PART I

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

SECTION A
TOTAL VALUE: 36%

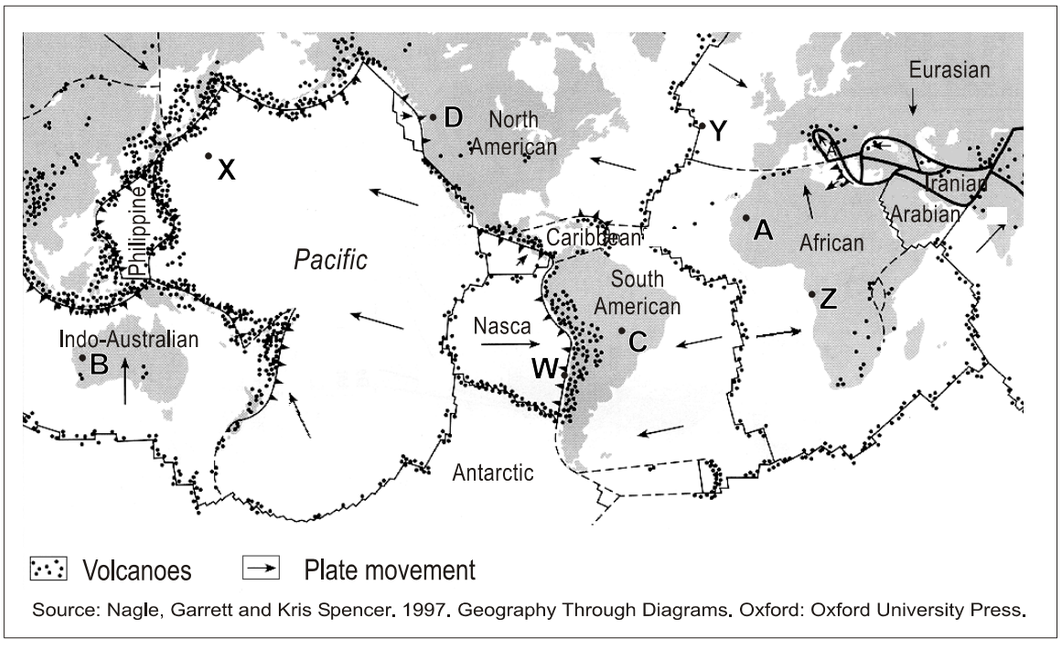
Instructions: **Do ALL Questions in Part I, Section A.**

Unit 1 - Major Land and Water Forms (1 - 10)
Unit 2 - Patterns in Weather and Climate (11 - 20)
Unit 3 - Ecosystems (21 - 25)
Unit 6 - Manufacturing and Service Activities (26 - 32)
Unit 10 - Global Economic Disparities (33 - 36)

1. Which term is defined as the reaction of minerals in rocks containing iron?

(A) exfoliation
(B) hydrolysis
(C) oxidation
(D) solution

Answer the next two questions based on the graphic below.



Source: Nagle, Garrett and Kris Spencer. 1997. Geography Through Diagrams. Oxford: Oxford University Press.

2. In the graphic, which letter identifies a mountain landform region?

(A) A
(B) B
(C) C
(D) D

3. In the graphic, which letter identifies a location which will experience tensional forces as a result of tectonic plate activity?

(A) W
(B) X
(C) Y
(D) Z

4. Under which environmental conditions would the rate of physical weathering be fastest?

(A) hot, dry conditions year-round
(B) hot, dry summers; cold-wet winters
(C) warm, wet conditions year-round
(D) warm, wet summers; cold, dry winters

5. Which statement is true of water erosion processes in rivers?

(A) Abrasion involves the dissolving of minerals in rocks.
(B) Lateral erosion occurs mainly in rivers with steep slopes.
(C) Meanders form as a result of vertical erosion in old age rivers.
(D) Vertical erosion is the main direction of erosion in youthful rivers.

6. Which term is defined as the sorted layers of debris deposited by the meltwater of a glacier?

(A) erratic
(B) lateral moraine
(C) outwash plain
(D) terminal moraine

7. What would you have likely found if you encountered a large boulder made of materials completely different from the surrounding area?

(A) cirque
(B) drumlin
(C) erratic
(D) esker

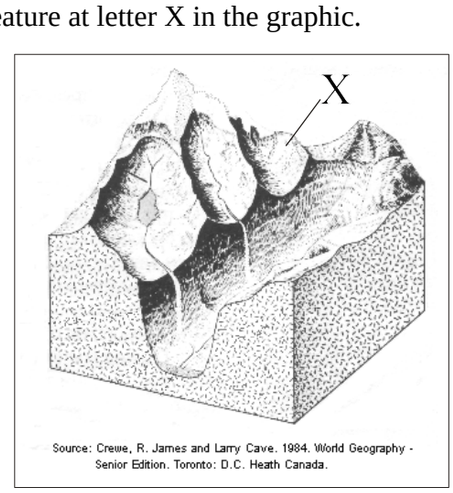
8. What is formed when a glaciated valley is filled by the sea?

(A) arête
(B) cirque
(C) fiord
(D) hanging valley

9. What distinguishes an erg from a hamada?

(A) elevation
(B) latitude
(C) presence of sand
(D) shape of dunes

10. Identify the glacial feature at letter X in the graphic.



Source: Crewe, R. James and Larry Cave. 1984. World Geography - Senior Edition. Toronto: D.C. Heath Canada.

(A) arête
(B) cirque
(C) hanging valley
(D) horn

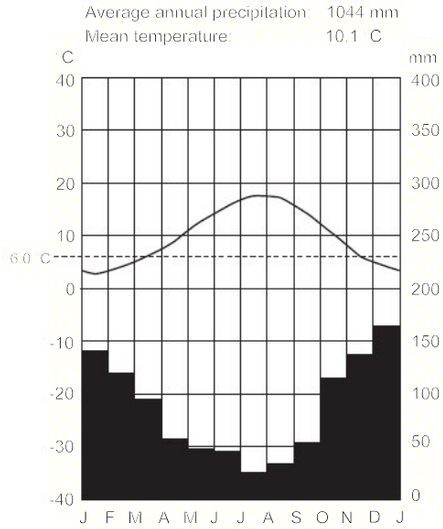
11. Which statement makes reference to weather?

(A) Farmers in India welcome summer monsoon rains.
(B) On February 19, 2004 Dartmouth received 96 cm of snow.
(C) The summer of 2003 was a typical hot and dry season.
(D) Vancouver has an annual frost-free period of 233 days.

