

Past-paper walk-through

Theories of Development ■ 7.5

eXercise

Questions in this set

- 2023 Set 1 Q3
- 2023 Set 2 Q2

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

Question 3

2023 Set 1 ■ Q3

Two stimuli.

Stimulus 1 (map): MAJOR MEDICAL AND BIOTECHNOLOGY COMPANIES AND INSTITUTIONS IN THE BOSTON AND PROVIDENCE REGION. An inset map shows the downtown areas of Boston and Cambridge, Massachusetts, with numerous medical and biotechnology companies and institutions clustered together along the Charles River and arterial routes. Source: National Institutes of Health.

Stimulus 2 (table): SELECTED TECHNOLOGY RESEARCH AND DEVELOPMENT AREAS IN THE MEDICAL FIELD.

Category	Product or Service
Biotechnology	Genetic engineering research; Biochemistry research; Diagnostic and testing science
Gene therapies	Cancer treatments; Neurological treatments; Rare and genetic disease treatments; Antiviral treatments and vaccines (e.g., Moderna)

Question 3

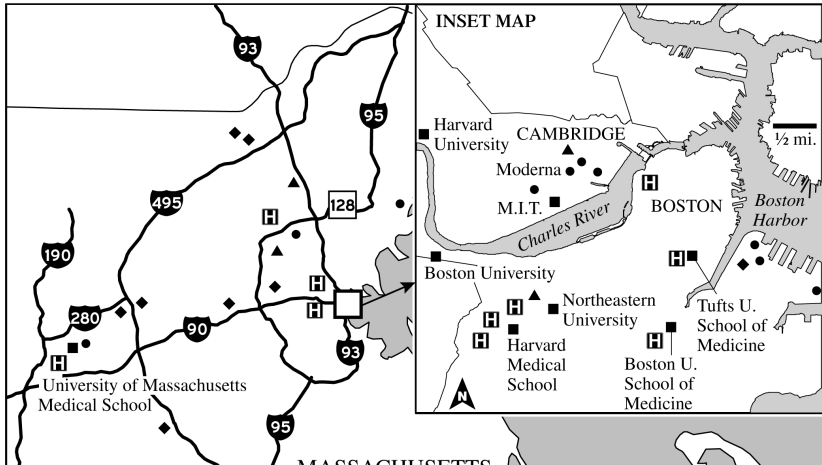
Since the 1980s, the northeastern United States has developed into a major global center of high-technology industry that specializes in the medical field.

- (a) Describe the spatial pattern of the companies and institutions shown in the inset map.
- (b) Describe the concept of a growth pole.
- (c) Explain ONE way education infrastructure affects a region's potential for high-technology development.
- (d) Explain how the pattern shown on the map resembles the galactic city model.
- (e) Explain ONE way local economic changes may be a result of deindustrialization.
- (f) Explain how the products and services listed in the table demonstrate that this economy has moved into the quaternary sector.

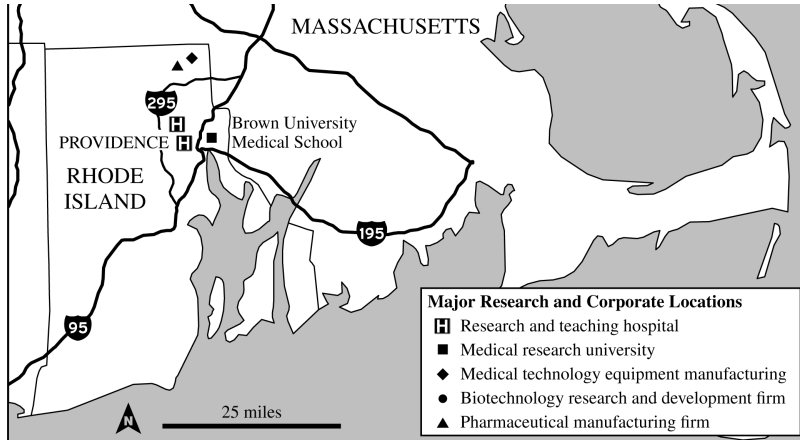
Question 3

(g) The map focuses on a regional scale. Explain a possible limitation of drawing country scale conclusions from a regional scale map.

