

PART I

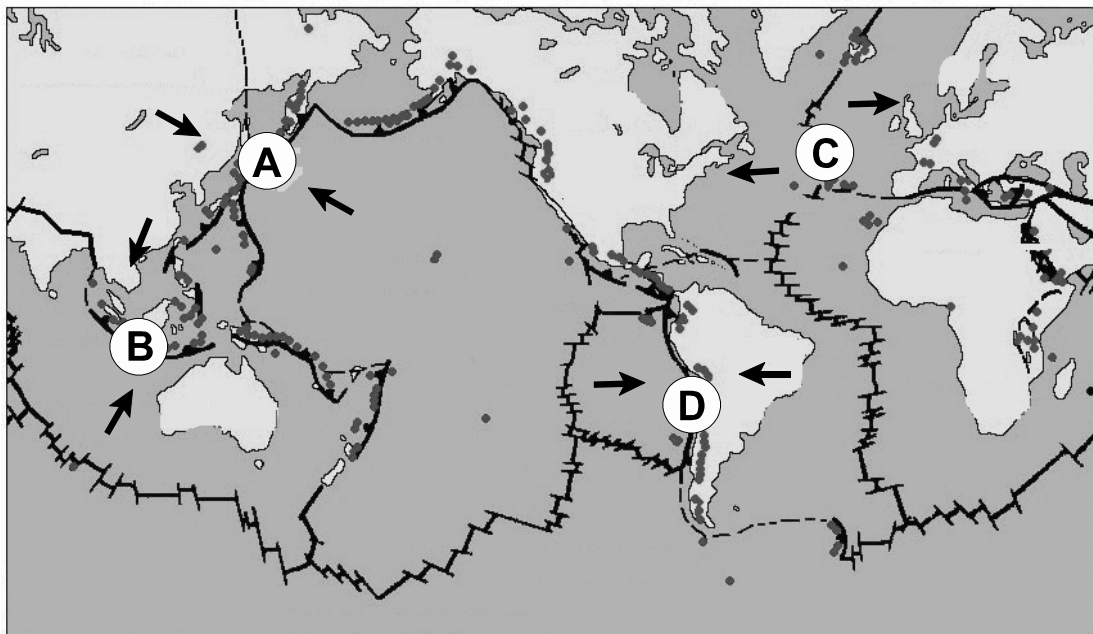
Instructions: Shade the letter of the correct answer on the machine scorable answer sheet provided.

SECTION A

TOTAL VALUE: 42%

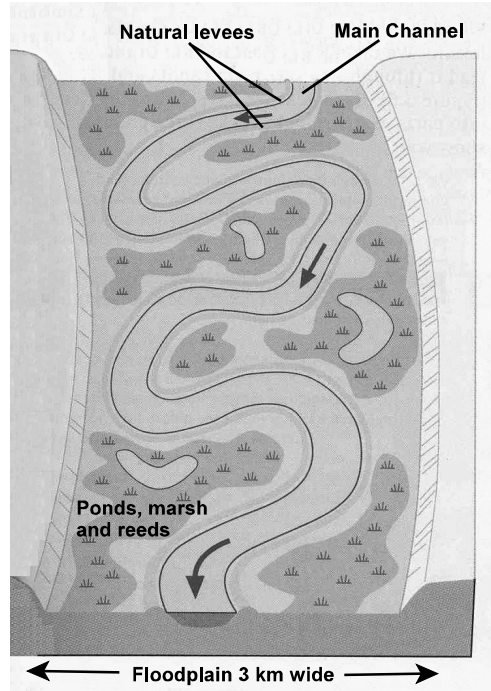
Instructions: Do ALL of the Questions in Part I, Section A.

1. Which plate boundary in the source below resulted from tensional forces?

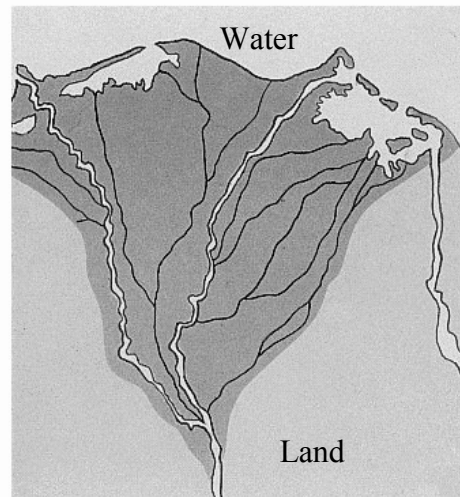


- (A) A
(B) B
(C) C
(D) D
2. Which type of volcano is broad, flat and has thin liquid lava flows?
- (A) ash and cinder
(B) composite
(C) lava dome
(D) shield
3. Which type of physical weathering occurs when rock peels off in rounded sheets?
- (A) exfoliation
(B) frost fracture
(C) oxidation
(D) plant growth

4. What stage of the river's life cycle is illustrated below?



- (A) late maturity
 - (B) maturity
 - (C) old age
 - (D) youth
5. Which is the process by which rivers erode their beds?
- (A) exfoliation
 - (B) lateral erosion
 - (C) oxidation
 - (D) vertical erosion
6. What type of delta is illustrated in the graphic below?