12. Which contributes most to the differences in the length of day as seasons change in high latitude locations?

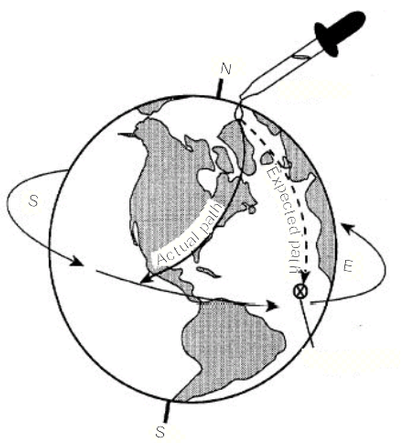
(A) Coriolis effect
(B) revolution of Earth
(C) rotation of Earth
(D) tilt of Earth's axis

13. Which description most accurately identifies the climatic conditions pictured in this climograph?



(A) cool wet summers, cold dry winters
(B) cool wet summers, cold wet winters
(C) warm dry summers, cold dry winters
(D) warm dry summers, cool wet winters

14. Which concept is being illustrated by the diagram below?



(A) Coriolis effect
(B) revolution
(C) rotation
(D) solstice

15. Which explains why only a fraction of solar radiation reaches Earth's surface?

(A) The Coriolis effect causes solar radiation to be deflected from Earth.
(B) Only part of Earth is illuminated at any time by the sun.
(C) Solar energy is scattered, absorbed and reflected by Earth's atmosphere.
(D) Solar radiation loses some intensity as it travels through space.

16. Which conditions relate to equinox?

(A) equal days and nights in both hemispheres
(B) long days in the Northern Hemisphere
(C) long days in the Southern Hemisphere
(D) short days in both hemispheres

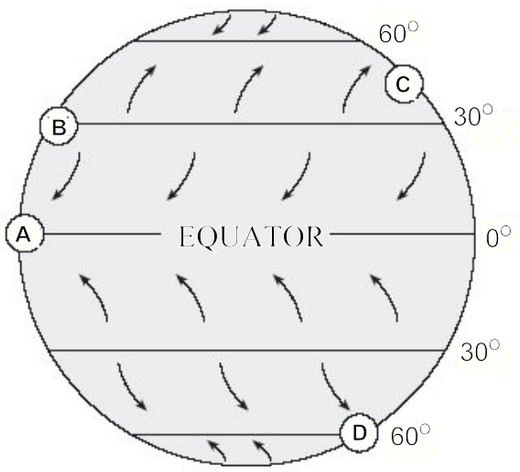
17. Which is true?

(A) Temperature decreases as longitude decreases.
(B) Temperature decreases as longitude increases.
(C) Temperature increases as latitude decreases.
(D) Temperature increases as latitude increases.

18. Which statement is true about wind systems?

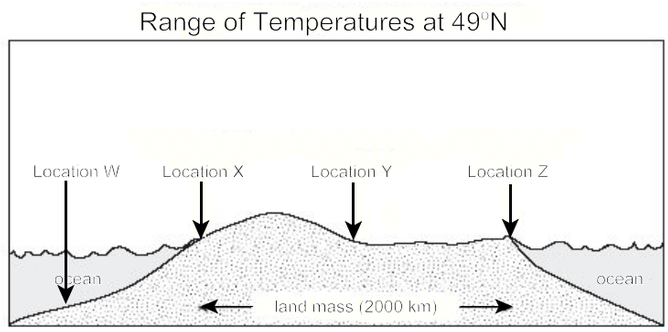
(A) Air moves from a high pressure system to a low pressure system.
(B) Air moves from a low pressure system to a high pressure system.
(C) North East Trade Winds move from 0˚ North Latitude to 23 ½ ˚ North Latitude.
(D) North East Trade Winds are found only in the Southern Hemisphere.

19. In the graphic below, which letter location lies in a high pressure belt?



(A) A
(B) B
(C) C
(D) D

20. In the graphic below, which location would be expected to have the highest range of temperatures?



(A) W
(B) X
(C) Y
(D) Z

21. Which is defined as the transfer of energy from the sun to a plant to a herbivore?

(A) decomposition
(B) ecosystem
(C) food chain
(D) food web

22. Which is defined as the chief type of plant life that has established itself in a particular climatic region over a long period of time?

(A) climax vegetation
(B) food chain
(C) primary producer
(D) trophic level

23. Which ecosystem has plants that store water in their leaves and stems, as a survival adaptation?

(A) desert
(B) savanna
(C) tropical rain forest
(D) tundra

24. Which is defined as a process whereby toxic chemicals are multiplied through their concentration as they pass from a low trophic level to a higher one?

(A) biological amplification
(B) biological rhythm
(C) decomposition
(D) silent spring

25. Why are the least number of organisms found at the top trophic level?

(A) Energy transfer increases from the bottom level to the top level.
(B) Only 10% of one layer's energy is available to organisms at the next level.
(C) The consumers on the top level have access to the most energy.
(D) There are fewer decomposers at the top level.

26. Based on the information below, what would increase in a desert ecosystem?

> With an increase in greenhouse gases in the atmosphere, temperatures rise and the climates in all ecosystems of the world become warmer.

(A) continental and alpine glaciation
(B) precipitation
(C) size
(D) water supply

27. What is true of a resource-oriented industry?

(A) Large amounts of labour are required for production.
(B) Large amounts of technology are required for production.
(C) The manufacturing process does not reduce the weight of the inputs.
(D) The manufacturing process reduces the weight of the inputs.

28. Which industry requires large amounts of labour used to produce a limited amount of highly priced outputs not intended for use by consumers?

(A) heavy
(B) highly mechanized
(C) labour-intensive
(D) light

29. Which statement describes the relationship between city size and the range of services available?

(A) Specialized services are more likely to be found in small rather than large cities.
(B) The higher the population, the higher the range of services.
(C) The higher the population, the lower the range of services.
(D) There is no known relationship between city size and range of services.

30. Which is an example of a public tertiary activity?

(A) electronics firm
(B) financial institute
(C) hair salon
(D) high school

31. What principle of economics encourages a large call centre to locate in the mostly bilingual community of Moncton, N.B. to take advantage of the skilled labour market?

(A) agglomerating tendency
(B) multiplier effect
(C) resource-oriented industry
(D) value adding

32. Which term is defined as a service industry that uses high levels of technology to produce, retrieve, store and distribute information?

(A) public sector
(B) private sector
(C) quaternary
(D) tertiary

33. What is defined as the total value of goods and services produced by a country in a given year divided by the country's population?

