick up sediment and rocks and hurl them against the shoreline.</li> <li>• Hydraulic action: The force of water against the shoreline.</li> </ul>
<p><b>Note to Markers:</b></p> <p><b>Allow 1 mark for the diagram and 2 marks for the explanation. Part of the explanation may be shown within the diagram.</b></p> <p><b>Despite incorrect terminology, partial credit could be awarded for a diagram and explanation should they be appropriate to the location and process.</b></p>	

**Response:**



The irregularities of a coastline will result in many areas of slack water, which will cause currents and waves to deposit any material they are carrying. If the tidal flow or wave action runs parallel to the coast, a slight change in the outline of the coast will lead to the formation of a spit, a long narrow bar of sand that points in the direction of the current. Action of longshore drift:

- A. Refracted waves (swash) carry material on an oblique angle up the beach.
- B. Backwash carries material directly down the beach under the influence of gravity.

**Note to Markers:**

**Allow 1 mark for the diagram and 2 marks for the explanation. Part of the explanation may be shown within the diagram.**

**Despite incorrect terminology, partial credit could be awarded for a diagram and explanation should they be appropriate to the location and process.**

**Use Photograph 6, illustrating the mouth of the Margaree River, and the topographic map of the Margaree Valley to answer question 2.**

2. The Margaree region of Cape Breton Island was inhabited early in Canada’s history. The population has not greatly increased, but each year more and more travellers come to marvel at the spectacular scenery in the Margaree Valley.

With reference to the air photograph and topographic map, **discuss** the influence that physical geography and human activity have had on each other in this region. You must address both physical and human influences to receive full marks. Answer in **paragraph** form. **(6 marks)**

**Response:**

<p><b>Influence of physical geography</b></p>	<ul style="list-style-type: none"> <li>• the river valley limited the growth of the town</li> <li>• the valley’s shape is a product of glaciation (e.g., steep slopes and truncated spurs)</li> <li>• river and flood plain influenced the areas that could be settled</li> <li>• the valley and surrounding area promote recreational pursuits: boating, fishing, hiking</li> <li>• weather conditions influenced the kind of agriculture practiced</li> <li>• river difficult to cross in the early days</li> <li>• steep slopes restrict extensive agriculture; increased transportation costs both for construction and maintenance</li> <li>• restrictive nature of the valley threatens flood plain settlements in the spring</li> <li>• temperature inversions in the valley during winter</li> <li>• ease of transportation and settlement along the river valley (e.g., north/south corridor)</li> <li>• the river created necessity for bridges</li> <li>• agriculture restricted to flood plain</li> </ul>
<p><b>Human impact on the environment</b></p>	<ul style="list-style-type: none"> <li>• effluent from septic tanks seeps into groundwater and into the river</li> <li>• mass wasting through deforestation</li> <li>• run-off from the communities—untreated sewage</li> <li>• domestic run-off—detergent, lawn fertilizer</li> <li>• oil and gas run-off from roads and spills on the water</li> <li>• fertilizer/chemical run-off from agricultural area and the golf course</li> <li>• habitat loss from power transmission right-of-way and road building</li> <li>• the human impact is felt in the river valley, coastal regions and to a degree in upper forested areas</li> </ul>
<p><b>Note to Markers:</b> <b>This question is to be marked holistically.</b></p>	

3. a) **Identify** the economic activity indicated in the photograph. **(1 mark)**

**Response:**

<b>Activity</b>	<ul style="list-style-type: none"> <li>• logging (patch, strip, clear-cut)</li> <li>• timber forest harvesting</li> </ul>
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- b) **Explain three** effects this type of activity may have on the watershed. **(3 marks)**

**Response:**

<b>This activity will cause</b>	<ul style="list-style-type: none"> <li>• reduced infiltration.</li> <li>• decreased transpiration.</li> <li>• increased siltation of streams.</li> <li>• danger to fish runs.</li> <li>• loss of habitat; gene pool.</li> <li>• increased run-off and flooding.</li> <li>• accelerated gullying and slumping.</li> <li>• accelerated wind erosion.</li> <li>• stream and air pollution from the trucks and heavy machinery (oil discharge).</li> <li>• thermal pollution along the stream channel (removal of tree cover; loss of shade).</li> <li>• tree debris in the stream, threatening fish habitat.</li> <li>• food chain/ecosystem disruption.</li> <li>• aesthetic loss.</li> <li>• increased recreational access.</li> </ul>
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- c) **Suggest two** reasons why this activity continues despite the impact upon the environment.  
(2 marks)

