

**PART I**  
**SECTION A**  
**TOTAL VALUE: 36%**

**Instructions:**            **Shade the letter of the correct answer on the machine scorable answer sheet provided.**

1.      Which refers to the zone at the Earth's surface made up of rocks and minerals?
  - A)    inner core
  - B)    lithosphere
  - C)    mantle
  - D)    outer core
  
2.      Which creates fold mountains?
  - A)    compressional forces
  - B)    sea floor spreading
  - C)    subduction
  - D)    tensional forces
  
3.      Which is an example of chemical weathering?
  - A)    formation of green stains on a copper roof
  - B)    fracturing of rocks around a campfire
  - C)    peeling away of layers from a sandstone monument
  - D)    splitting of pavement by tree roots
  
4.      Which features result from continental glaciation?
  - A)    cirque, arete
  - B)    erratic, drumlin
  - C)    hanging valley, medial moraine
  - D)    horn, lateral moraine
  
5.      Which refers to an accumulation of finely layered soil deposited by wind in arid regions?
  - A)    hamada
  - B)    loess
  - C)    moraine
  - D)    scree
  
6.      According to the map, which sequence represented by the arrow correctly identifies the west-to-east pattern of landforms across southern Africa?

***(Refer to Graphic #6 in the booklet provided)***

  - A)    hills, plateaus, mountains, hills, plains
  - B)    mountains, hills, plains, hills, plateaus
  - C)    plains, hills, plateaus, mountains, hills
  - D)    plateaus, mountains, hills, plains, hills

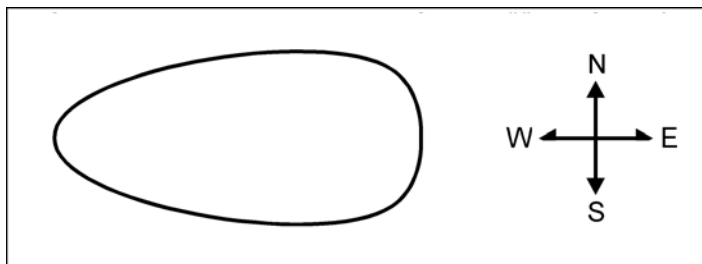
7. According to the map, which phrase **best** describes the location of earthquakes on the Earth's surface?

*(Refer to Graphic #7 in booklet provided)*

- A) along the northern edges of continents
  - B) along the edges of plate boundaries
  - C) in the middle of continents
  - D) in the middle of oceans
8. In the diagram, at what stage in its life cycle is this river?

*(Refer to Graphic #8 in the booklet provided)*

- A) late maturity
  - B) maturity
  - C) old age
  - D) youth
9. According to the diagram of a drumlin, in which direction did the glacier move?



- A) east-to-west
  - B) north-to-south
  - C) south-to-north
  - D) west-to-east
10. Which sequence illustrates the process in the formation of a sea stack?

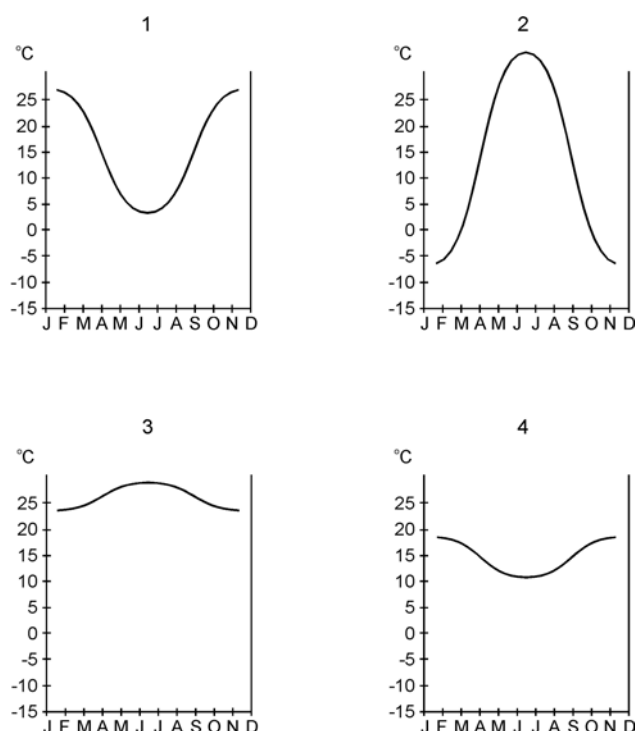
*(Refer to Graphic #10 in the booklet provided)*

- A) 2, 1, 4, 3
  - B) 3, 1, 4, 2
  - C) 4, 1, 2, 3
  - D) 4, 2, 1, 3
11. Which refers to atmospheric conditions of a particular region over a short period of time?
- A) climate
  - B) solar output
  - C) temperature range
  - D) weather
12. According to the diagram, what season is the Southern Hemisphere experiencing when Earth is in the position indicated by "X"?

*(Refer to Graphic #12 in the booklet provided)*

- A) fall
- B) spring
- C) summer
- D) winter

13. Which sequence correctly identifies the north-to-south arrangement of temperature profiles?

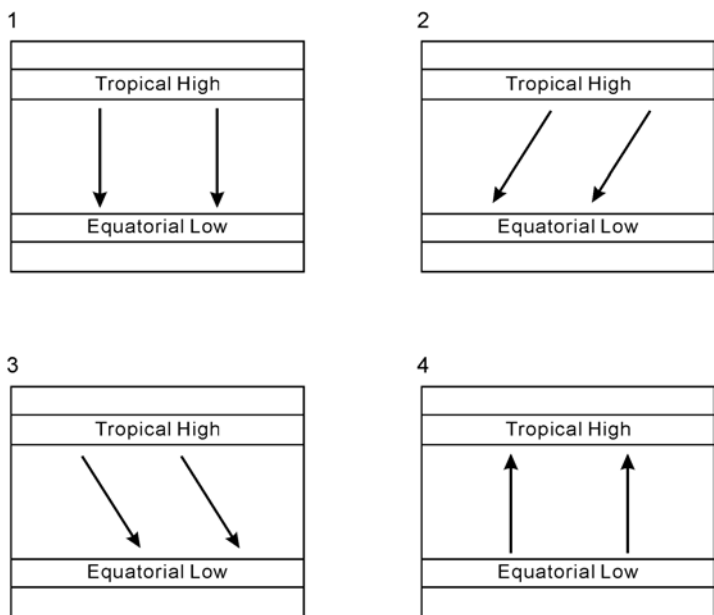


- A) 1, 3, 2, 4  
 B) 2, 3, 4, 1  
 C) 3, 1, 2, 4  
 D) 4, 1, 2, 3
14. Which type of rainfall is represented in the diagram?