(A) employment structures
(B) gross national product
(C) GNP per capita
(D) standard of living

34. Which is an economic indicator of development?

(A) gender equity
(B) literacy rate
(C) number of people per doctor
(D) percent employed in agriculture

35. Which term is defined as artificially improving crops that are grown so that they produce higher yields?

(A) bilateral aid
(B) green revolution
(C) industrial revolution
(D) multilateral aid

36. Which country is the **least** developed according to its employment statistics?

	Primary	Secondary	Tertiary
(A)	78	8	14
(B)	43	23	34
(C)	6	41	53
(D)	35	31	34

SECTION B
Do only ONE of the Units in Section B

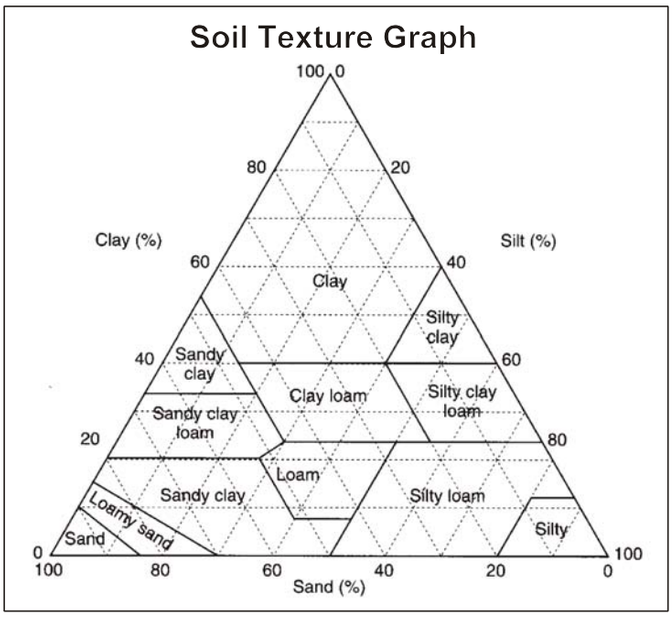
Either:	**Unit 4 - Resources on the Land (37 - 44)**	**Value: 8 %**
Or:	**Unit 5 - Resources in the Oceans (45 - 52)**	**Value: 8 %**

Unit 4 - Resources on the Land

37. Of which resource are gold, potash, and limestone all examples?

(A) capital
(B) human
(C) natural
(D) organic

38. Using the triangular graph of soil texture, a soil texture combination of 20% sand, 10% clay and 70% silt would constitute which soil type?



(A) sandy clay
(B) sandy loam
(C) silty clay
(D) silty loam

39. Which is best classified as intensive farming operations?

(A) high yield, high labour input
(B) high yield, low labour input
(C) low yield, low labour input
(D) low yield, high labour input

40. What is formed, deep under the surface, from carbon remains and decomposed organic matter?

(A) fossil fuels
(B) metals
(C) non-metals
(D) structural minerals

41. Which describes open pit mining?

(A) Extraction is usually deep within Earth.
(B) Shafts and elevators are built to deliver miners to the workplace.
(C) It is the most dangerous and expensive.
(D) When mining is finished a huge hole remains with piles of waste rock

.

42. Mr. Smith is a backyard gardener. At the end of the summer season his next door neighbour complimented Mr. Smith on his fine crop of potatoes. Which farming operation is correct?

	Input	Process	Output
(A)	potatoes	seeds	weeding
(B)	potatoes	weeding	seeds
(C)	seeds	weeding	potatoes
(D)	weeding	seeds	potatoes

43. Which is true of harvesting trees by selective cutting?

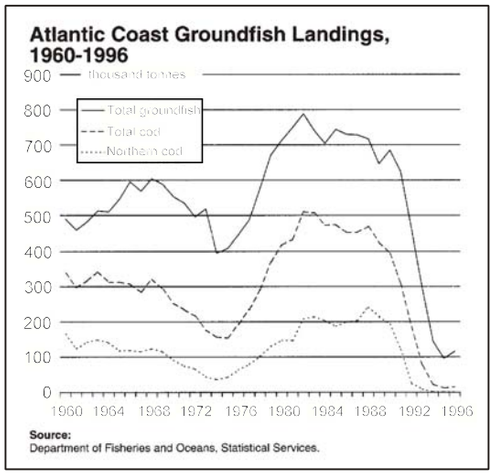
(A) inexpensive
(B) least ecologically disruptive
(C) most rapid
(D) removal of immature trees only

44. Which would result in deforestation and a major threat to our forest resources?

(A) adding of forest area as a result of overcrowding cities
(B) flooding of forested land for hydro-electric development
(C) replanting of the forest in agricultural land
(D) selective cutting for paper manufacturing

Unit 5 - Resources in the Ocean

45. According to the table below, in what years did a general downward trend in groundfish landings occur?

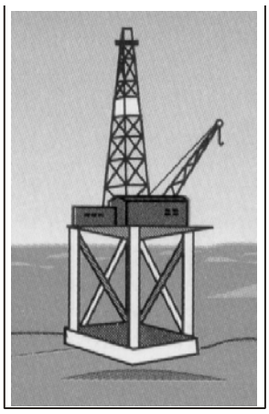


(A) 1960-1968
(B) 1975-1983
(C) 1984-1987
(D) 1989-1996

46. For what reason is fish a consumer preference?

(A) cheap to harvest
(B) easily accessible
(C) in plentiful supply worldwide
(D) rich in protein

47. Which type of drilling system is shown in the diagram below?



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

48. Why wasn't the offshore oil sector in Newfoundland and Labrador developed during the 1980s?

(A) environmental concerns
(B) safety concerns
(C) trouble with the oil transportation system
(D) tumbling oil prices

49. Which is the first step in locating an oil field?

(A) computerized cross section of the ocean floor created
(B) core samples taken
(C) sound-emitting equipment towed over ocean floor
(D) wildcat well drilled

50. For which reason does water over continental shelves serve as natural habitats for fish?

(A) many nutrients in the water
(B) phytoplankton present
(C) place where tectonic plates meet
(D) water temperatures cool