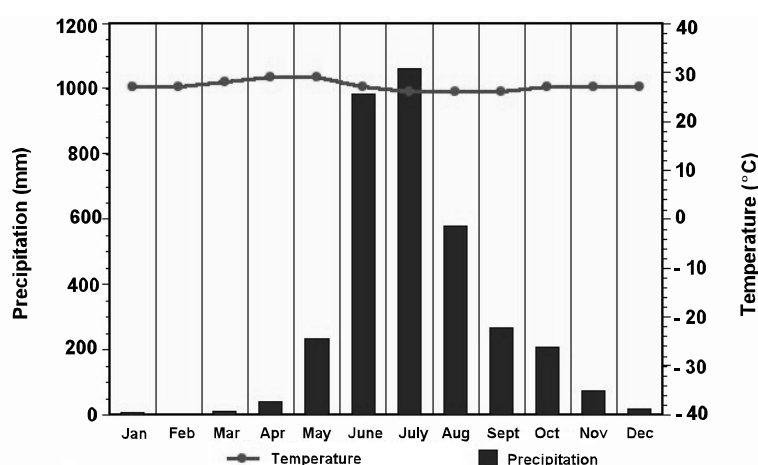
- (A) arcuate
- (B) digitate
- (C) estuarine
- (D) finger-like

7. Which refers to a large boulder or rock differing in character from the pre-existing rock on which it rests?
- (A) drumlin
 - (B) erratic
 - (C) outwash plain
 - (D) terminal moraine
8. Which two features are a result of alpine glaciation?
- (A) arête and cirque
 - (B) arête and esker
 - (C) drumlin and cirque
 - (D) drumlin and esker
9. Which coastal feature is illustrated by the arrow in the diagram below?

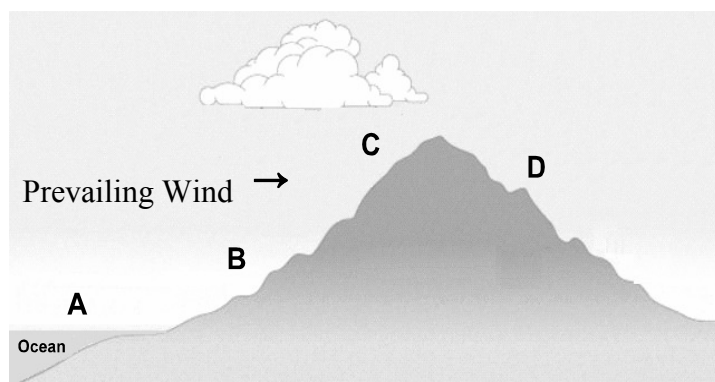


- (A) sea arch
 - (B) sea cave
 - (C) spit
 - (D) stack
10. Which is responsible for the four seasons on Earth?
- (A) elevation
 - (B) prevailing winds
 - (C) revolution
 - (D) rotation
11. Which is true regarding cloud cover and temperature range?
- (A) Cloud cover does not impact temperature range.
 - (B) Cloud cover only impacts temperature range in the daytime.
 - (C) Many clouds increase temperature range.
 - (D) No cloud cover creates the greatest temperature range.
12. Which describes the winter solstice in the Southern Hemisphere?
- (A) equal length of day and night
 - (B) mid-day sun is directly overhead at its farthest point north
 - (C) mid-day sun is directly overhead at its farthest point south
 - (D) occurs twice per year

13. Which best represents the impact of global warming on the Greenhouse Effect?
- (A) decreases precipitation
 - (B) increases temperature
 - (C) stabilizes precipitation
 - (D) stabilizes temperature
14. Which is true regarding the development of a land breeze?
- (A) high pressure develops over the sea
 - (B) land cools faster than the sea
 - (C) low pressure develops over the land
 - (D) ocean cools faster than the land
15. Which describes the impact of the Coriolis effect in the Southern Hemisphere?
- (A) Winds are deflected to the left of their paths.
 - (B) Winds are deflected to the right of their paths.
 - (C) Winds move from high to low pressure with no deflection.
 - (D) Winds move from low to high pressure with no deflection.
16. Which type of climate is represented below?



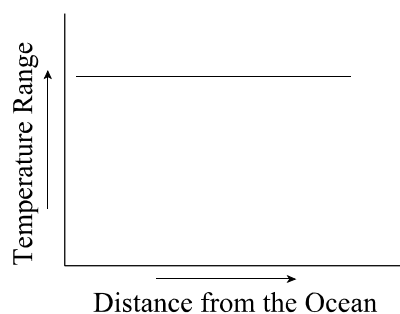
- (A) temperate cold
 - (B) temperate mild
 - (C) tropical wet
 - (D) tropical wet and dry
17. At which location would the greatest amount of orographic rainfall occur?



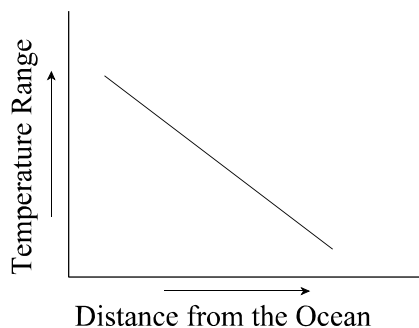
- (A) A
- (B) B
- (C) C
- (D) D

18. Which graph shows the relationship between temperature range and distance inland during a summer season?

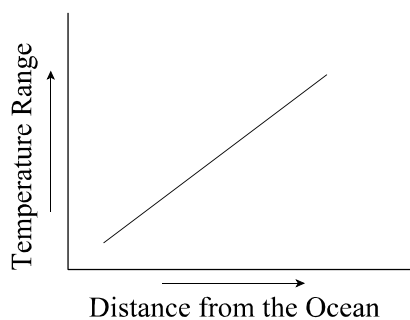
(A)



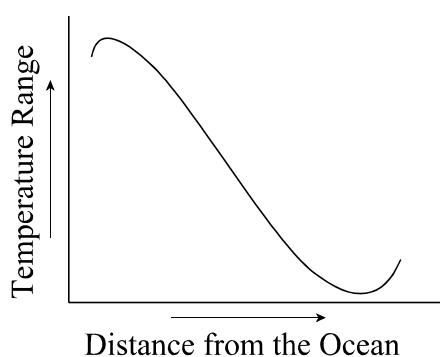
(B)



(C)



(D)



19. Which best describes energy flow throughout an ecosystem?

- (A) Decomposers obtain energy from 3rd level consumers only.
- (B) Energy flows from 3rd level consumers to 2nd level consumers.
- (C) 10-15% of energy is passed from one trophic level to the next.
- (D) There is no energy transfer from one trophic level to the next.