*(Refer to Graphic #14 in the booklet provided)*

- A) convectional  
 B) frontal  
 C) orographic  
 D) relief
15. Which refers to the height of land above sea level?
- A) aspect  
 B) elevation  
 C) relief  
 D) topography
16. Which refers to the side of a mountain that receives the highest amount of rainfall in an orographic rainfall region?
- A) leeward  
 B) rainshadow  
 C) relief  
 D) windward

17. Which diagram **best** illustrates prevailing wind direction in the Northern Hemisphere?



- A) 1
- B) 2
- C) 3
- D) 4

18. According to the diagram, which accounts for differences in east and west coast temperatures in South America?

*(Refer to Graphic #18 in the booklet provided)*

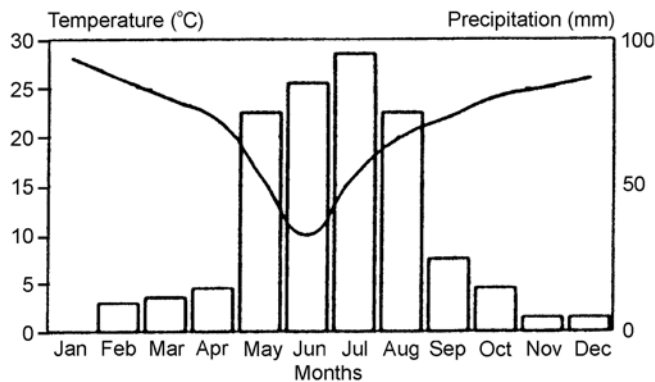
- A) impact of northeast winds on east coast and southerly winds on west coast
- B) impact of northeast winds on west coast and southerly winds on east coast
- C) influence of warm ocean current on east coast and cold ocean current on west coast
- D) influence of cold ocean current on east coast and warm ocean current on west coast

19. Which factor gives *Novosibirsk* a wide range of temperatures from winter to summer?

*(Refer to Graphic #19 in the booklet provided)*

- A) altitude
- B) continentality
- C) latitude
- D) topography

20. Which **best** describes the climate represented by the climograph below?

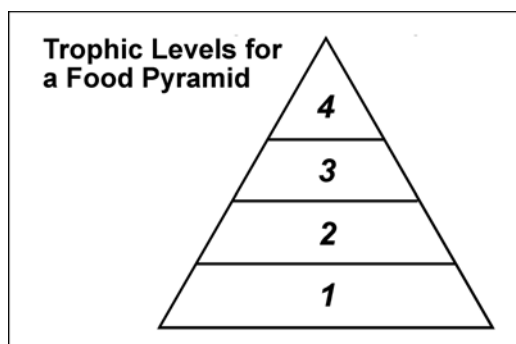


- A) cool, wet summers and mild, dry winters
- B) hot, dry summers and mild, wet winters
- C) hot, dry summers with an even distribution of precipitation
- D) warm, wet summers and cool, dry winters

21. Which group of simple organisms that live in soil or water and include bacteria, fungi and molds, obtain their nutrients from dead plant or animal material by breaking it down into basic chemical compounds?

A) consumers  
B) decomposers  
C) herbivores  
D) producers

22. At which trophic level would you find the fewest number of organisms?



A) 1  
B) 2  
C) 3  
D) 4

23. Which ecosystem experiences low amounts of precipitation and has limited plant life with shallow roots?

A) desert  
B) temperate deciduous forest  
C) tropical broadleaf forest  
D) tundra

24. According to the map, which sequence occurs as one moves south from the equator in South America?

*(Refer to Graphic #24 in the booklet provided)*

A) desert, tropical rainforest, tropical grassland and savanna, temperate grassland  
B) tropical grassland and savanna, temperate grassland, desert, tropical rainforest  
C) tropical rainforest, tropical grassland and savanna, temperate grassland, desert  
D) temperate grassland, desert, tropical rainforest, tropical grassland and savanna

25. Which item is an input in a potato chip plant?

A) marketing  
B) potato chips  
C) quality control  
D) salt

26. Which may be classified as capital-intensive?

A) manufacturing costume jewellery  
B) manufacturing subway cars  
C) producing tourist information brochures  
D) selling home insurance

27. Which would be produced by a market-oriented industry?
- A) cod fillets
  - B) lumber
  - C) pure fruit juice
  - D) soft drinks
28. Which condition would have the **least** influence on the location of a manufacturing plant?
- A) good access to recreational facilities
  - B) high availability of capital
  - C) large pool of skilled labour
  - D) well-developed infrastructure
29. Which provides a public tertiary activity?
- A) bank
  - B) hospital
  - C) insurance company
  - D) law firm
30. Which type of industry is described in these scenarios?

Alphabet Toys Ltd produces toys for toddlers as educational aids.

Visitor Charms Ltd produces souvenirs for tourists to illustrate the uniqueness of the local culture.

- A) capital-intensive
  - B) heavy
  - C) light
  - D) quaternary
31. Which statement **best** describes the global distribution of the car industry?
- (Refer to Graphic #31 in booklet provided)*
- A) Most plants are located in developed regions.
  - B) Most plants are located in Eastern Europe.
  - C) Most plants are located in North America.
  - D) Most plants are located in the Southern Hemisphere.
32. Which statement describes employment sector change in Great Britain from 1901 to 1998?
- (Refer to Graphic #32 in booklet provided)*
- A) Primary sector employment increased.
  - B) Secondary sector employment increased.
  - C) Tertiary sector employment decreased.
  - D) Tertiary sector employment increased

33. Which refers to the total value of goods and services in a nation measured over a year, including investment income abroad, minus the income of foreign nationals within the country?
- A) employment structures
  - B) per capita GNP
  - C) gross national product
  - D) standard of living
34. Which country in the table is **most** developed?