51. Which type of gear should be used to limit further negative impact on the fish stocks?

(A) gill nets
(B) longlines
(C) otter trawl
(D) purse-seine

52. Which determines the quality of oil?

(A) age
(B) colour
(C) sediment
(D) viscosity

SECTION C

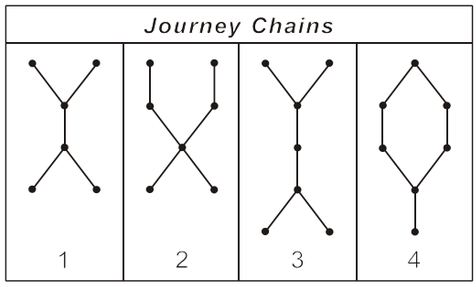
Do only ONE of the units in Section C

Either:	**Unit 7 - Linkages in Human Interaction (53 - 60)**	**Value: 8%**
Or:	**Unit 8 - Population (61 - 68)**	**Value: 8%**
Or:	**Unit 9 - Settlement and Urbanization (69 - 76)**	**Value: 8%**

Unit 7 - Linkages in Human Interaction

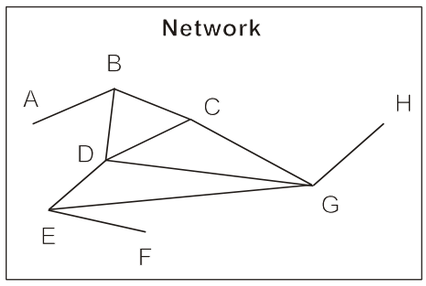
53. Which journey chain best corresponds to the sequence of events described below?

Fishers Smith and Jones dock at the processing plant and sell crab to that processing plant. At the plant the crab is processed into sections and cocktail claw. The finished crab products are sold to Red Lobster. Saturday evening two customers purchase the crab special at the local Red Lobster restaurant.



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

54. Which is the connectivity index for the following network?



(A) 1.13
(B) 0.63
(C) 0.88
(D) 1.25

55. Which means of transportation is most economical, if you were a wheat farmer in Canada shipping wheat to Japan?

(A) rail and air
(B) rail and water
(C) road and air
(D) road and water

56. Which term refers to a region engaging in economic activities that match the region's characteristics?

(A) ease-of-transfer
(B) international trade
(C) specialization
(D) supply-demand

57. Which two conditions must be present in order for goods and services to move from one place to another?

(A) ease-of-transfer, transportation linkage
(B) specialization, ease-of-transfer
(C) supply-demand match, ease-of-transfer
(D) supply-demand match, line-haul cost

58. Which mode of transportation has the highest overhead cost but the lowest line-haul cost?

(A) air
(B) rail
(C) road
(D) water

59. Which is considered a transportation linkage?

(A) fax machine
(B) hard surfaced highways
(C) internet service
(D) voice transmission

60. Which term is defined as the flow or movement of goods, people or information to or from a location together?

(A) ease-of-transfer
(B) journey chain
(C) linkage
(D) specialization

Unit 8 - Population

61. Which is a pull factor in a receiving country?

(A) civil unrest
(B) high unemployment
(C) military dictatorship
(D) multi-culturalism

62. When the number of births exceeds the number of deaths in a country for a period of one year which has occurred?

(A) a natural decrease
(B) a natural increase
(C) an actual change
(D) no actual change

63. Which is defined as a relationship between the working class, the very young, and the other groups of a population, which measures the number of people supported by each set of 100 working age people?

(A) actual change
(B) dependance ratio
(C) echo effect
(D) natural change

64. Which refers to the ratio of people in a selected area?

(A) actual change
(B) census
(C) net migration
(D) population density

65. Which term refers to the phenomenon described below?

In 2001, 26 000 people moved from their country of origin to settle in other countries.

(A) emigration
(B) immigration
(C) internal migration
(D) natural decrease

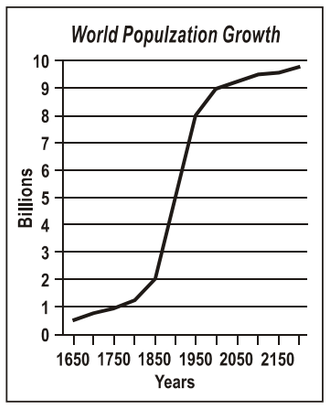
66. According to Canada's immigration policy, into which category of immigrants would an entrepreneur be classified?

(A) family
(B) independent
(C) investor
(D) refugee

67. In a given year, there were 1 200 000 births and 900 000 deaths. In the same year 160 000 people immigrated into the country and 560 000 people emigrated. Which term refers to the overall result of these trends?

(A) actual decrease
(B) actual increase
(C) natural decrease
(D) natural increase

68. Which best describes the world population growth rate in the figure below?



(A) Growth rate sharply increases from 1900 to 2000 and will continue to follow this pattern until 2150.
(B) World growth rates will begin to fall in the year 2050.
(C) World populations sharply increase between 1900 and 2000 but population will begin to stabilize between 2050 and 2150.
(D) World population shows signs of stabilizing between 1850 - 1950.

Unit 9 - Settlement and Urbanization

69. Which term describes the morphology of the settlement illustrated in the figure below.

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

70. Which statement applies to urbanization?

(A) a relatively recent process in less developed countries
(B) employment structure change from service to agriculture and cottage industries
(C) in, of, or suggesting the countryside
(D) the migration of people from cities to towns and villages

71. Which country best illustrates the concept of rank-size?

Rank	Argentina 1991 (actual population (000s)	
1	Buenos Aires	10 990
2	Corboda	1198
3	Rosario	1096
4	Mendoza	775
5	La Plata	640

Rank	Italy 1994 (actual population (000s)	
1	Rome	2688
2	Milan	1334
3	Naples	1062
4	Turin	946
5	Palermo	695

Rank	Japan 1994 (actual population (000s)	
1	Tokyo	26 836
2	Osaka	10 601
3	Yokohama	3228
4	Nagoya	2159
5	Sapporo	1732

Rank	USA 1994 (actual population (000s)	
1	New York	16 329
2	Los Angeles	12 410
3	Chicago	7688
4	San Francisco	6410
5	Philadelphia	4949

(A) Argentina
(B) Italy
(C) Japan
(D) USA

72. Which would apply to a country which has a small land area of 247 650 km^2 with a large proportion of its people (43%) living in rural areas?

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

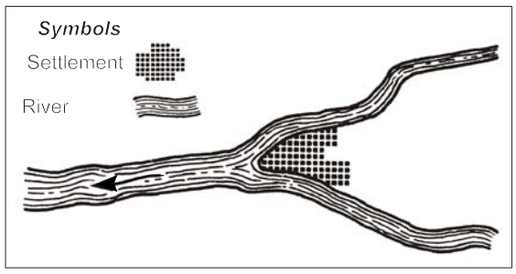
73. Which concept is illustrated by the statement *"Maracaibo is located approximately 600km west of Venezuela's capital city of Caracus"?*

(A) metropolis
(B) urbanization
(C) site
(D) situation

74. Driving into a large urban center you notice that you drive through different zones as you move to the city centre. What would be the first and the last zone you encounter on your journey?