**Response:**

<b>Clear-cut logging continues to be practiced because</b>	<ul style="list-style-type: none"><li>• of lax laws, insufficient penalties and low enforcement.</li><li>• it creates employment.</li><li>• it is the most profitable method of harvesting.</li><li>• it is a safer logging practices for workers.</li><li>• it creates fire breaks between forested areas.</li><li>• of the economic spin-off from forestry (furniture, house construction); product demand.</li><li>• it provides increased tax revenue for governments; they see the environment as a low priority.</li><li>• of apparent plentiful supply; the concept of sustainability (i.e., replanting, silviculture).</li><li>• the lack of education around environmental issues/impacts.</li><li>• trade and/or treaty obligations.</li></ul>
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4. **Identify** the biome represented in the photograph. **Describe two** ways that this vegetation has adapted to the climate. **(3 marks)**

**Response:**

<b>Biome</b>	<ul style="list-style-type: none"> <li>• desert (semi-arid, temperate)</li> </ul>
<b>Adaptations</b>	<p>Cacti have:</p> <ul style="list-style-type: none"> <li>• thick waxy epidermis to limit/prevent evapotranspiration</li> <li>• fleshy leaves for water storage</li> <li>• thorns to protect leaves from animals which would expose flesh to dehydration by dry climate</li> </ul> <p>Bushes have:</p> <ul style="list-style-type: none"> <li>• subsurface root systems to collect atmospheric moisture</li> <li>• thick, woody stems to protect against damage by animals which expose it to dehydration</li> <li>• thorny leaf stems to prevent leaf loss by animals</li> <li>• small leaves to limit evapotranspiration</li> </ul> <ul style="list-style-type: none"> <li>• tap roots—plants develop deep root systems for ground water</li> <li>• stunted growth due to lack of moisture</li> <li>• seeds lie dormant for long periods of time</li> <li>• plants are spread out for optimum use of moisture</li> </ul>

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

Fish

Fresh Water

5. Mismanagement of resources is a global problem. In a paragraph, **outline** the problems associated with the use of the resource you have selected and **propose** ways to better manage the resource. **(6 marks)**