20. Which world ecosystem matches the description below?

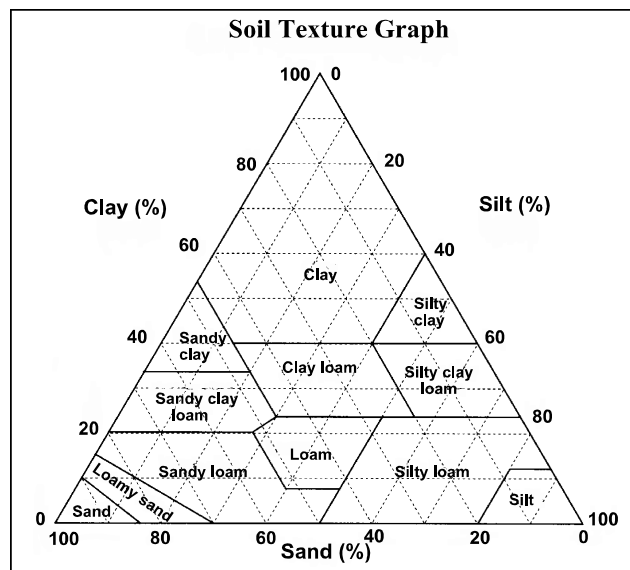
- long, snowy winters
- summers have moderate temperatures
- vegetation is dominated by thick forests of needle-leaf trees

- (A) boreal forest
- (B) savanna
- (C) scrub
- (D) temperate forest

21. Which pattern best describes the change in ecosystems from polar regions to the equator?

- (A) boreal forest → temperate forest → tropical rain forest → tundra
- (B) boreal forest → temperate forest → tundra → tropical rain forest
- (C) tundra → boreal forest → temperate forest → tropical rain forest
- (D) tundra → boreal forest → tropical rain forest → temperate forest

22. Based on the graph below, which soil texture would be least suitable for growing crops?



- (A) 10% sand; 30% clay; 60% silt
- (B) 20% sand; 60% clay; 20% silt
- (C) 40% sand; 20% clay; 40% silt
- (D) 60% sand; 30% clay; 10% silt

23. Which refers to a tractor in a farming operation?

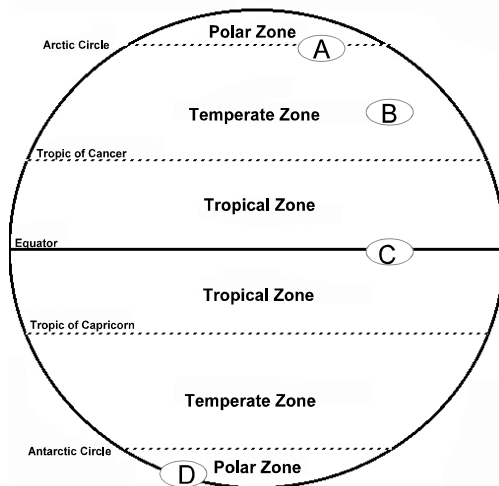
- (A) human input
- (B) human process
- (C) natural input
- (D) natural process

24. Which crop is most suited to the climatic conditions described below?

- large annual temperature range (-10°C to 25°C)
- less than 75 cm of annual precipitation

- (A) olives
- (B) oranges
- (C) watermelon
- (D) wheat

25. At which location would shifting cultivation take place?



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

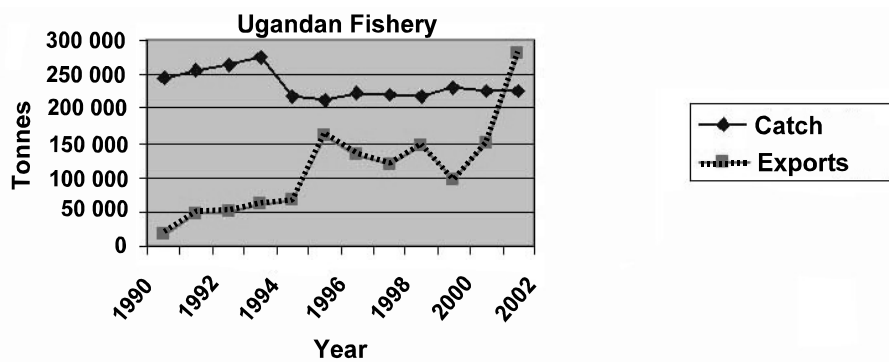
26. Based on the table below, what characteristic accurately illustrates the difference between commercial and subsistence farming?