	First Zone	Last Zone
(A)	central business district	light manufacturing
(B)	central business district	sub-urban, high income, single family
(C)	commercial: malls and industrial parks	residential: old, low income, multi-housing
(D)	commercial: malls and industrial parks	residential: sub-urban, medium income, single family

75. Which type of site is illustrated in the graphic?



(A) confluence
(B) head-of-navigation
(C) peninsula
(D) sheltered harbour

76. According to the table below, which term applies to the arrangement of city sizes ?

City	Size (Pop)
1	882 316
2	366 501
3	288 322
4	176 113

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

Part II

SECTION A
TOTAL VALUE: 32%

Instructions: **Do ALL questions in Part II, Section A.**

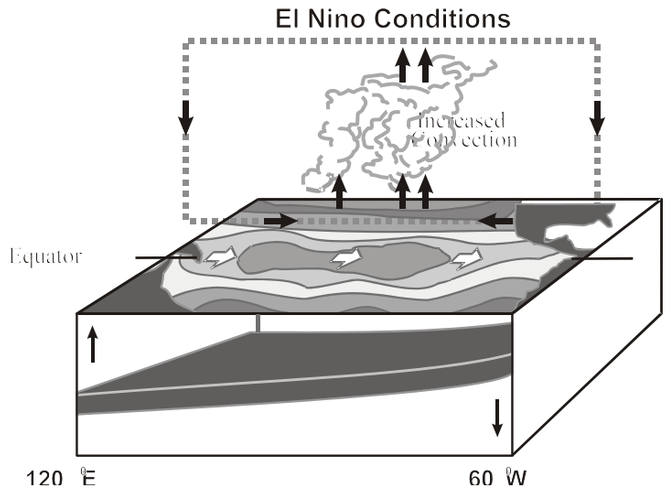
Unit 1 - Major Land and Water Forms
Unit 2 - Patterns in Weather and Climate
Unit 3 - Ecosystems

CASE STUDY 1 -A Current Catastrophe: EL NINO

Floods, drought, famine, and disease all over our planet. Meet the cause, the Pacific Ocean's problem child, El Niño.

El Niño occurs when sea surface temperatures in the equatorial Pacific Ocean remain above average for more than several months. This usually triggers a chain reaction of atomospheric and weather changes around the globe.

Near the end of each calendar year ocean surface temperatures warm along the coasts of Ecuador and northern Peru. Due to its appearance around the Christmas season, local residents referred to this seasonal warming as "El Niño", meaning The Child,. Every two to seven years a much stronger warming appears, which is often accompanied by beneficial rainfall in the arid coastal regions of these two countries. Over time the term "El Niño" began to be used in reference to these major warm episodes.



The effects of El Niño on world climate are widespread and highly variable, depending on the exact pattern of ocean temperatures in each episode and how the event evolves. The position of the warmest water may vary from one event to another and lead to different effects in separate El Niños, possibly causing floods one time and drought the next. Other areas, however, are affected more consistently. Some global effects most frequently observed during an El Niño include wet conditions in the southeast Peru, and warmer-than-normal winters in the northern United States and Canada.

In general, areas most sensitive to climate variability are those likely to be damaged by El Niño effects. These include lands prone to flooding or prolonged droughts, those lands often least able to deal with the climatic costs of El Niño and La Niña. Extremes of heat and moisture at some locations during an El Niño can affect insect and plant growth and the productivity of fisheries, and can cause heat stress to animals. The same extremes affect human health and comfort, often with life-threatening results.

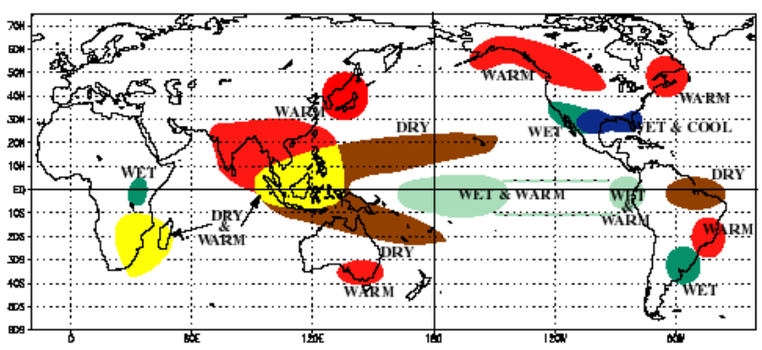
One local economic effect of climatic fluctuation is the devastation of the Peruvian fishing and fertilizer industries. Anchoveta are small fish considered to be the primary source of food for millions of seabirds in Peru. These birds excrete rich guano harvested for fertilizer, another source of income for the local population. The catch of anchoveta by Peru's rapidly growing fishing fleet sharply increased in the 1950s and 1960s but precipitated a concurrent decrease in the population of the birds that ate the fish. Anchoveta populations, however, experienced significant declines in El Niño years, when the warm surface waters cut off the flow of the nutrients needed to sustain the fish population. Because of heavy overfishing of coastal waters and the impact of several El Niños on the already stressed fish population, anchoveta levels declined to record low amounts, seriously affecting the local fishing industry.

El Niño-derived droughts cause enormous problems with health and food supplies. Droughts in Australia almost always occur in El Niño years, again affecting the economy. Losses in the millions of dollars occur in some years; in others, late planting or insect infestations reduce agricultural yeilds. These problems may relate to changes in rainfall and wind patterns during El Niño years. Outbreaks of insect-borne diseases such as encephalitis may occur as a result of El Niño- or La Niña-related climate shifts, especially in wet years when insect populations may boom. Past El Niños have reduced monsoons in India, causing enormous devastation. During the 1888 event, approximately 1.5 million people died because of drought-induced famine. In more recent El Niños, countries still suffered immense economic setbacks, although fewer lives have been lost because of expanded grain storage and increased international aid.