**Response:**

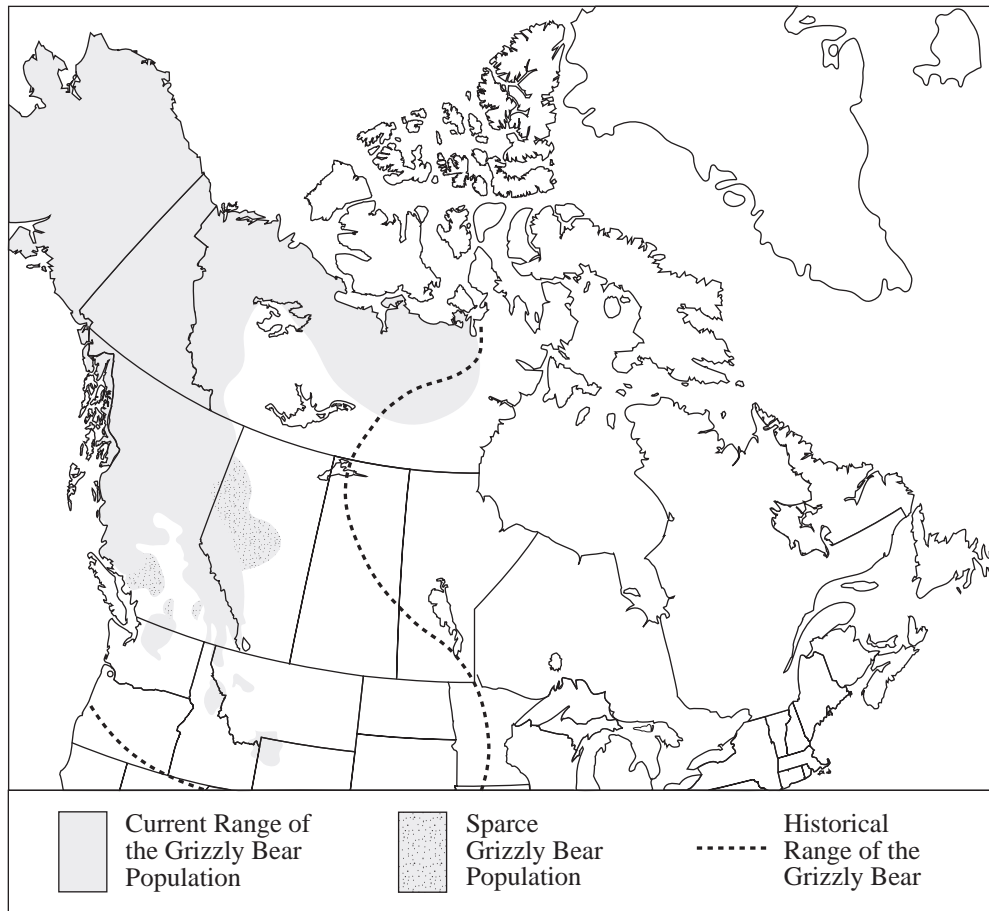
	<b>Problems</b>	<b>Management</b>
<b>Fish</b>	<ul style="list-style-type: none"> <li>• pollution of fish habitat by residential, industrial and agricultural pollutants</li> <li>• lax legislation</li> <li>• urban sprawl contributing to loss of fish habitat</li> <li>• over harvesting</li> <li>• efficient technology</li> <li>• international boundaries</li> <li>• absence of treaties</li> <li>• tragedy of the commons</li> <li>• loss of spawning grounds</li> <li>• difficulties associated with managing a wild stock</li> <li>• aquaculture and associated problems</li> </ul>	<ul style="list-style-type: none"> <li>• closures</li> <li>• five year moratoriums</li> <li>• enhancement programs</li> <li>• fines for ocean dumping</li> <li>• strict laws governing environmental pollution</li> <li>• limits on catch and net size</li> <li>• tertiary treatment of sewage</li> <li>• double-hulled ocean tankers</li> <li>• international agreement/laws</li> <li>• law enforcement by an international agency</li> <li>• protection of spawning grounds</li> <li>• stricter fines on illegal harvesting</li> </ul>
<b>Fresh Water</b>	<ul style="list-style-type: none"> <li>• limited availability and uneven distribution</li> <li>• overuse will lead to shortages</li> <li>• pollution by industrial, residential and agricultural activities</li> <li>• chemicals enter water and contaminate it</li> <li>• thermal pollution</li> <li>• other life forms depend on the same water supply</li> <li>• contaminants in water can be passed along the food chain and ultimately to humans</li> <li>• if we continue to overuse and contaminate water, there will be no uncontaminated water</li> </ul>	<ul style="list-style-type: none"> <li>• user pay—make users pay the actual cost of water—end subsidized water</li> <li>• user pays the cost of clean-up</li> <li>• introduce metering</li> <li>• end large scale water diversion and irrigation projects</li> <li>• practice suitable agricultural techniques (e.g., dryland on prairies)</li> <li>• practice conservation techniques such as drip irrigation and terracing</li> <li>• recovery and recycling of waste water</li> <li>• educate commercial, domestic and agricultural users of water in latest conservation techniques</li> <li>• stronger governmental legislation and enforcement</li> <li>• individual conservation</li> </ul>

**Note to Markers:**

**This question is to be marked holistically.**

Use the following map to answer question 6.

### Grizzly Bear Range



6. Some experts believe that the change shown on the map can be reversed. **Agree** or **disagree** with this statement and **support** your answer. **(3 marks)**

**Response:**

<p><b>Agree</b></p>	<ul style="list-style-type: none"> <li>• breeding programs; improved research</li> <li>• there is a natural ebb and flow in animal populations</li> <li>• creation of national parks</li> <li>• reducing tourism in sensitive areas</li> <li>• making people more aware of this issue (TV commercials, newspaper ads)</li> <li>• international treaties regarding the sale of animal parts</li> <li>• response of conservation officers to a bear's presence in urban areas must be on the side of preservation</li> <li>• discourage trophy hunting, which is by and large unnecessary</li> <li>• laws and fines for poaching</li> </ul>
<p><b>Disagree</b></p>	<ul style="list-style-type: none"> <li>• industrial development, including logging, forestry and mining, is considered more important than the protection of the bear habitat</li> <li>• there are opportunities for eco-tourism which will impact the bear habitat</li> <li>• until human population growth is controlled, the fauna population will be reduced</li> <li>• there is a lack of money to develop national parks or game reserves and to enforce laws</li> <li>• there is a demand for animal parts, pelts</li> <li>• trophy hunting is a lucrative industry, bringing substantial income (difficult for the community offering trophy hunting to give up)</li> <li>• bears are territorial and difficult to relocate even if a suitable habitat is available</li> </ul>