	Characteristic	Commercial	Subsistence
(A)	capital	high	low
(B)	profit	low	high
(C)	variety	high	high
(D)	yield	low	low

27. Which type of extensive agriculture requires the movement of farmers to obtain food and water for their animals?

- (A) agribusiness
- (B) mixed farming
- (C) nomadic herding
- (D) shifting cultivation

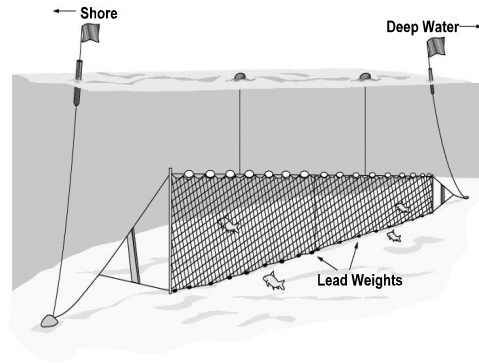
28. Which is true regarding selective cutting?
- (A) few roads to be maintained
 - (B) high yields
 - (C) least ecologically damaging
 - (D) very inexpensive
29. Which would be considered a human factor in an offshore oil and gas operation?
- (A) anticline trap
 - (B) fault trap
 - (C) oil deposit
 - (D) oil rig
30. Which type of oil rig is most suitable for drilling in water greater than 2000 metres deep?
- (A) jack-up
 - (B) semi-submersible anchored
 - (C) semi-submersible dynamically positioned
 - (D) submersible
31. Based on the graph below, what is most true within the Ugandan fishery between 1990-2002?



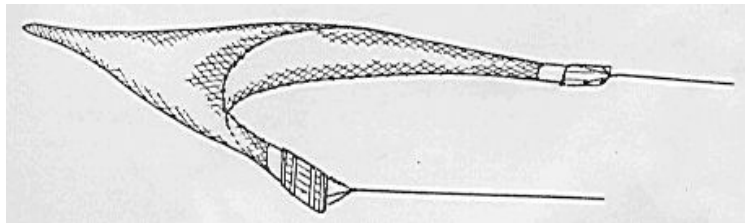
- (A) catch has generally declined
- (B) catch has generally increased
- (C) exports have generally declined
- (D) exports have generally increased

32. Which fishing technology would be most damaging to the marine ecosystem?

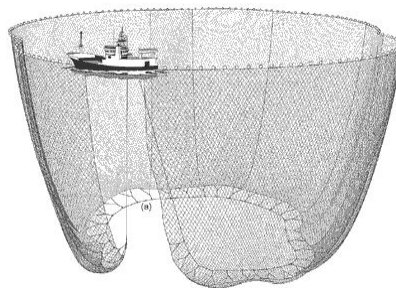
(A) gill netting



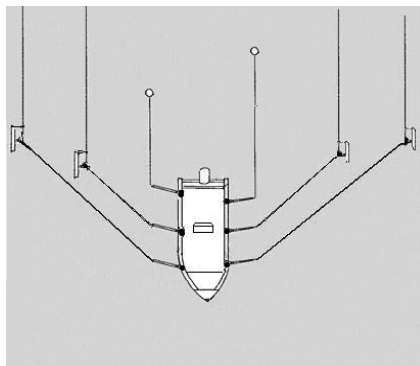
(B) otter trawling



(C) purse seining



(D) trolling



33. Which is a human input in steel manufacturing?

- (A) iron ore
- (B) labor force
- (C) land
- (D) power supply

34. Which is an example of a conditioning process?

- (A) cod cake
- (B) cod chowder
- (C) cod fillet
- (D) cod nugget

35. Which manufacturing operations are best illustrated by custom jewelry-making?
- (A) capital-intensive and heavy-industry
 - (B) capital-intensive and light industry
 - (C) labour-intensive and heavy industry
 - (D) labour intensive and light industry

36. Which describes products created by heavy industry?
- (A) created for the general consumer
 - (B) generally light in weight
 - (C) made from bulky raw materials
 - (D) usually transported by air

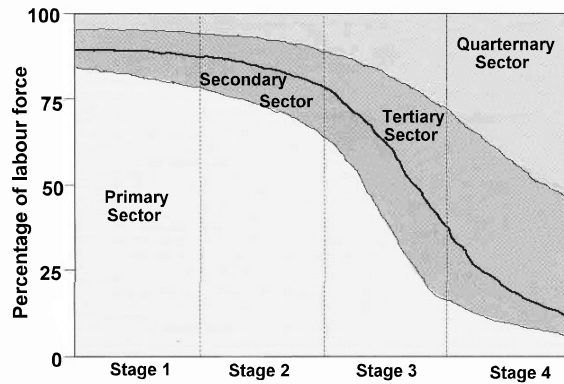
37. Which type of industry location is described below?

- raw materials are heavy and relatively low value for weight
- processing results in overall weight decrease

- (A) agglomerating tendency
 - (B) market-oriented
 - (C) resource-oriented
 - (D) tertiary activity
38. Which is the best example of a private tertiary activity?
- (A) emergency room doctor
 - (B) fireman
 - (C) insurance broker
 - (D) police officer
39. Which sector of the economy is directly involved in the development of technology and information services?
- (A) primary
 - (B) quaternary
 - (C) secondary
 - (D) tertiary
40. Which is true regarding tertiary activities?
- (A) As a country becomes wealthier, the tertiary sector expands.
 - (B) As a country becomes wealthier, the tertiary sector shrinks.
 - (C) Developed countries have low levels of tertiary employment.
 - (D) Developing countries have high levels of tertiary employment.
41. Which country in the table below is the most economically developed?

	Literacy Rate	GNP per capita	Population in Agriculture
(A)	50 %	\$240	62 %
(B)	58 %	\$3 890	23%
(C)	80 %	\$14 205	14%
(D)	95 %	\$13 580	7%

42. According to the graph below, which stage represents a country that is most developed?



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

SECTION B

TOTAL VALUE: 8%

Do only ONE of the Units in Section B.

- Either:** Unit 6 - Population Distribution and Growth
Or: Unit 7 - Settlement and Urbanization

UNIT 6 - Population Distribution and Growth

43. What does population density indicate?
- (A) actual population decrease of an area
(B) actual population increase of an area
(C) number of births / deaths per unit area
(D) number of people per unit area
44. Which formula is used to calculate the population growth rate of a country?
- (A) $(\text{absolute change} / \text{original population}) \times 100$
(B) $(\text{birth} + \text{immigrants}) - (\text{deaths} + \text{emigrants})$
(C) birth rate - death rate
(D) population / land area
45. What is the growth rate of Country Y?