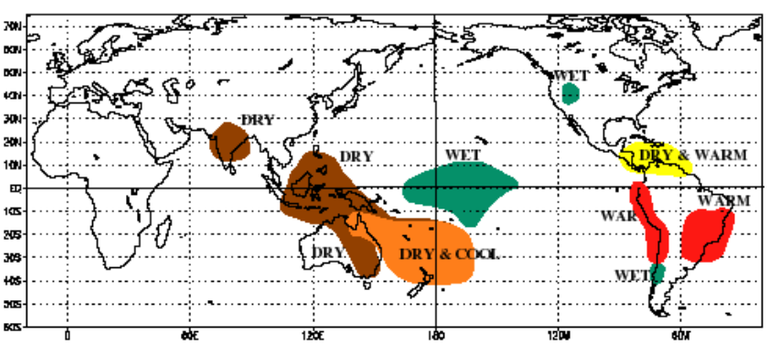
In addition to the large toll on life and health, floods and drought shatter the infrastructure of many countries. Loss of housing, hospitals, and schools further weakens the vitality of affected communities. Destruction of factories and other commercial enterprises impedes the production of goods, limiting what's available to consumers.

While El Niño has positive effects on some parts of the world, the pluses are a mixed blessing. A warm winter in the northern United States reduces heating and snowplowing bills but brings lighter snowfalls, endangering businesses dependent on winter recreation. Ample rain in normally dry regions may increase crop yields and replenish reservoirs, but too much rain, like that occurring in early 1992 in Texas, leads to flooding, forcing people from their homes, damaging crops, and killing livestock. Decreases in Atlantic hurricanes may reduce widespread destruction on the U.S. East Coast, but in other areas of the world, such as Tahiti, the number of hurricanes increases with El Niño, which increases storm damage. Unfortunately, the positive impacts on the biosphere and human life seem to be much harder to quantify than the negative.

WARM EPISODE RELATIONSHIPS DECEMBER - FEBRUARY



WARM EPISODE RELATIONSHIPS JUNE - AUGUST



Climate Prediction Center
NCEP

Value

2% 77. What is the El Niño effect and what influence does it have on temperature and precipitation in southeastern South America for the period of December to February?

Value

4% 78. Human Activity is influenced by the El Niño effect. With reference to the case study and using your knowledge of geography, state any two of these effects and suggest how one can be overcome.

Value

6% 79. You are an environmental expert addressing the Peruvian fishing and fertilizing industries. Explain the possible effect of El Niño on the food chain in the waters off the coast of Peru and tell why the change could occur.

Unit 6 - Manufacturing and Service Activities
Unit 10 - Economic Disparities

CASE STUDY 2 - Ecotourism and Development

International tourism is a growing business as people world wide are more able to take advantage of travel opportunities throughout the world. People are travelling for a number of activities such as fitness and health, sun and beach tourism, business travel, as well as nature and cultural tourism.

The World Tourism Organization (WTO) estimates that there were more than 663 million international travellers in 1999 and spending by these tourists was estimated at more than US $453 billion. Tourist arrivals are expected to exceed a total of one billion international travellers by the year 2010. Tourism is the world's largest employer, generating nearly 200 million jobs or some 10% of the jobs globally.

Carefully planned and implemented tourism can be a sustainable economic alternative for many developing countries as they begin to mature in the global community. This industry may also serve as a successful conservation strategy—one that provides jobs to local people and, by its reliance on healthy ecosystems, it offers a powerful incentive to preserve the environment. This win-win situation is based on a type of tourism termed "ecotourism".

Ecotourism is a nature based form of specialty travel defined by The International Ecotourism Society (TIES) as "responsible travel to natural areas which conserves the environment and sustains the well-being of local people." Three components of an ectourism activity are that it: 1. conserves the visited resource, 2. benefits the local community, and 3. educates the visitor.

The most common activities include wildlife viewing, visiting wildlife refuges and unique natural geological formations, hiking, trekking, and walking nature trails. The growing interest in these activities has led to an increase in the amount of ecotourism-focused travel over the last two decades.

With tourism gaining popularity around the world, the United Nations launched the International Year of Ecotourism to raise public awareness about the effects of ecotourism on nature and cultural heritages, and to promote the idea of responsible travel. Ecotourism is one of the fastest-growing segments in the tourism industry and has great potential for economic development, yet it might well have devastating consequences if not managed properly.

Environmental, Social and Economic Impacts

Those who are working to improve the relationship between tourism and development have recognized that this development must consider the environmental, social and economic impacts of the ventures on the local area if they are to be a successful and sustainable activity.

The quality of the environment, both natural and man-made, is crucial to tourism. However, tourism's relationship with the environment is complex. It involves many activities that can have negative environmental effects. Many of these impacts are linked with the construction of infrastructure such as roads and airports, and of tourism facilities, including resorts, hotels, restaurants, shops, golf courses and marinas. The negative impacts of tourism development can gradually destroy the environment on which it depends. Increased numbers of tourists may place additional strains on ecosystems which are already considered sensitive, endangering them for future generations.

On the other hand, tourism has the potential to create positive effects on the environment by contributing to environmental protection and conservation. Funds raised through park fees or permits may allow for continued protection of an area. It is also a way to raise awareness of environmental values and it can serve as a tool to finance protection of natural areas and increase their economic importance.

Social impacts arise when tourism brings about changes in value systems and behaviour and thereby threatens indigenous identity. These may occur as different cultures have contact with one another through the eco-tourism ventures. Changes can often occur in community structure, family relationships, collective traditional life styles, ceremonies and morality.

Others suggest that tourism can also generate positive impacts as it can serve as a supportive force for peace, foster pride in cultural traditions and help avoid urban relocation by creating local jobs. Knowledge creates understanding and understanding allows for tolerance of differences in peoples.

The World Bank estimates that in less developed areas, the percentage of money generated through tourism retained in the local economy is often very low. In many of the popular ecotourism circuits it was found that as little as 10 percent of the money was pumped back into the local economy. The direct income for an area is the amount of tourist expenditure that remains locally after taxes, profits, and wages are paid outside the area. Of every US $100 spent on a vacation tour by a tourist from a developed country, approximately US $5 actually stays in a developing-country destination's economy.

Local businesses often see their chances to earn income from tourists severely reduced by the creation of "all-inclusive" vacation packages. When tourists remain for their entire stay at the same cruise ship or resort, which provides everything they need and where they will make all their expenditures, not much opportunity is left for local people to profit from tourism.

Value
2% 80. Define tertiary activity and give an example of a tertiary activity from the case study.

Value
4% 81. As a local, you recognize that there have been social, environmental and economic impacts as a result of ecotourism in your area. Using your knowledge of geography and the case study, highlight at least two advantages and two disadvantages of ecotourism. Based on these, would you recommend ecotourism to another area?

Value

6% 82. During the International Year of Ecotourism, the United Nations is planning a summit in Quebec City. You are a delegate to this summit. The case study outlines several social, environmental and economic impacts of ecotourism. Using your knowledge of geography and the case study, what actions would you recommend to lessen such impacts on future ecotourism operations?