Question 3



Question 3



Source: National Institutes of Health

Solution 3

(a)

Mark scheme

- Describe the spatial pattern on the inset map (1 point) — accept any: agglomeration of similar economic activities; clustering/concentration of similar activities; concentration along transportation routes (rivers, arterial roads); a concentration of similar economic activities within a metropolitan area in Massachusetts.

Solution 3

(b)

Mark scheme

- Describe a growth pole (1 point) — accept any: a location where research, development, and/or innovation generates new products or services; an institution (university, hospital, laboratory) whose discoveries/inventions create new economic opportunities; an area where new businesses start up or locate to join an emerging market or attract investment; an area attracting businesses seeking a specialized/educated labor pool; an area designated by government to facilitate economic activity for a specific purpose.

Solution 3

(c) Mark scheme

- Explain ONE way education infrastructure affects high-technology potential (1 point) — accept any: graduates who stay in the region promote development, create innovative products, and provide wealth for investment; educational institutions build a specialized labor force that attracts high-tech firms/investors; institutions sponsor research yielding new products/services, value, investment, and employment; public investment in specialized training/infrastructure (positive), or, conversely, lack of educational infrastructure hurts potential by leaving no highly educated/specialized workforce or sponsored research.

Solution 3

(d)

Mark scheme

- Explain resemblance to the galactic city (peripheral) model (1 point) — accept any: multiple development centers (edge cities, CBDs, suburban CBDs) based on specialized products/services; a decentralized pattern of business spread across the region; a circumferential/circular/radial highway pattern typical of a galactic city; several highway intersections serving as nodes for new business districts or development centers.

Solution 3

(e) Mark scheme

- Explain ONE local economic change from deindustrialization (1 point) — accept any: a shift from a manufacturing/secondary economy to a service/technology (tertiary, quaternary, or quinary) economy; outsourcing of manufacturing abroad causing declining local employment or rising unemployment; increased CBD unemployment, declining investment, or falling real-estate values from lost manufacturing firms/jobs; increased use of post-Fordist methods (specialized firms, just-in-time supply chains, flexible production); falling GNI per capita or rising unemployment/underemployment as workers lose manufacturing jobs.

Solution 3

(f)

Mark scheme

- Explain how the listed products/services show a quaternary economy (1 point): the biotechnology and gene-therapy research, development, and information/knowledge-based services listed (genetic engineering research, biochemistry research, diagnostic science, R&D of treatments and vaccines) are knowledge-, information-, and research-intensive activities that define the quaternary sector, rather than the extraction (primary), manufacturing (secondary), or routine service (tertiary) sectors.

Solution 3

(g)

Mark scheme

- Explain a limitation of drawing country-scale conclusions from a regional-scale map (1 point): the map shows only one region (a metropolitan area of Massachusetts), so its pattern is not representative of the whole country — other regions may have different or no such clustering, so generalizing the regional agglomeration to the national scale would be inaccurate. Changing the scale of analysis changes the pattern observed and the conclusions drawn.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(a) Using the data categories in the table, identify ONE indicator that is used to calculate HDI scores.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(b) Using a different indicator than the one identified in part A, explain why Brazil's HDI score is higher than that of Afghanistan.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(c) The UN and many countries have promoted sustainability principles. Describe ONE specific way that sustainability goals can respond to economic challenges.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(d) Explain ONE reason why increasing women's access to education is likely to affect a country's total fertility rate.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(e) SDG 8 is to “promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.” Explain ONE way in which a country’s development of ecotourism might affect economic growth.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(f) Using data from the table, explain how access to clean-burning fuels for people's homes relates to the life expectancy of a country's population.

Question 2

2023 Set 2 ■ Q2

In 1990 the United Nations (UN) began using the Human Development Index (HDI) to measure levels of development. In 2015 the UN established the Sustainable Development Goals (SDGs) to set targets for environmental quality, economic development, and social programs.