**Socio-Economic Indicators for Selected Counties (1997-2000)**

Country	Per Capita GNP (U.S. Dollars)	Adult Literacy (%)	Infant Deaths (per 1000 births)	Telephones (per person)
Chile	10 100	95.2	9.36	0.17
Jordan	3500	86.6	20.36	0.08
New Zealand	17 700	99.0	6.28	0.48
Vietnam	1950	93.7	30.24	0.03

- A) Chile
  - B) Jordan
  - C) New Zealand
  - D) Vietnam
35. According to the map which region is **most** developed?
- (Refer to Graphic #35 in the booklet provided)*
- A) Africa
  - B) Southeast Asia
  - C) South America
  - D) Western Europe
36. According to the graphic provided, which statement reflects the relationship between per capita GNP and infant mortality rate?

*(Refer to Graphic #36 in the booklet provided)*

- A) Countries with high per capita GNPs have low infant mortality rates.
- B) Countries with high per capita GNPs have high infant mortality rates.
- C) Countries with low per capita GNPs have low infant mortality rates.
- D) Levels of per capita GNP do not affect infant mortality rates.

**PART I**  
**SECTION B**

**Instructions:**            **Do only ONE of the Units in Part I, Section B.**

**Either:**            **Unit 4 - Resources on the Land (37-44)**    **Value:**            **8%**

**Or:**            **Unit 5 - Resources in the Ocean (45-48)**    **Value:**            **4%**

**Resources on the Land - Unit 4**

37. Which is **not** a condition necessary for a natural material to be considered a resource?
- A) A society must be able to easily trade the material.
  - B) A society must be able to extract and use the material profitably.
  - C) A society must have the technology to extract and use the material.
  - D) A society must need the material.
38. Which process transports insoluble inorganic matter downward through the soil?
- A) accumulation of humus
  - B) capillary action
  - C) eluviation
  - D) leaching
39. Which refers to an input in a farming system?
- A) crop rotation
  - B) fertilizer
  - C) harvesting
  - D) storage
40. Which farming practice reduces soil loss?
- A) chemical fertilizing
  - B) contour ploughing
  - C) crop rotation
  - D) manuring
41. Which refers to the removal of individual or small groups of mature trees from a forest?
- A) clear cutting
  - B) desertification
  - C) selective cutting
  - D) strip cutting
42. Using the triangular graph of soil texture, which combination would make the **poorest** soil?
- (Refer to Graphic #42 in the booklet provided)*
- A) 20% sand, 70% clay, 10% silt
  - B) 60% sand, 30% clay, 10% silt
  - C) 40% sand, 30% clay, 30% silt
  - D) 50% sand, 10% clay, 40% silt



43. Which person is **most** likely to take this position on the harvesting of timber resources in an environmentally sensitive area?

We need access to this timber resource. Every effort will be made to use selective-cutting practices and to protect wildlife, but the bottom line is the profitability of this operation. What is your priority - jobs or animals?

- A) manager of a timber-harvesting company
- B) town mayor seeking re-election
- C) member of an environmental agency
- D) owner of venture-tourist operation

44. Which mine is likely to stay in operation longest?

Mine	Remaining Mineral Deposits	Markets	Profits	Labour Cost	Quality of Technology
1	Large	Weak	Low	High	Fair
2	Large	Strong	High	Fair	High
3	Small	Strong	Low	Fair	Fair
4	Small	Weak	Low	High	Low

- A) 1
- B) 2
- C) 3
- D) 4

End of Unit 4

Resources in the Oceans - Unit 5

45. Which type of drilling platform is **best** suited for extracting oil and gas in 2000m of water?

- A) jack-up
- B) semi-submersible anchored
- C) semi-submersible dynamically positioned
- D) submersible

46. According to the table below, which region had to import the largest amount of oil?

Region	% of World Oil Demanded (1997)	% of World Needs Supplied (1997)
North America	27	14
Europe	19	9
Pacific	9	1
Russia	6	10
Southeast Asia	17	7
Latin America	8	9
Africa	3	4
Middle East	6	29
Other	5	17
Total	100	100

- A) Africa  
B) Europe  
C) Middle East  
D) North America
47. According to the information below what will be the effect of increased capelin exports on the marine food web in Newfoundland waters?

Capelin eat shrimp and krill. The favourite food of cod is capelin.  
Exports of capelin to Asian countries have been steadily increasing over the past ten years.

- A) Capelin stocks will increase.  
B) Capelin stocks will remain stable.  
C) Cod stocks will decrease.  
D) Shrimp and krill stocks will decrease.
48. According to the table below, which statement **best** reflects the economic importance of the fishery to Canada’s economy?

Contribution of Primary Activities to Canada’s GNP (1996)	
Agriculture	11.9%
Fishery	2.2%
Forestry	2.7%
Mining, Oil, Gas	24.4%

- A) The fishery contributes the greatest amount to the GNP.  
B) The fishery contributes the least amount to the GNP.  
C) The fishery is an unimportant part of the economy.  
D) The fishery is next to mining, oil and gas in economic importance.

End of Unit 5

**PART I**  
**SECTION C**  
**TOTAL VALUE: 8%**

**Instructions:**            **Do only ONE of the Units in Part I Section C.**

**Either:**            **Unit 7 - Linkage in Human Interaction (49-56)**

**Or:**                    **Unit 8 - Population (57-64)**

**Or:**                    **Unit 9 - Settlement and Urbanization (65-72)**

**Linkage in Human Interaction - Unit 7**

49. Which refers to the means by which information is exchanged?
- A) communication linkage
  - B) journey chain
  - C) node
  - D) transportation linkage
50. Which is an example of an overhead cost for a truck transport operation?
- A) drivers' wages
  - B) fuel consumption
  - C) office rent
  - D) truck repairs
51. Which aspect of overall network efficiency is obtained by counting the number of paths between each pair of nodes?
- A) accessibility
  - B) connectivity
  - C) journey chain
  - D) line-haul cost
52. Which occurs when specialization in the production of a good or service in one area corresponds to a shortage of the same good or service in another area?
- A) accessibility
  - B) connectivity
  - C) supply-demand match
  - D) transferability
53. Which is **not** a transportation node?
- A) airport
  - B) railway junction
  - C) road tunnel
  - D) seaport