Value

2% 83. Define infrastructure. List one example of infrastructure from the case study.

Value

6% 84. "*Some people believe that ecotourism is another form of colonialism.*"

Using your knowledge of geography and the case study, define colonialism and make at least three arguments to support this statement.

SECTION B

Do only ONE of the Units in Section B
Candidates are reminded that they must choose the same Unit as Part I.

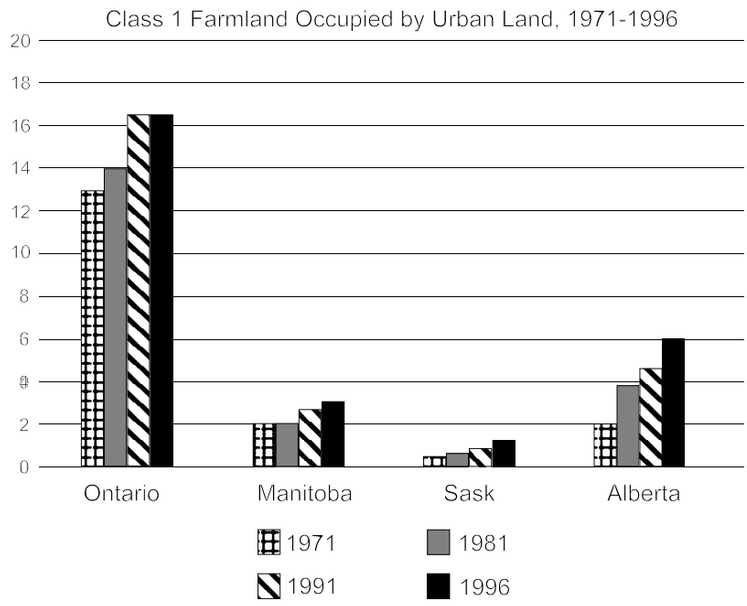
Either:	**Unit 4 - Resources on the Land**	**Value: 8%**
Or:	**Unit 5 - Resources in the Ocean**	**Value: 8%**

CASE STUDY 3 - Managing our Resources into the Future

A resource is any aspect of the environment which can be used to meet human needs. For generations, Canadians have regarded the environment around them as an infinite source of desirable resources such as lumber, oil, gas, fish, gold and copper. Our fisheries were "inexhaustible," our forests "limitless," and it seemed arable soil stretched on forever. The resources of the land and water provided and strengthened our quality of life and helped define us as a nation.

During the 1970s and 1980s, Canadian attitudes about the environment began to change. The emergence of major environmental concerns: acid rain, ozone depletion and rapidly declining fish stocks have underlined something that Canadian naturalist Grey Owl commented on many years ago: nature does not belong to humanity, but rather humanity belongs to nature. It became clear that the environment's ability to absorb pollution and to withstand depletion while continuing to provide was limited. Sustaining our country environmentally as well as economically by managing our natural resources prudently has become a pressing challenge and a timely issue.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Though sustainable development is unevenly applied across the primary industries, Canadian farmers, fishers, miners and loggers are exploiting their traditional strengths as innovators to help reduce the effects of human activity on the environment. Investment in environmental protection initiatives also plays a significant role. For example, in 1996, the logging, mining, oil and gas, pulp and paper, and primary metals industries spent $1.3 billion dollars on activities such as land reclamation, habitat protection, pollution abatement and control practices.



AGRICULTURE

The availability of dependable agricultural land is an important sustainability concern for Canadian farmers. From 1971 to 1996, as Canadian cities and towns expanded, some 12 250 square kilometres of land, half of which was potential agricultural land, was given over to urban uses. Ontario alone lost 19% of its prime agricultural land to urbanization over this period. To maintain the productivity of the remaining arable land, Canadian farmers have employed a number of land management techniques that improve soil fertility and prevent erosion. The area of land tilled by conventional practices (which promote erosion and accelerate the decomposition of organic matter) dropped 23% from 1991 to 1996. Conversely, the amount of land tilled using new practices: conservation and no-till agriculture increased 24% and 135% respectively.

FISHERY

Decline of Cod stocks

Year	Tonnage
1962	1 600 000
1964	1 400 000
1967	1 000 000
1972	600 000
1976	200 000
1982	400 000
1989	200 000
1990	100 000
1992	000 000

The government is involved in sustainability efforts in the fishery. This is particularly true in the fight to stem the decline in Canada's fish stocks. Some reasons that have led to this decline would be overfishing, large-scale commercial fishing, new catch technology, increased bycatch, and the impact of the modern generation of huge, high-tech fishing vessels, which has been so great that environmentalists have labelled them " the strip miners of the sea". Government in its attempt to stem the decline has limited access to the fisheries to individuals holding valid licences, and has set quotas for the maximum tonnage of a particular fish species that can be caught in a particular fishery during one fishing season. It also employs extensive air and sea surveillance to verify catch reports, detect unlicensed vessels and monitor for unlicenced foreign vessels within our 200-mile fishing zone. Surveillance of another kind is being used as well: fisheries officers have begun using DNA to identify fish caught by poachers.

MINING

Canada is a mineral treasure chest. Almost every important mineral used in industrial societies is produced somewhere in this country. There are hundreds of mines across Canada, producing metals and non-metallic minerals, and creating many jobs. But mining can be a potential source of disruption to the land, air and water systems around mineral deposits. Since it is a potential source of disruption, environmental planning begins before anything is extracted from the earth. Area soils, water systems, air quality, wildlife and vegetation are carefully mapped out beforehand. The proposed land use and reclamation plans, as well as the likely effects of operations on air and water quality are scrutinized. Exploration and development permits are only issued once the concerns of a number of government departments are satisfactorily addressed. When the mineral discovery is deemed to be commercially viable, a method of extracting the mineral must be chosen. The method could be open-pit mining or underground mining. In the end, mines usually disrupt relatively small areas of land for a short time, after which the land is often reclaimed for other uses. Much of what is mined from the earth is also used to protect it, such as lime and carbon for treating water, platinum for controlling car emissions, and peat for conditioning soil.

FORESTS

Being such a treasured resource, 94% of Canada's forests are publicly owned and overseen by governments: 71% under provincial jurisdiction, and 23% under federal jurisdiction. To ensure the long-term health of the resource, these governments set annual allowable cut arrangements (the amount of timber that may be cut on a defined area for a specified period of time) with forestry companies. The remaining 6% of Canada's forests are in the hands of about 425 000 private landowners. Tree planting is another important effort in regenerating our forests. For example, nearly half of the 1 million hectares of forest cut down in 1997 was replanted with 642 million seedlings.