7. **Suggest three** negative effects, other than death and injury, that an earthquake may have on an urban centre. **(3 marks)**

**Response:**

<b>Negative Effects</b>	<ul style="list-style-type: none"><li>• fires</li><li>• liquefaction</li><li>• power lines down</li><li>• water lines broken</li><li>• broken sewer lines contributing to a spread in diseases like cholera, dysentery and typhoid which are potentially life-threatening and could become epidemic</li><li>• mass hysteria/panic/trauma</li><li>• potential tsunamis (flooding)</li><li>• gas lines broken resulting in fire</li><li>• increased mass wasting (landslides) in steep regions</li><li>• buildings disintegrate, roofs crash down (schools and hospitals have vulnerable occupants)</li><li>• facilities may be damaged and potentially dangerous to large numbers seeking shelter and assistance</li><li>• lack of adequate facilities to cope with high number of injured people</li><li>• communication lines are broken (e.g., road, telephone, railroad, highway travel, bridges out)</li><li>• economic hardship: costs of rescue, rebuilding, job loss, rising insurance rates</li><li>• food, water shortages</li><li>• loss of cultural artifacts</li></ul>
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**Use the following statement to answer question 8.**

In Canada, the expression “urban ore” has been used to describe the solid waste deposited in a landfill site.

8. a) **Explain three** ways people could make better economic use of solid wastes. **(3 marks)**

**Response:**

<b>Economic uses of solid wastes</b>	<ul style="list-style-type: none"><li>• recycle wastes:<ul style="list-style-type: none"><li>– tires—roofing, paving materials</li><li>– cans—for metal</li><li>– compost—for its organic nutrients</li><li>– paper—reduces deforestation</li><li>– bottles—reuse thirty times</li><li>– sewage—use as fertilizer</li><li>– plastic—manufacture products like plastic lumber and siding</li><li>– increased employment</li></ul></li><li>• reduces our use of fossil fuels</li><li>• save energy needed to make products from new raw materials—aluminum</li><li>• collection of methane for use in gas utilities</li><li>• use garbage for incineration plants (produce heat and electricity)</li><li>• composting</li></ul>
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b) **Explain** why solid wastes have traditionally been viewed as having little or no value. (2 marks)

**Response:**

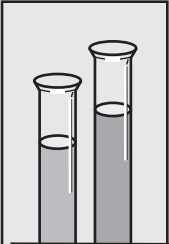
<p><b>Solid wastes have been viewed as having little or no value because</b></p>	<ul style="list-style-type: none"><li>• out of sight is out of mind.</li><li>• we live in a throw-away society.</li><li>• of the lack of government support and funding.</li><li>• of the lack of education.</li><li>• of excessive packaging.</li><li>• of a lack of urgency.</li><li>• of the non-existence of a market for much recycled material.</li><li>• for years people did not see waste disposal as a problem.</li><li>• landfill has always been preferred because it is relatively cheap.</li><li>• there is lots of space for waste disposal.</li><li>• no thought is given to the finite nature of some materials.</li><li>• of technological change—former products are now considered obsolete, dispensable or a nuisance.</li></ul>
<p><b>Note to Markers:</b></p> <p><b>Students may address only one aspect of the key and still receive full marks if the concept is well-developed and it is clear the student understands how the concept relates to the question. Students should not receive full marks for a simple recall of one idea (e.g., “out of sight, out of mind” would not receive full marks, but full marks would be given for an explanation of how wastes being out of sight and out of mind make it difficult for the average person to see any value in them).</b></p>	

Use the following articles to answer question 9.

**Times-Herald** 1925

### Wonder Chemicals

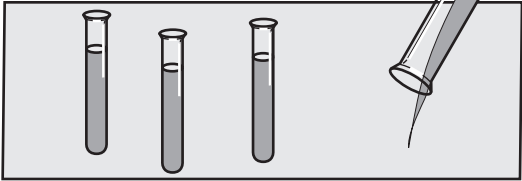
Chlorofluorocarbons (CFCs) have recently been developed to replace sulphur dioxide as a coolant gas. Scientists state that CFCs are non-toxic, non-flammable, non-corrosive and extremely stable, promising a bright future.