At the present rate of population growth, the population of Country X will double in 1500 years; whereas, the population of Country Y will double in 8 years.

- (A) declining
(B) fast
(C) moderate
(D) slow

46. Which best reflects the problem of overpopulation resulting from the characteristics below?

- unsanitary living conditions
- epidemics
- low life expectancy

- (A) economic
- (B) environmental
- (C) health / social
- (D) political

47. Which factor contributes to a graying population?

- (A) environmental pollutants
- (B) improved medical care
- (C) increasing death rates
- (D) low life expectancy

48. Which population concept is represented by the arrival of refugees into Canada?

- (A) emigration
- (B) immigration
- (C) intervening obstacle
- (D) repel factor

49. According to the table below, which country shows an actual decrease in population?

	# of Births	# of Deaths	# of Immigrants	# of Emigrants
(A)	100 000	227 000	40 000	75 000
(B)	475 000	300 000	125 000	60 000
(C)	3 762 000	175 000	116 000	426 000
(D)	38 650 000	17 700 000	2 750 000	1 750 000

50. Which may be used by government to accurately determine future housing concerns for seniors?

- (A) census data
- (B) demographic transition
- (C) dependency ratio
- (D) population density

Unit 7 - Settlement and Urbanization

Note: If you are completing this unit, please ensure you shade bubbles for 51-58.

51. Which term is best defined by the statement below?

any built-up area with a population of 1000 or more and a population density of 400 or more per square kilometre

- (A) linear settlement
- (B) loose knit settlement
- (C) rural area
- (D) urban area

52. Which factors would best account for the trend shown in the chart below for a country?

Year	Urban (%)	Rural (%)
1870	24	76
1900	40	60
1920	51	49
1940	56	44
1960	70	30
1980	76	24
1990	77	23
1998	77	23

- (A) higher levels of industrial pollution in urban areas
- (B) higher wages and job opportunities in urban areas
- (C) lower crime rates in rural areas
- (D) lower taxes in rural areas

53. Which characteristic best describes the advantage of an acropolis site?

- (A) greater access to inland resources
- (B) maximum access to river frontage
- (C) natural defense
- (D) safe harbour

54. Which is the location of a place relative to other areas or physical features?

- (A) metropolis
- (B) settlement
- (C) site
- (D) situation

55. Which set of city population statistics best illustrates a rank-size city arrangement?

	Population of Largest City	Population of 2nd Largest City	Population of 3rd Largest City	Population of 4th Largest City
(A)	800 000	725 000	475 000	250 000
(B)	4 300 000	3 500 000	1 800 000	1 000 000
(C)	7 750 000	3 250 000	2 250 000	1 850 000
(D)	8 250 000	1 500 000	750 000	250 000

56. Which generally results when large cities plan land use activities?

- (A) conflict between residential and industrial areas is avoided
- (B) industrial agglomeration is avoided
- (C) size of public areas is reduced
- (D) traffic speeds are reduced

57. Which is a settlement where buildings are grouped closely together, usually having a well-defined nucleus?

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

58. Which city land use zone is shown in the graphic below?



- (A) commercial
- (B) industrial
- (C) public
- (D) residential

Part II

Section C

TOTAL VALUE: 28%

Instructions: Do ALL questions in PART II, Section C.

Units 1-5

CASE STUDY 1: Earthquake Destruction: A Closer Look

An earthquake is a phenomenon that results from and is powered by the sudden release of stored energy in the crust that transmits seismic waves. At Earth's surface, earthquakes may manifest themselves by a shaking or displacement of the ground and sometimes results in large waves known as tsunamis.

Most of the world's earthquakes take place in the 40 000 km long, horseshoe-shaped zone called the Pacific Ring of Fire, which for the most part bounds the Pacific Plate. Massive earthquakes tend to occur along other plate boundaries, too, such as the Himalaya Mountains. Minor earthquakes happen every day around the world, but most of them go unnoticed and cause no damage. Large earthquakes, however, can cause serious destruction, loss of property, and loss of life. Most large earthquakes are also accompanied by other, smaller ones that can occur either before or after the main shock. The severity of an earthquake can be measured in terms of intensity and magnitude. The analysis of earthquake severity allows scientists to estimate the locations and likelihood of future earthquakes. This helps identify areas of greatest hazard and ensures the safety of people and infrastructure located in such areas.

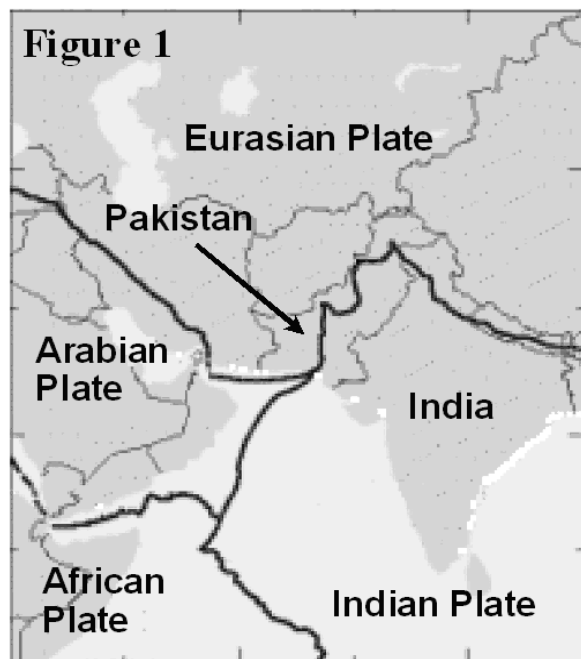


Figure 1 depicts tectonic plates in the regions near the Indian subcontinent where earthquake activity is common.