OIL

Over time the decomposed bodies of animals buried in the muds of shallow seas were transformed by pressure and chemical reactions into small drops of petroleum liquid within shale and silkstone rock.

In the early 1900s, small oilfields in Ontario and Alberta were discovered simply by drilling wells where oil and tar were seeping through the ground. Today oil exploration is much more sophisticated. Seismic waves, computer technology, and highly sensitive equipment help reveal the location of oil reserves. But energy resources today involve many environmental issues, oil spills, dumping of used oil, offshore drilling, industrial emissions, and the burning of fossil fuels, of which Canadians are the highest energy users in the world and major contributors to this pollution problem. As a result of these environmental issues, Canada and other countries are spending millions of dollars in an attempt to reduce serious environmental damage.

Complete: **Either** Unit 4 **Or** Unit 5

CASE STUDY 3 - Unit 4 Resources on the Land

Value
2% 85. Define resource. List two conditions that determine if a natural material is actually a resource.

Value
6% 86. Pretend you are an economist who has been asked by CBC to do a short report for the evening news on mining. Based on your knowledge of geography and information in the case study, in your report, list two conditions that may lead to a mine closure, and explain at least one socio-economic impact of a closure of the mine.

CASE STUDY 3 - Unit 5 Resources in the Ocean

Value

2% 87. List two techniques used to locate oil and gas reserves, and briefly describe one of these techniques.

Value

6% 88. You are mayor of a fishing community at a government hearing on the state of our resources. Using you knowledge of geography and the case study, predict three possible effects a declining fish resource will have on the livelihood of fishers in your community.

SECTION C

Do only ONE of the Units in Section C
Candidates are reminded that they must choose the same Unit as Part 1.

Either:	**Unit 7 - Linkages in Human Interaction**	**Value: 8%**
Or:	**Unit 8 - Population**	**Value: 8%**
Or:	**Unit 9 - Settlement and Urbanization**	**Value: 8%**

CASE STUDY 4 - Osaka - Kobe

OSAKA-KOBE
Some Problems

The twin cities of Osaka-Kobe are located in the Kansai region of the Japanese island of Honshu. They lie on a small area of flat land between the mountains and Osaka Bay.

The area has a population of over 9 million, and is a world leader in education, science, business technology and industry -- but this success has not been achieved without creating problems.

Housing. Osaka and Kobe have grown rapidly in the last 50 years. Most of the available flat land has now been used up. This has led to a very high housing density and very small homes. The average house size is eight times smaller than a UK house.

Transport. The unplanned growth and rapid increase in road traffic has caused major transport problems. Roads are congested and vehicle exhausts cause severe air pollution.

Port. Osaka port is very busy, with 1 400 ships a day entering the docks. The ships bring in oil and other raw materials. The main exports are manufactured goods.

Industry. Most industry is concentrated along Osaka Bay where there are oil refineries, steelworks and other industries processing raw materials. The main problem is a lack of space for factories and storage.

Pollution. The large volume of road traffic and smoke from heavy industries cause serious air pollution. Rubbish dumped at sea and oil spilled from ships pollutes Osaka Bay.

Physical environment. Japan is on a destructive plate boundary and suffers regular earthquakes and volcanic eruptions. The 1995 Kobe earthquake killed 5 500 people and destroyed large areas of the city. Japan is also affected by tropical storms which bring heavy rain and hurricane-force winds.

OSAKA-KOBE
Some Solutions

Housing. Two huge islands have been made in Osaka Bay by reclaiming land from the sea. Much of Rokko Island is a new town, with housing in the form of flats. These are close to schools, shopping centres, hospitals, parks and places of entertainment. Traffic is segregated from housing, whilst a railway takes commuters to Kobe.

Transport

Rail. The Shinkansen or 'bullet train' provides one of the fastest and most reliable rail journeys in the world. It travels at speeds up to 300 km/hr and carries 275 million people a year.

Road. A new road links Osaka-Kobe with the islands of Awaji and Shikoku. A further extension to Kyushu is planned.

Air. Kansai International Airport has been built on land reclaimed from the sea. The terminal handles 30 million passengers a year.

Port development. Land has also been reclaimed from the sea for port extensions. Kobe's new container facility is on Port Island, which stretches some 7 km out to sea.

Industry. Industrial development has taken place at four locations:

① On land next to Osaka Bay previously used by the Nippon steelworks.

② On land reclaimed from Osaka Bay by levelling inland areas and depositing the waste material on the sea bed.

③ In "science cities" created on the newly levelled sites.

④ Alongside major motorways.

Pollution. Japan --- a rich country --- has made serious attempts to clean up some of its pollution. The Inland Sea, once a "dead" sea, now has fish and oyster farms. The new industries are cleaner than the old, and nuclear energy, despite the risks, causes less air pollution than fossil fuels.

Physical environment. Earthquakes and tropical storms cannot be controlled, but attempts can be made to reduce their effects. New buildings and bridges are now designed to withstand both earthquakes and hurricane-force winds.

Complete: **Either** Unit 7 **Or** Unit 8 **Or** Unit 9

CASE STUDY 4 - Unit 7 - Linkages in Human Interaction

Value
2% 89. Define the term transportation node and give an example of a transportation node from the case study.

Value
6%

90. Develop a journey chain for the delivery of car wheel rims to the Philippines from Australia and explain how the mode of transportation reflected in your journey chain enhances ease of transfer.

A car manufacturing plant has recently been built in the Phillippines. The car parts will be assembled there and the assembled car will be transported to foreign countries. One of the car parts will be purchased from Osaka-Kobe Japan Industries. Iron for these parts has its origin in Australia's Iron Industry which only sells semi-processed iron pellets and is located 120 km from the coast.

CASE STUDY 4 - Unit 8 - Population

Value
2% 91. Define population density. Cite one piece of evidence from the case study, which shows that Osaka-Kobe is a densely populated area.

Value
6% 92. Assuming that a population pyramid of Osaka-Kobe has changed from expansive to contractive, what would be three potential changes that would lead to a better standard of living over the next twenty years?

CASE STUDY 4 - Unit 9 - Settlement and Urbanization

Value
2% 93. Land use planning is essential to addressing problems associated with urbanization. Cite two pieces of evidence from the case study, to show how Osaka-Kobe has effectively used land use planning to overcome some of the problems.

Value
6% 94. "*Osaka and Kobe have grown rapidly in the last 50 years*." Using your knowledge of geography and the case study, explain how three site conditions have had an influence on its development.