**Times-Herald** 1998

### Chemical Transition

The damage caused by CFCs has led to development of HCFCs (hydrochlorofluorocarbons) and HFCs (hydrofluorocarbons) as necessary replacements for CFCs.





9. a) What conclusion can be drawn by comparing the two newspaper articles? **(1 mark)**

**Response:**

<b>The two articles suggest that</b>	<ul style="list-style-type: none"><li>• blind faith in technological solutions can lead to serious environmental consequences.</li><li>• the substitution of CFC's for sulphur dioxide resulted in the introduction of a new but potentially more dangerous chemical for the environment.</li><li>• technology can be used to address problems.</li></ul>
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b) CFC use has resulted in an increase in the amount of ultra violet light reaching Earth.  
**State two** effects of this increased exposure. **(2 marks)**

**Response:**

<b>Ultra violet light exposure has led to</b>	<ul style="list-style-type: none"><li>• crop loss/gain.</li><li>• increased skin cancer and eye cataracts.</li><li>• increased economic costs due to health problems.</li><li>• the loss of plankton and the disruption of the food chain.</li><li>• weakening of the immune systems of animals.</li><li>• an enhancement of the greenhouse effect.</li></ul>
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**Note to Markers:**  
**Loss of ozone is not an acceptable answer. A maximum of 1 mark is awarded for any combination of greenhouse answers.**

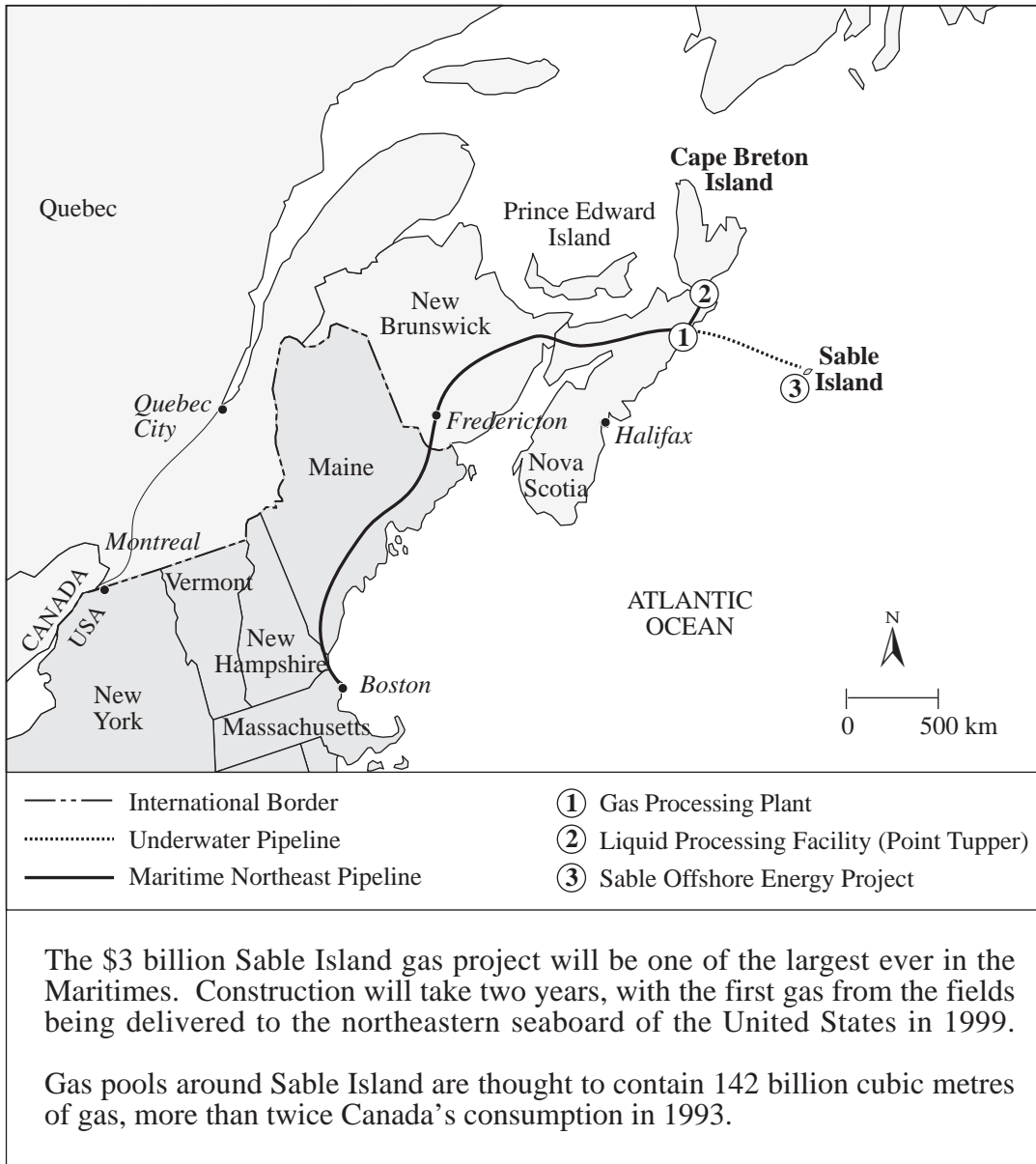
- c) **Explain** what precautions should be taken before changes in technology are introduced as solutions to environmental problems. **(2 marks)**