54. Which network is **most** efficient?

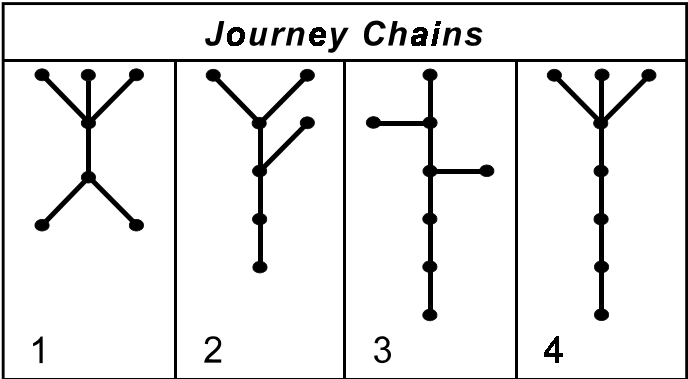
Network	Number of Links	Number of Nodes
1	4	6
2	7	7
3	5	4
4	8	5

- A) 1
- B) 2
- C) 3
- D) 4

55. Which illustrates the journey described in the scenario below?

**Journey Scenario**

As previously arranged, Sasha, Michel and Susan met at a bus stop on Saturday evening and took a ride to the video outlet. After Susan paid for the movie rental, they walked to a store where Sasha bought a notebook for science class on Monday. They then walked to a pizza parlour several blocks away and shared the cost of a pizza as a treat during the movie. The three then took a bus to Susan’s house.



- A) 1
- B) 2
- C) 3
- D) 4

56. Which statement describes the relationship between a country’s level of development and the kinds of goods exported?

Main Exports for Selected Countries - 1999	
Less-Developed	Highly-Developed
Burundi Coffee Tea Sugar Cotton Hides	Belguim Machinery and Equipment Chemicals Diamonds Metal Products Electronic goods
Honduras Bananas Shrimp Lobster Meat Zinc Lumber	Germany Machinery Vehicles Chemicals Metals and Manufactures Food Textiles
Paraguay Electricity Soybeans Cattle Feed Cotton Meat Edible Oils	Sweden Machinery Vehicles Paper Products Pulp and Wood Iron and Steel Products Chemicals

- A) Highly developed countries export more manufactured goods than less developed countries.
- B) Highly developed countries export more raw materials than less developed countries.
- C) Less developed countries export more manufactured goods than highly developed countries.
- D) Less developed and highly developed countries export the same kinds of goods.

**End of Unit 7**

**Population - Unit 8**

57. Which **best** defines population density?
- A) the combined effect of birth and death rates in an area
- B) the distribution of population in an area
- C) the number of people per unit of land area
- D) the total number of people in an area
58. According to the population map, which region is growing at the slowest rate?

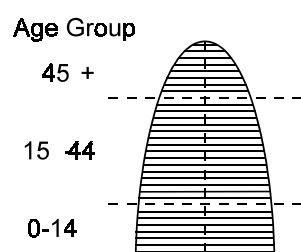
*(Refer to Graphic #58 in the booklet provided)*

- A) Africa
- B) Europe
- C) North America
- D) South America

59. In a given year, there were 562 034 live births and 498 551 deaths. Which term refers to the change in population?
- A) actual change
  - B) natural decrease
  - C) natural increase
  - D) zero population growth
60. In the 1990s, about 30 000 people left Canada per year. Which term refers to this phenomenon?
- A) emigration
  - B) immigration
  - C) internal migration
  - D) population increase
61. According to Canada's immigration policy, into which category of immigrants would a self-employed person be classified?
- A) family
  - B) independent
  - C) refugee
  - D) seasonal workers
62. Which region is **most** heavily populated?

*(Refer to Graphic #62 in the booklet provided)*

- A) cold northern regions of Canada and Asia
  - B) hot arid regions in the low latitudes
  - C) hot humid regions in the low latitudes
  - D) temperate regions in the middle latitudes
63. What type of population is indicated by the population pyramid below?



- A) contracting
- B) expanding
- C) increasing
- D) stationary

64. In which country will **pull** factors be strongest?

Country	Births/1000	Life Expectancy (yrs.)	Per Capita GNP (U.S. dollars)	Adult Literacy (%)
Denmark	12.6	76.7	25,500	100.0
Egypt	24.9	63.7	3,600	51.4
Honduras	31.9	69.4	2,700	72.7
Mexico	22.8	71.8	9,100	89.6

- A) Denmark
- B) Egypt
- C) Honduras
- D) Mexico

**End of Unit 8**

**Settlement and Urbanization - Unit 9**

65. Which describes the pattern of early rural settlements in which security, companionship and convenience were important?

- A) compact
- B) composite
- C) linear
- D) loose-knit

66. Which refers to the settlement site illustrated in the diagram?

*(Refer to Graphic # 66 in booklet provided)*

- A) confluence site
- B) peninsula site
- C) river-island site
- D) river meander site

67. Which refers to an increasing proportion of a population residing in towns?

- A) migration
- B) rural depopulation
- C) urban sprawl
- D) urbanization

68. Which describes the arrangement of city sizes as seen in the chart?

City	Size
1	876 451
2	439 202
3	294 078
4	212 871

- A) arithmetic progression
- B) logarithmic progression
- C) primacy
- D) rank-size

69. In which urban area would relatively low priced single dwellings be located?
- A) central business district
  - B) industrial zone
  - C) recreational zone
  - D) residential zone
70. According to the table below, what is the relationship between the size of a community and the services offered?

Town	Population	Banks	Dentists	Supermarkets	Rest.	Law Offices	Craft Shops	Total Services
1	136 000	14	22	13	19	11	10	89
2	95 000	9	11	10	13	7	5	55
3	63 000	6	8	9	7	4	4	38
4	22 000	2	3	3	5	3	2	18
5	9500	1		2	3	1	1	8
6	4500			2	2		1	5
7	2500			1	1			2

- A) Large communities offer a limited variety of services.
  - B) Small communities offer a large number of services.
  - C) Small communities offer a wide variety of services.
  - D) The size of a community affects the number and kinds of services offered.
71. According to the table below, which region will experience the highest urban population growth from 1950-2030?