2005 Pakistan Earthquake

The Pakistan earthquake occurred on October 8th, 2005. It registered a magnitude of seven point six on the Richter scale. Most of the affected people lived in the mountainous regions where access was blocked by landslides, leaving an estimated 3.3 million homeless in Pakistan. The United Nations reported that 4 million people were directly affected at the worst possible time – just prior to winter snowfall in the Himalayan region. It is estimated that damages incurred were well over \$5 billion Canadian.

Table 1 2005 Pakistan Earthquake Summary

Date	October 8, 2005
Magnitude	7.6
Countries affected	Pakistan, India, Afghanistan
Deaths	74 500+
Injuries	106 000+

Resulting Damages

As Saturday is a normal school day in the region, most students were at school when the earthquake struck. Many were buried under collapsed school buildings. Many people were also trapped in their homes and, because it was the month of Ramadan, most people were taking a nap after their pre-dawn meal and did not have time to escape during the earthquake. Entire towns and villages were completely wiped out in Northern Pakistan with surrounding areas also suffering severe damage. On October 26th, the government urged people at higher elevations to come to valleys and cities for relief because bad weather, mountainous terrain, landslides and blocked roads were making it difficult for relief workers to reach each house and winter storms were imminent.

An assessment of the buildings in urban areas revealed that 60% were built of unreinforced concrete block. Seventy percent of these poorly constructed buildings collapsed and were responsible for the majority of deaths and injuries.

Rescue and Relief Operations

Distributing relief supplies to victims was especially urgent as the victims faced the risk of exposure to cold weather due to the region's high altitude and the approaching winter. Many areas had no power and were without adequate food and water which increased the spread of disease. Food, medicine, tents and blankets were quickly identified by relief workers as essential items.

Relief efforts in many remote villages were hampered as roads were buried in rubble and many affected areas remained inaccessible. Rescue required heavy equipment to clear roads and rescue survivors buried under earthquake wreckage. However, many rescuers had nothing to use but their bare hands and pickaxes. Rescue efforts were also affected by the numerous aftershocks that continued to rattle the region. To make the situation even worse, on October 13th, snow started on the Indian side of Kashmir. This caused more people to be cut off from help as snow closed more roads in the mountain region.

Lasting Effects: One Year Later

One year after October's massive Pakistan earthquake, nearly two-million people faced the Himalayan winter without proper shelter. Teachers in the area were still using make-shift schools and many children were too frightened to come back to class. Most survivors lived in the same basic tents they erected 12 months before and they indicated that conditions were getting worse, not better. The camps were crowded, the tents leaked, and fresh drinking water was hard to find.

The international aid agency Oxfam said it was much the same story throughout the quake zone. The earthquake had left more than three million people homeless.

"In those camps where 40 000 people live, they have not had a lot of attention since last year, so the tents are run down and the facilities have not been maintained as well as they could have been."

Kate Simpson – International Aid Worker (Oxfam)

Construction began on thousands of new homes throughout the region. The government promised about \$1 200 to every family that lost property in the earthquake, and distributed nearly \$500 million for construction projects. Nevertheless, Kate Simpson, an international aid worker, says nearly two million people were living in temporary shelters and only about one in five families affected by the earthquake were able to start construction on permanent houses.

Figure 2



At least 150 people were trapped beneath the rubble when an apartment tower collapsed in Islamabad.

Units 1-5

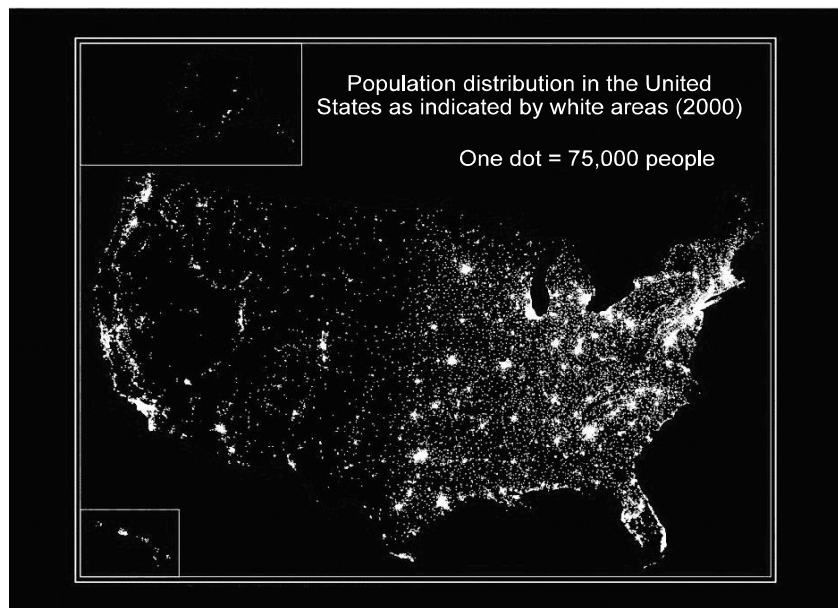
CASE STUDY 2: The Power of Place

General Motors (GM) announced in January 1985 that it was designing an entirely new car called the Saturn, and it would need a factory somewhere in the United States to build it. The announcement touched off a fierce competition among states and localities to become home for the plant. General Motors used geographic factors of site and situation to narrow the choice of locations and to make the final selection.