**Response:**

<p><b>In order to reduce the consequences of technological change we must</b></p>	<ul style="list-style-type: none"><li>• realize each new invention is not necessarily a solution.</li><li>• realize new is not necessarily better.</li><li>• attempt to influence, change or alter consumer choices.</li><li>• move forward cautiously when developing new products (e.g., use of short term and long term testing; use of modeling or simulations).</li><li>• avoid the use of transitional chemicals until they have been tested.</li><li>• create a world-wide testing agency for new chemical discoveries.</li><li>• research, test and monitor effects of new chemicals before they are introduced to world markets.</li></ul>
<p><b>Note to Markers:</b></p> <p><b>This question to be marked holistically.</b></p> <p><b>It is expected that students will explore a variety of precautions, but a well-developed answer covering many aspects of a single precaution could receive full marks.</b></p>	

Use the following map and information to answer question 10.

### Sable Island Gas Project

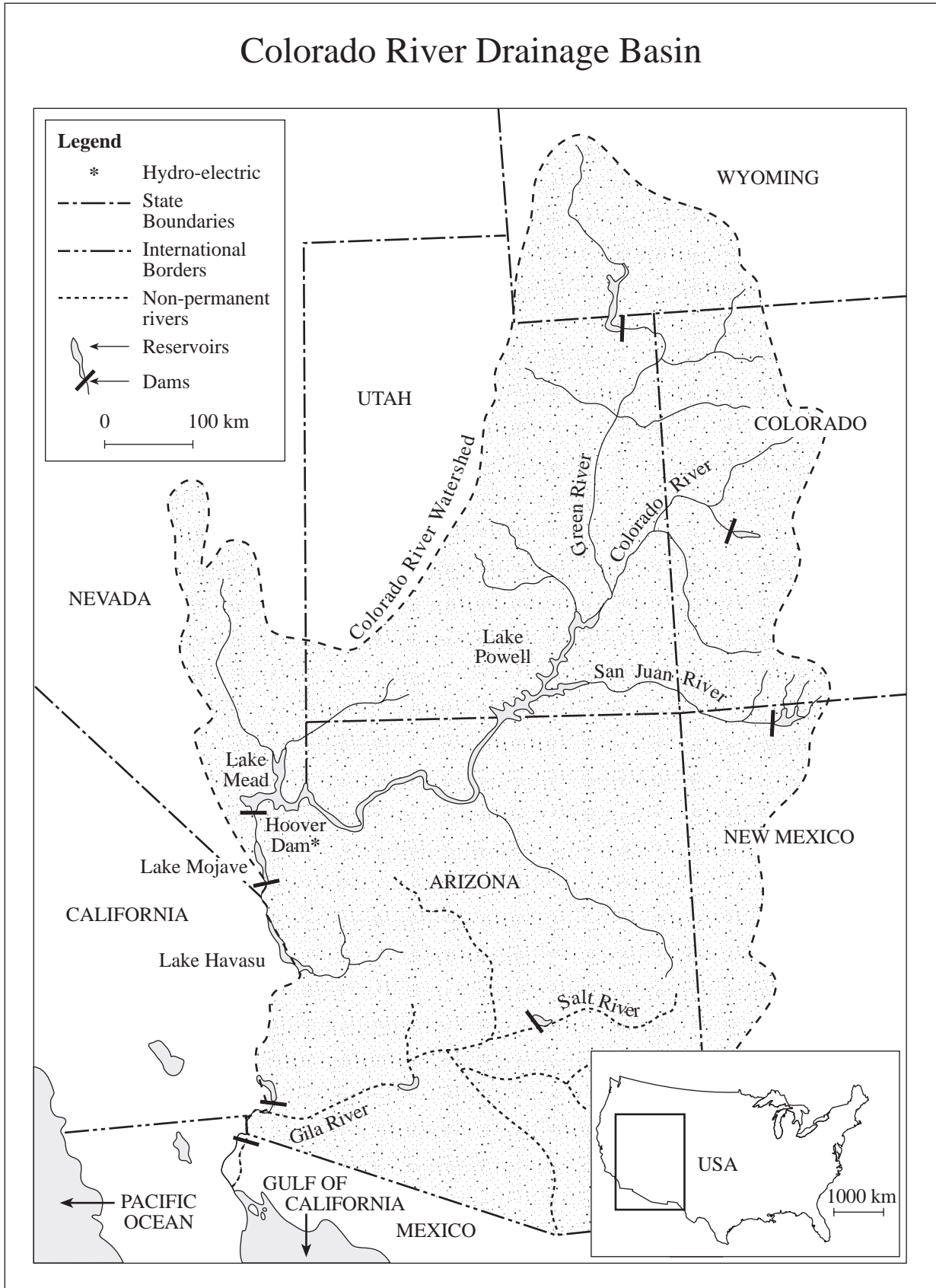


10. Using your understanding of geography, **assess** the advantages and disadvantages of the Sable Island gas project. Answer in **paragraph** form. **(6 marks)**

**Response:**

<p><b>Advantages</b></p>	<ul style="list-style-type: none"> <li>• generates tax revenue</li> <li>• creates permanent jobs</li> <li>• stimulates the economy</li> <li>• increases economic diversity</li> <li>• creates high-end technical jobs</li> <li>• profits from selling gas to the U.S.A.</li> <li>• increases employment during construction</li> <li>• thermal-electric generation in Maritimes rather than importing power</li> <li>• creates spin-off industries during and after construction</li> <li>• creates jobs in petrochemical industry (processing plants)</li> </ul>