Percentage Urban				
	1950	1975	2000	2030
North America	64	74	77	84
Latin America and Caribbean	41	61	75	83
Europe	52	67	75	83
Oceania	62	72	70	74
Africa	15	25	38	55
Asia	17	25	37	53
World	30	38	47	60

- A) Africa
- B) Asia
- C) Latin America and Carribean
- D) North America



72. According to the indicators in the table below, which city has the highest quality of life?

QUALITY OF LIFE IN SELECTED LARGE CITIES						
City	Population (in millions)	Murders (per 100 000)	Persons (per room)	% of houses with water/electricity	Telephones (per 100 people)	Infant deaths (per 100 live births)
Tokyo	28.7	1.4	0.9	100	44	5
Mexico City	19.4	27.8	1.9	94	6	36
Moscow	13.2	7.0	1.3	100	39	20
Mumbai	12.8	101	3.0	57	2	46

- A) Mexico City
- B) Moscow
- C) Mumbai
- D) Tokyo

End of Unit 9

**PART II**  
**SECTION A**  
**TOTAL VALUE: 30%**

**Instructions: Do All questions in this Section.**

**CASE STUDY 1: The Vanishing Rainforests (73 -76)**

Nearly one-half of the world’s rainforests are located in the Amazon Basin of South America. Until recently, only small groups of native people lived there and successfully hunted, fished, collected nuts and berries, and grew crops on small patches of land cleared in the forest.

Since the 1950s, a number of government actions have attracted people from the heavily populated coast into the basin’s interior. In 1956, the new capital of Brasilia was established and today has a population of nearly 2 million. The government of Brazil provided free land, seeds, and small grants to any coastal farmer who would move inland to farm. Roads were built into the interior to encourage mining companies to explore for minerals and start mines. Many cattle ranches have started up in the region and timber companies have moved in to harvest trees.

**Manaus, Amazon Region: Average Monthly**

	J	F	M	A	M	J	J	A	S	O	N	D
Temperature(°C)	28	28	28	27	28	28	28	29	29	29	29	28
Precipitation (mm)	249	231	262	221	170	84	58	38	46	107	142	203

**Some Amazon Facts**

- From August 1998 to August 1999, 19 836 square kilometres of rainforest were removed.
- Development, farming, and logging have already reduced the Amazon rainforest by 12%.
- One-quarter of medicines come from plants. Three-quarters of these plants come from rainforests in the Amazon and Africa.
- When Europeans first arrived in the 16<sup>th</sup> century, there were about 6 million native peoples in the Amazon. So many have died from European attacks and western illnesses, there are now only an estimated 200 000 left.

Farmers and cattle ranchers soon found the rainforest ecosystem to be unforgiving. Once broad expanses of trees are removed, the soil is exposed to heavy rains. Nutrients are washed out of the soil quickly making them infertile. As a result, they cannot support crops and grass for cattle. The destruction of trees also disrupts food webs so seriously that some species of plants, animals, and insects are becoming extinct. Some scientists even see a global threat. Trees “breathe in” carbon dioxide and “breathe out” oxygen. The massive removal of forest cover could harm life forms on the whole planet.

Native peoples of rainforest regions have assisted medical researchers to identify hundreds of plants that can treat diseases. For example, a drug made from the periwinkle, a rainforest plant, helps 90% of leukemia patients to survive. A protein from the rubber tree will help reduce tooth decay.

Answer the following questions:

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73. Why is it appropriate to refer to the rainforest as the “lungs of the earth”?

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74. **Develop** an argument against the Brazilian government’s encouragement of settlement in the Amazon Basin.

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75. Explain what your position is on the following statement.

*Climate, rather than human activity, is the main cause of environmental problems in the Amazon rainforest.*

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76. Chand Saklani lives in a small village in India. He was so concerned about the removal of trees from a hillside near his village that he wrote a poem to express his feelings. Here is a verse from the poem.

*Trees are my mother, trees are my father,  
Trees are my brothers and sisters, trees are my children.  
Trees are my family.*

Do you think this verse could apply to the rainforests of the Amazon Basin? Explain why or why not.

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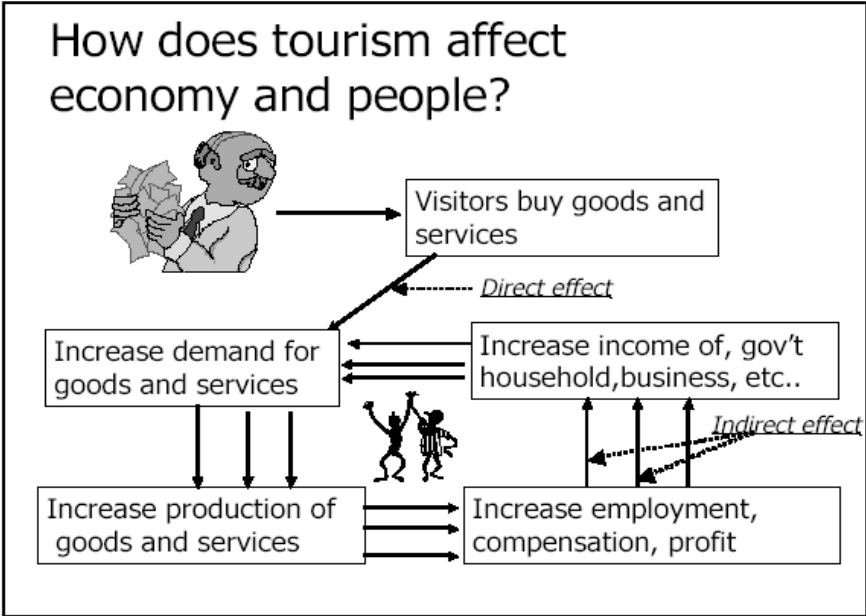
CASE STUDY 2: Tourism in Nepal (77 - 79)

The tourism sector is fast nearing the number one position in terms of size and importance to the global economy. It is estimated that in 2000, there were about 500 million tourists who contributed nearly 12% to the global Gross Domestic Product. About 8 out of every 100 workers were employed in the tourist sector.

The real importance of tourism is best seen when one looks at the economy of selected countries. In less developed countries there are limited opportunities to get meaningful employment and improve living conditions. In countries such as Cuba, Thailand, Kenya, and Jamaica, tourism is growing in importance as a way of creating direct jobs and as a way of improving the overall economy through indirect employment. This is particularly true in Nepal, a tiny Himalayan country north of India.

In 1999, the United Nations classified Nepal as one of the five poorest nations in the world. Tourism creates over 100 000 jobs in the country and makes up nearly 4% of its Gross National Product.

Development Indicators: Nepal and Canada		
Indicator	Nepal	Canada
Labour Force by Sector		
Farming	41%	3%
Industry	3%	31%
Services	16%	66%
Per Capita GNP	\$1360	\$24800
Infant Mortality Rate	74.14	5.02
(Deaths per 1000 births)		
People for each telephone	106	1.7
Life expectancy	58.22yrs.	79.6 yrs.