General Motors felt that the most critical factor was the cost of delivering assembled vehicles from the factory to the consumer. The company calculated the optimal location for the plant to be within a 1.2 million square kilometre area with a radius of roughly 500 kilometres centered on south central Ohio. Locations outside the circle were calculated to add between \$400 and \$500 per vehicle in freight charges, in part because truck drivers would be required to stop overnight more often, as well as drive longer distances.

Figure 1

General Motors began to examine other factors that would influence their final decision. The search was limited to a 400 hectare site less than 50 kilometres from a metropolitan area of at least 250,000 people, which also contained a major university and airport. The site also had to be near two major long distance interstate highways and a rail line. Eleven major metropolitan areas met this criteria.



Topographic maps were crucial to the selection committee in narrowing down the choices. These maps displayed elements of the human landscape, such as roads, rail lines, dams and buildings, as well as physical features such as lakes, rivers, and forests. These maps also displayed contour lines which helped the committee determine if sites were hilly or flat.

If the sites under consideration passed the topographic screening process, additional information was selected including the suitability of soil for construction, neighboring landscape activities and the number of owners on the potential selection site. Also of concern were local tax rates and the cost and availability of utilities such as water, sewer, natural gas and electricity.

After seven months of study, GM announced its factory site: Spring Hill, Tennessee, then a village of 100 inhabitants, 50 kilometres south of Nashville. The first Saturn rolled off the assembly line in 1990.

Just-in-time Delivery

Many automobile manufacturers in the United States have adopted a Japanese production method known as “just-in-time delivery”.

Just-in-time is an inventory control system based on the idea that instead of maintaining large inventories of parts within a car manufacturing facility, each workstation on an assembly line keeps only a few hours supply of parts on hand at any given time. Very small amounts of parts are ordered by workers as they are used. Once an installer finishes with one container of parts, a new one drops into place, and the worker pulls his inventory ticket and processes the new order. The order is then sent to nearby parts suppliers located chiefly on the highways Routes 65 and 75 (Figure 2) where parts are packaged and delivered to the factory for installation within about eight hours. No paperwork, no middle managers, and most importantly, no space-consuming idle inventory.

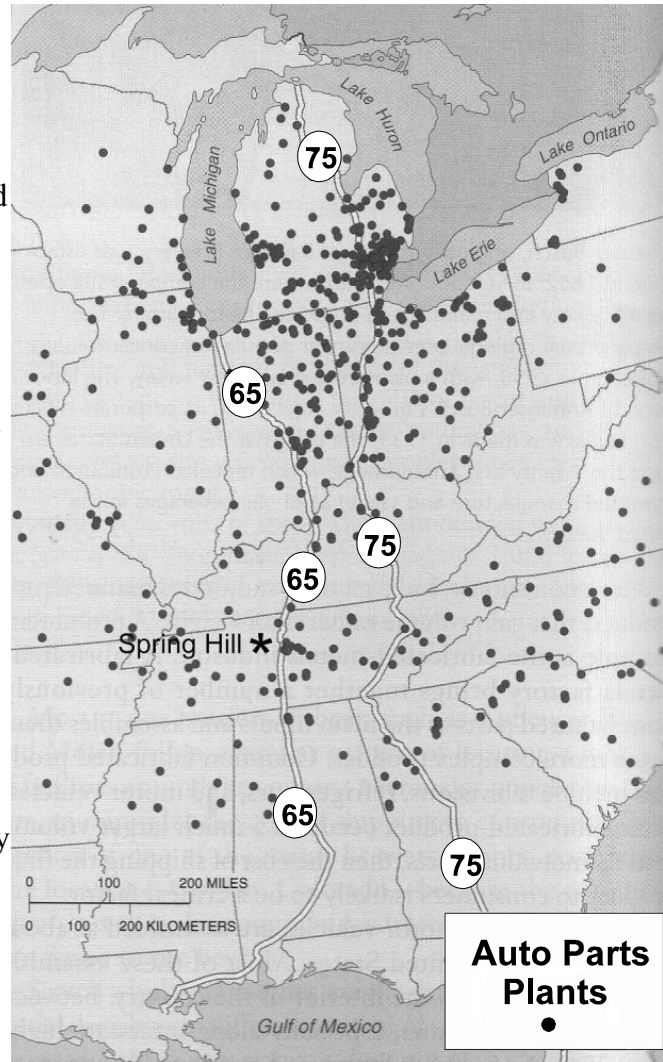
Just-in-time manufacturing is reshaping the factory floor and is, on a much larger scale, also changing the geography of parts supply networks. The old mass production process more easily accommodated parts shipped from around the world - an engine from Germany, a transmission from Japan, bumpers from Korea - as an integrated individual car was produced. But just-in-time puts a premium on proximity and quality control. Parts suppliers in the Midwest have settled along two major highways, near the assembly plants they serve.

Distance and Accessibility - Transportation Networks

Why did Japanese automakers set up production in the Midwest? The answer is distance and accessibility. The major automakers of Japan have virtually eliminated the greatest portion of their shipping costs by setting up shop in the midst of their market. The centrality of the Midwest, not only to a large consumer base but also to existing parts manufacturers and suppliers, was a key element in the transmigration of this industry.

The placement of these new factories was linked to transportation networks already existing in the U.S. infrastructure. When choosing factory sites, the Japanese considered the proximity of existing parts manufacturers to new factory sites and to defined highway systems. This increased the efficiency of parts ordering while, simultaneously, the just-in-time production method decreased the need for large inventory storage.

Figure 2



Value

4%

66. Automobile manufacturers use site and situation factors in deciding the location of their factories. Explain the concepts of site and situation and provide one example of each from the case study.

Value

4%

67. Using evidence from the case study, explain whether GM's Saturn factory is either market or resource-oriented. Provide two pieces of evidence to support your choice.