<p><b>Disadvantages</b></p>	<ul style="list-style-type: none"> <li>• boom/bust employment</li> <li>• marine life will be killed</li> <li>• pocket ecosystem is fragile</li> <li>• offers short-term job creation (the resource is finite)</li> <li>• short-term gain for long-term damage or loss</li> <li>• potential gas leaks (explosions)</li> <li>• habitat will be destroyed (horses)</li> <li>• potential for damage from icebergs</li> <li>• gas reserves may not be as large as estimated</li> <li>• loss of future resources for Canada's energy needs</li> <li>• it is very expensive to build gravity-based drilling rigs such as those used in Hibernia</li> <li>• storms in the region may damage drilling rig (costly to repair and could cause environmental damage)</li> <li>• does nothing to reduce reliance on non-renewable energy sources</li> </ul>
<p><b>Note to Markers:</b>  <b>This question is to be marked holistically. A superior response requires a true assessment of no less than two advantages and two disadvantages.</b></p>	

Use the following map to answer question 11.



11. A proposal has been made by an environmental group to remove dams on the Colorado River. **Present three** different arguments that could be used to **support maintaining** dams on the Colorado River. **(3 marks)**

**Response:**

<b>Arguments in favour of maintaining dams of the Colorado River</b>	<ul style="list-style-type: none"><li>• flood control</li><li>• lakes can be used for fishery</li><li>• water storage for domestic use</li><li>• water for irrigation (agriculture, golf course)</li><li>• water for industrial purposes (cooling, metal refining)</li><li>• production of hydro-electricity for industrial and domestic use</li><li>• lakes can be used for recreation and tourism (boating, resorts)</li><li>• tourism—many people tour dams (e.g., Hoover Dam)</li><li>• user groups have existing water allowance/allocation agreements in place</li><li>• economic impact: less revenue from electricity sales; loss of a tax base; loss of land in agricultural production; loss of jobs</li><li>• loss of existing environment and habitat</li><li>• immense cost of removal; reclamation of formerly untouched areas</li></ul>
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**END OF KEY**