Nepal has a lot to offer the tourist. For the mountaineer, the region has 8 of the 10 highest peaks in the world, including Mt. Everest. Hiking trails, which lace through jungles and the low foothills, offer opportunities to spot rhinos, elephants, snow leopards, and tigers. In all, it is estimated that there are 6000 species of plants, 850 species of birds, 600 species of butterflies, and 175 species of mammals.

In 1970, only 46 000 tourists visited Nepal, but this figure had increased to nearly 500 000 by 2000. In the short-term, the government would like to see at least 1 million tourists per year. What will be the environmental impact of such numbers?

Already, there are signs of a deteriorating environment. At the base camp used to make the ascent on Mt. Everest, broken pop and beer bottles and other trash are strewn among the rhododendron trees. In a first major cleanup, 30 000kg of trash were taken out. There are plans now to conduct a yearly cleanup of the base camp. The fragile ecosystem is threatened in another way. At high altitudes, vegetation grows very slowly and any damaged plant life along hiking trails only repairs itself over decades.

To help clean up the environment and protect the ecosystem, the Nepalese government now require tourists to pay for entry permit to visit parks and conservation areas, and hiking fees to enter the trail system.

### Why Tourists Come to Nepal (by %)

	1980	1990	1996
Holidays/Pleasure	80.2	63.5	53.2
Trekking and Mountaineering	11.8	15.7	22.6
Business	3.4	4.6	6.4
Official	2.9	10.4	5.1
Others	1.7	5.8	12.7

**Questions 77 - 79 are based on the above Case Study.**

Value

- 4 77. Identify and explain **two** reasons why tourism is so important to less developed countries such as Nepal.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Value

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78. With reference to the case study, explain what type of site conditions Nepal is known for.

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Value

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79. If you were to give advice to the Nepalese government on how to increase the numbers of tourists, what advice would you give? Support your position with examples.

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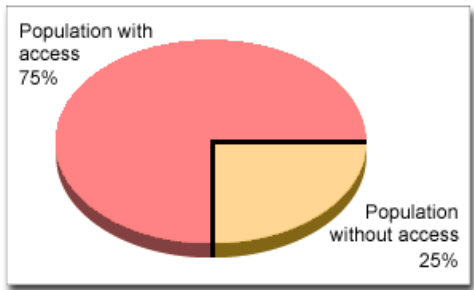
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CASE STUDY 3: Water and Development (81- 83)

It is a fact that water is essential to all life. During the mid-1990s, however, more than a billion people in the developing world did not have access to safe water and nearly 2 billion people were not provided acceptable sanitation.

Each person needs about 20 litres of safe water a day for drinking, personal hygiene, and household use. Without adequate safe water, nearly 1 billion suffer from various illnesses and about 2 million deaths occur.

World Population and Access to Water (mid-1990s)



A lack of water can weaken the economy. A population that cannot get sufficient quantities of water is a less healthy and a less productive one. In developing countries, unclean water has to be boiled to make it safe. To do this, trees have to be used for fuel, which damages the environment. Without sufficient water, farming and manufacturing outputs decrease. In many rural areas in developing countries, water is not available at a community well nor piped to the home. Considerable time is spent, particularly by women and children, in carrying water from streams and wells to the home and collecting wood to boil it for safe drinking. The 5 to 7 hours often spent each day uses up time that could be used getting an education and skills for the workplace.

Access to Safe Water	
Region	% with access
Africa	62%
Asia	81%
Latin America	85%
Oceania	88%
Europe	96%

Access to Proper Sanitation	
Region	% with access
Africa	60%
Asia	40%
Latin America	78%
Oceania	93%
Europe	92%

A Young Girl in Ethiopia

Elma Kassa is a 13-year old who tells about her experience in getting water for her mother who is a washerwoman in Addis Ababa, Ethiopia.

I go to collect water four times a day, in a 20-litre clay jar. It’s hard work! When I first started collecting water I was about seven years old. In those days we used to have to walk for over 1.5 kilometres to fetch water. Now there is a tapstand about 10 minutes away from my home, which has made life easier. I’ve never been to school as I have to help my mother with her washing work so we can earn enough money.

- From DFID (1998), *Guidance Manual on Water and Sanitation Programmes*, DFID, London



Value

2      80.    What is the central issue in this case study?

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2      81.    List **two** pieces of evidence to support the issue you identified.

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2      82.    Explain **two** measures which could be taken to help correct the problem identified in this case study.

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Value

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83. Using specific examples, explain why “per capita GNP” is **not** always a reliable indicator of standard of living.

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**PART II**  
**SECTION B**

**Instructions:** Do only ONE of the Units in Part II Section B.

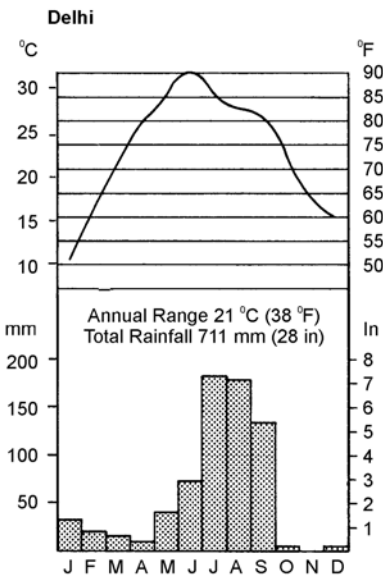
- Either:** Unit 4 - Resources on the Land (84 - 86) Value: 8%
- Or:** Unit 5 - Resources in the Oceans (87 - 90) Value: 12%

Candidates are reminded that they must choose the same Unit as Part 1 Section B.

**Resources on the Land - Unit 4**

**CASE STUDY 4: Rice Farming in Northern India**

Most of the world’s rice crop is grown in Asia. With its high nutritional value, rice makes up about 90% of the food consumed in northern India. In this region, rice is grown in wet conditions and is often referred to as *padi* rice. The temperatures of the monsoon climate allow for a year-round growing season for a variety of crops, but the amount of rainfall affects the growth of rice. Rice growing requires a lot of manual labour. Embankments have to be built to hold water covering the small fields. Channels have to be constructed and maintained to control water levels. Fields have to be prepared, and the rice planted, weeded and harvested. The embankments between the paddies are reinforced by coconut palms, banana plants and other trees. Some of the flooded areas are stocked with fish, which are prized for their protein for the local diet and fertilizer for the soil.