Value

6% 68. *Anytime factories locate in an area, there is concern about pollution and the environment. Industry has grown in the Spring Hill area in recent years creating environmental concerns. Identify three environmental risks threatening the Spring Hill area and propose a solution for each.*

Do only ONE of the Units in Section D. Note: Both units use Case Study 3 below.

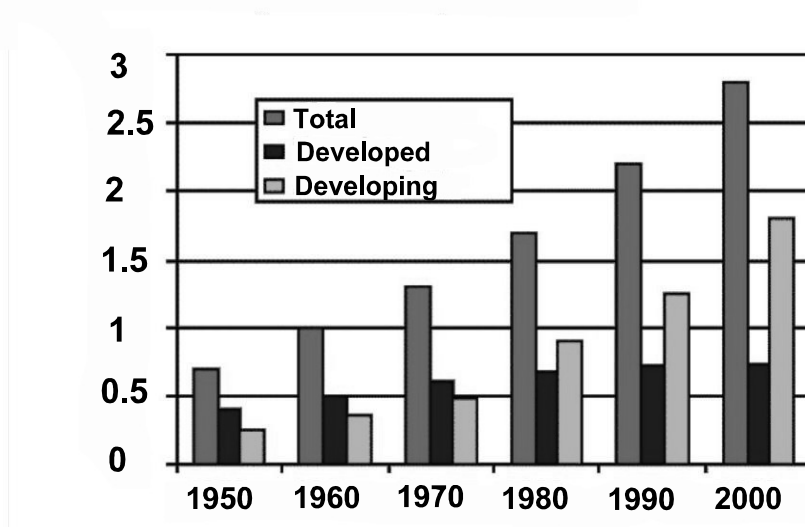
Either: Unit 6 - Population Distribution and Growth (#s 69 and 70)

Or: Unit 7 - Settlement and Urbanization (#s 71 and 72)

CASE STUDY 3: Population Change and Urbanization

Throughout most of human history the world's population has lived a rural lifestyle, but its population is quickly moving to cities. For example, in 1950, less than 30% of people lived in urban areas. This figure grew to 47% by the year 2000 and is expected to exceed 60% by 2025. Presently, developed countries have a higher percentage of urban residents than developing countries; nevertheless, it is expected that most of the future urban growth will take place in poorer countries. The rate of urbanization in both types of countries is significantly impacting the land.

Figure 1: Urbanization Growth Rate: Developed and Developing Countries



Why So Much Urbanization?

Urban areas are rapidly growing throughout the world because of natural increases in populations. However, migration is also a key demographic factor. While much of the rural to urban movement takes place within the borders of countries, migration between countries is increasing because of various push and pull factors. Generally, international migration consists of refugees and labourers that move in search of jobs and a better lifestyle. It is estimated that greater than 2% of the world's population have moved from their country of origin in search of these goals.

Table 1: Population Change for Selected Countries, 1971-2007

Country	Population 1971	Population 1991	Population 2007
Ecuador	5 890 000	10 700 000	13 760 000
El Salvador	3 390 000	5 300 000	6 950 000
Mexico	48 933 000	88 600 000	108 700 000
Sudan	15 186 000	25 200 000	39 380 000
Uganda	9 500 000	18 000 000	23 300 000

(Estimated to nearest thousand)

In agricultural economies, people are often “pushed” from their land because of the law of diminishing returns. Simply put, this means that because of advanced technology only a certain number of individuals are needed to make some rural farms profitable. Moreover, the prices paid to these farmers for their outputs compared to the prices they must pay for inputs cause many of them to live below the poverty line.

In addition to the push factors which drive many from rural lands, strong pull factors exist which attract these individuals to urban areas. The strongest factor is “agglomerating economies.” In summary, geographers use this term to refer to the savings one can get by serving the needs of a large and growing market place in a concentrated urban area. As a result, distance is reduced between producer and consumer, thereby favouring many potential labourers.

Population Growth and Urbanization

An interesting aspect of urbanization started in North America following the Second World War. Suburban living symbolized the American dream of returning to nature in search of a better quality of life. In Europe, as well, urbanization continued. It is estimated, for example, that between 1969 and 1999 the urbanized land areas of France increased five times. Opponents of such rapid growth are concerned with increased traffic, pollution of air and water, flooding and loss of agricultural land, parks and open space. They also believe the strain placed on transportation and water and sewer infrastructures are issues which need to be addressed.

The pattern of urban growth in many developing countries, as illustrated in Figure 1, is also requiring the usage of more land. In many of the countries of East Asia, for example, improved communication and transportation linkages make outlying areas more accessible to the migrant workforce. As a result, some of these areas are transformed from agriculture to manufacturing economies. Conversely while some areas are beginning to prosper, in other large cities throughout the world such as Mexico City, nearly 40% of the city-dwellers face issues related to poverty and destruction of the environment.

“As roads stretch cities to new limits, paving over farms and forests, polluting air and water, and wasting motor fuel, {urbanization} is beginning to seriously endanger the planet. What we need now is for some prominent national capitals to demonstrate what a shift toward more compact, energy efficient, and people - friendly urban design can do.”

Molly O’ Meara Sheehan, Author, “What Will It Take to Halt Sprawl?”

“... we now need to build urban areas yet again that are at least equivalent in size to the cities we have already built, we need to do it better, and we need to do it in a very short time.”

S. Angel, Dynamics of Global Expansion

Unit 7 - Settlement and Urbanization

Value

4% 71. Using two examples from the case study, explain how situation influenced the continuing trend of urbanization.

Value

6% 72. Using problems identified in the case study, suggest three strategies that could be used to improve the quality of life in cities.