In recent years, attempts have been made to modernize farming in northern India. Irrigation from canals and rivers has been supplemented with drilled wells. Farms which were small and scattered around villages have now been consolidated into larger farms. New varieties of rice have been introduced to increase crop yields. Farmers can borrow money at very low rates of interest to buy fertilizer, pesticides, and machinery.

Not all of these changes have worked. Over-use of fertilizer by some farmers polluted their drinking water and fish in the streams. Some farmers could not afford gasoline and machinery repairs. With migration from villages to large cities, some farmers find it difficult to get workers.

**A Farmer’s Year in Northern India**

May:  
Nursery beds are prepared and fertilized.

June:  
Rice seeds are planted in nursery beds; padi fields are levelled and manured.

July-August:  
Rice seedlings are transplanted from the nursery beds to the flooded padis.

September-October:  
Padis are weeded and manured again.

November-December:  
Padis are drained. The rice plants are cut near ground level, tied in bundles. The bundles are beaten to remove the grain, which is allowed to dry in the sun.

January:  
The fields are plowed and harrowed. A second crop, usually peas, beans, or lentils are planted.

March:  
The second crop is harvested.

Value

2      84.    State **one** way in which climate influences farming processes in northern India.

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3      85.    Is rice-farming an intensive or extensive farming system? Explain.

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Value

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86. Based on the experiences in northern India, what kind of advice could be given to farmers who are considering new approaches to farming? Provide examples in your answer.

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Resources in the Oceans - Unit 5

CASE STUDY 5: Dismantling Offshore Fixed Platforms

Most people think that an offshore drilling rig only poses a threat to the environment as it pumps oil from under the sea bed. What happens to a fixed rig when a field no longer has any recoverable oil also has to be considered. This will be a serious issue in the removal of a platform, such as Hibernia, that rests on the ocean bottom. Semi-submersible rigs, such as the one used for the Terra Nova field, can be easily moved to another location when that field is exhausted.

International regulations now require oil companies to remove the upper part of a fixed rig to a depth of 55m to leave the bottom part resting on the ocean floor. The upper portion can be transported ashore, or be buried in deeper water. The process of dismantling a rig, however, will pose concerns for the fishing industry. The separation of parts of fixed platforms requires the use of large amounts of explosives. Although experts in the oil industry do not have much experience to go on, they do know that underwater explosions have a short term impact on fish. It is calculated that a 2.5t charge, for example, could kill as much as 20t of fish. The real impact depends upon the depth of the water, number of fish in the area, and the relief of the ocean bottom. As well, more younger fish will be destroyed than older fish.

In addition to the environmental risk of dismantling a platform, environmentalists would also have concerns with problems posed by the bottom sections and the pipelines left on the ocean floor. Since it is difficult to completely clean them of oil, they could continue to contaminate the marine environment for many years. As well, they could cause problems for the fishing industry. Nets and other gear used to trawl the ocean bottom would be heavily damaged if they should snag on abandoned underwater structures and pipelines.

On the other hand, marine biologists do agree that the abandonment of bottom portions of drilling platforms will likely have a positive effect. These structures act as artificial reefs that attract invertebrates and fish searching for food and shelter as well as provide places to reproduce. In the Gulf of Mexico, the abandonment of underwater structures have increased fish stocks. As a result, sports fishing activity, with the use of lines and hooks, have taken off. The question, of course, is whether this effect will be as positive off the coast of Newfoundland and Labrador. Here, the ecosystem is much different, and fishers would use mobile gear (i.e., trawls) rather than static gear (i.e., hooks and lines). As a result, trawling practices would have to be carried out at greater distances from the underwater drilling structures and the fishers would not have good access to the fish stocks.

Value

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87. Why does a semi-submersible rig have an advantage over a fixed platform when an oil field is permanently shut down?

Value

3      88.    How is the dismantling of a fixed drilling platform an issue of balancing short-term and long-term impacts?

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3      89.    Assume that a government official was to argue that the dismantling of an oil platform would have a positive impact on the fishery of Newfoundland and Labrador. What cautionary arguments would you give?

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4      90.    Explain **two** reasons why waters over continental shelves are natural habitats for fish.

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**PART II**  
**SECTION C**

**Instructions:**            **Do only ONE of the Units in Part II Section C.**

- Either:**            **Unit 7 - Spatial Linkage (91-93)**  
**Or:**                **Unit 8 - Population (94 -96)**  
**Or:**                **Unit 9 - Settlement and Urbanization (97-99)**

**Candidates are reminded that they must choose the same Unit as Part I Section C.**

**Spatial Linkage - Unit 7**

**CASE STUDY 6: Moving Cargoes Efficiently**

For centuries, ships have provided the fastest means of hauling large cargoes over vast distances. Ships continued to maintain this primary position until other means of conveyance - trains, trucks, and aircraft - came on the scene about a century ago.

The greatest challenge today is one of infrastructure. More often than not, cargo is transported through the use of more than one mode. A typical journey chain may use road or rail to transport a good from its source to a seaport warehouse or air terminal, then use ships or air carriers, and then use road or rail to transport the cargo to the final destination. This requires a tremendous investment in building transportation infrastructure. Warehouses, docks, rail lines, roads, air terminals, and aircraft are only some of the parts that go to make up a transportation system.

Other problems relate to speed, congestion and environmental risks. To keep pace with the increased demand for transportation, the different modes of transportation will have to be highly synchronized. One of the weak links is the container ship. Containers do help to reduce loading time, but the ship itself can not travel at high speeds. Air transportation provides the advantage of speed but the cost of shipping by air is about 10 times that by water. Added to this problem are delays on land of changing from one mode to another.

The problem of congestion emerges at seaports and air terminals. Major airports, such as Heathrow, are at full capacity in terms of the volume of passengers and cargo handled. To increase the flow, new terminals would have to be built. This will only add to the problem of noise levels with more aircraft taking off and landing, and air pollution from jet engines. Many world seaports, such as Seattle, Rotterdam, and Singapore, do not have enough space to allow for more industrial parks and handling facilities. In May 1999, for example, Hyundai Merchant Marine made its last call at the Port of Seattle. Hyundai was Seattle's largest customer, but it had to leave because there was not enough land near the seaport for it to expand.

Like air transportation, shipping by sea poses environmental risks. Some ships discharge oil-laden bilge water at night on the open ocean. Slicks, often several kilometres in length, kill sea birds and upset marine food chains.

**Can Giant Airships Get Off the Ground?**

A German company, Cargo Lifter, plans to build 50 giant airships by 2013 at a facility just north of Berlin. When completed, the factory will occupy a space equal to eight soccer fields and stand 30 storeys tall. This space will allow the manufacture of two ships at one time. The first one will be tested in 2002. Each ship will be 32m long and 8 metres in diameter. The Cargo Lifter will be able to transport extremely heavy and large objects, such as sections of steel bridges, electrical turbines, and components of oil rigs. According to the promoters of the project, the potential to reach remote places with little or no infrastructure is enormous.



Value

2      91.    What is a major advantage and a major disadvantage of transportation by sea?

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3      92.    Suggest **three** strategies that transportation experts should include in their plans for making transportation more efficient.

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3      93.    Based on the information in this case study, do you think that planners should take the idea of huge air ships seriously? Explain why or why not.

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Population - Unit 8

CASE STUDY 7: Immigrants Needed

United Nations population experts predict that the early 21<sup>st</sup> century will mark the beginning of a time when there will be more old people than young. Ten percent of the world’s population is already 60 years of age and older. By 2050, this share will increase to 20% and by 2150 over 30%. The real contrasts are among regions. For example 20% of Europeans, compared to only 5% of Africans, are 60 years and over.

Added to that trend, many regions will experience declines in population. On a global scale, according to Austrian experts, the present population of just over 6 billion will likely peak at 9 billion by 2070 and decrease to 8.4 billion by 2100. Italy will have 25% fewer people by 2050. By the same year, the population of 15 countries in the European Union will drop from 375 million to 330 million. There will be fewer British, French, Germans, Japanese, and Russians whose fertility rate of 1.2 children per woman cannot replace those who die.

These trends will have a major economic impact. As the population gets older, governments will have to pay a larger share of their budgets in the form of pensions to seniors. The cost of medical services will also increase as more and more seniors need medical attention. These costs will rise as the size of the working force shrinks. The size of the labour force will worsen until serious labour shortages become commonplace.

The problem of a shrinking and ageing population could become a crisis in the western world. Is there a solution in sight? The real solution would be an increase in the birth rate. Encouraging those who are nearing retirement to continue working to an older age would also help the economy. Others argue that an immediate solution is to admit more immigrants from countries where the problem of a greying and declining population will occur much later than in the West. Admitting skilled people of working age would help to reduce the dependency ratio.

Just to maintain the present worker-pensioner ratio ...
Japan needs 600 000 immigrants per year
Italy needs 350 000
Great Britain needs nearly 90 000
Germany needs 470 000
The United States needs 340 000

Value

2      94.    State the central issue discussed in this case study.

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3      95.    How could this issue become a crisis for developed nations?

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3      96.    Explain **three** actions that western governments could take to help avoid this looming crisis.

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Settlement and Urbanization - Unit 9

CASE STUDY 8: Lagos, Nigeria - A Primate City

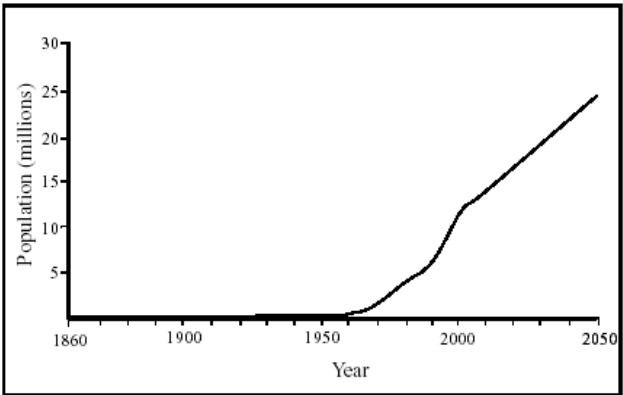
Lagos is located on the south coast of Nigeria. It began as a fishing and farming settlement when Yoruba settlers from the north moved there over 400 years ago. Eko, as it was then called, was a trading post that was a source of slaves, peppers and ivory for Portugal. When it became a British colony in 1861, its population had grown to about 250 000. The British recognized its natural advantages as a port. A cluster of islands provided a natural barrier to shelter Lagos Lagoon from the open ocean. As ocean going ships became larger, a channel had to be dug in 1912 to give greater access to the lagoon. As a result of its advantages as a port, Lagos grew in importance as a transshipment centre. Rail lines and roads gradually began to be built to carry raw materials from the interior to the port. There, they were loaded on ships sailing to Great Britain. The population of the colonial city eventually outgrew space on Lagos island and expanded to include other islands and a large area on the mainland.

As a result of this growth, a pattern emerged to resemble what was happening in other colonies controlled by European countries. The population of Lagos dramatically outgrew that of other towns in West Africa. By the early 1900s, its population had grown to about 1.5 million and then to just over 6 million late in the century.

Serious problems, however, came with this rapid growth. It is Nigeria’s main port and industrial and commercial centre. It has become a magnet for people from poor rural areas. As people moved into the city from rural areas to seek jobs, the population grew to the point that housing, transportation and communications services soon became inadequate. It is also difficult to keep the water and sewer systems running since the city is located on low-lying land where drainage is a problem. Most migrants to the city end up with low paying jobs and find it difficult to make ends meet. These problems combine to make Lagos a city that is becoming rundown. Housing is unaffordable, roads go unrepaired, services are stretched to the breaking point, and too many residents resort to crime to get by.

Experts argue that solutions must begin in rural areas. Schools need to be built, farming methods improved to provide jobs and food, health clinics established to reduce disease, and family planning services provided to control population growth.

Population Growth of Lagos



Nigeria: Ten Largest Cities	
City	Population (1991)
Lagos	5 686 000
Ibadan	1 263 000
Ogbomosho	644 000
Kano	595 000
Oshogbo	421 000
Ilorin	420 000
Abeokuta	377 000
Port Harcourt	362 000
Zaria	335 000
Ilesha	334 000

Value

2      97.    List **two** site factors which resulted in the establishment of a port at Lagos.

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3      98.    Using examples, explain how Lagos’ situation caused it to become a primate city.

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3      99.    What lessons can be drawn about how to approach the problems of primate cities in developing countries?

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