(g) Explain how ONE of the countries in the table would be classified according to Rostow's stages of economic growth. and fill in the appropriate circle at the top of each page to indicate the question number. PASTORAL NOMADISM IN THE SAHEL REGION OF AFRICA Source: Food and Agriculture Organization The Sahel is an environmental transition zone between the Sahara desert and the wet tropical forest regions of Africa. The landscape is a semiarid grassland, having distinct dry and wet seasons, and the region is interspersed with shrubs and small woodlands. SOURCES OF TENSION RELATED TO PASTORAL NOMADISM Groups Potential Sources of Tension Nomadic herders versus crop farmers ■ Damage to fields by migrating herds ■

Question 2

Overgrazing by migrating herds ■ Competition for access to water ■ Increasing size of crop farms
Nomadic herders versus conservation organizations ■ Grazing of protected areas ■ Degradation of natural habitats
Nomadic herders versus government officials ■ Failure to follow regulations on cross-border migration ■ Activities such as smuggling foreign goods
Source: Organisation for Economic Co-operation and Development

Solution 2

(a)

Mark scheme

- - Life expectancy is one indicator.
- - GNI per capita is one indicator.
- - Mean (or average) years of schooling is one indicator.

Solution 2

(b) Mark scheme

- - Brazil has a higher ranking than Afghanistan because it has a higher life expectancy (no point if paired with a point for A1).
- - Brazil has a higher ranking than Afghanistan because it has a higher GNI per capita, produces higher-value goods and services per person, and/or Brazil has a more productive economy per person (no point if paired with a point for A2).
- - Brazil has a higher ranking than Afghanistan because it has a greater mean (or average) number of years of schooling for adults and/or children (no point if paired with a point for A3).

Solution 2

(c) Mark scheme

- - Programs and policies to reduce poverty (e.g., improve access to the flow of remittances, microloans, social safety nets) and/or increase jobs. (Sustainable Development Goals [SDG] 1, 8, 16)
- - Improvements in the quality of the environment (e.g., environmental protection measures, increasing biodiversity, reducing pollution) may improve the health of the labor force. (SDG 14, 15)
- - Investments in environmental technology (e.g., clean water, sanitation, and/or hygiene) and/or infrastructure (transportation, electricity). (SDG 6, 9)

Solution 2

- - By shifting from fossil fuels to solar and wind-generated electricity, a country can generate new employment in the secondary and/or tertiary sectors (e.g., construction, manufacturing, engineering). (SDG 7, 13)
- - Improvements in nutrition and/or agricultural production and/or reductions in food insecurity can improve the health of the workforce and/or increase economic productivity. (SDG 2)
- - Investing in improving health care can result in a healthier and/or more productive workforce and/or lower population growth. (SDG 3)
- - Investing in education can improve the overall quality of the workforce. (SDG 4, 5)

Solution 2

- - Reducing inequalities such as gender discrimination and/or other forms of discrimination (e.g., discrimination based on race, ethnicity, ability, age). (SDG 5, 10)
- - Reducing conflict, war, and violence frees up resources to invest in other areas of a country's economy and/or can lead to increases in the country's trading partners. (SDG 16)
- - Programs and policies that create partnerships among governments, and/or the private sector can often lead to more investment in industry. (SDG 17) Responses do not need to cite the SDG number.

Solution 2

(d) Mark scheme

- - Women with increased access to education spend more time in school and/or have more job opportunities (e.g., higher-paying jobs), which tends to result in delayed age of marriage and/or smaller family sizes.
- - Women with increased access to education tend to have more information regarding health care and family planning, and/or the ability to afford family planning, resulting in smaller family sizes.
- - Women with higher levels of education tend to migrate to urban areas where residents may have less time, space, and/or need for children as a source of familial labor (as compared to rural areas).

Solution 2

- - Women with higher levels of education tend to have higher levels of political empowerment and may choose to have fewer children due to their position or role in society (e.g., equality with men, holding political office, business ownership), and/or nondomestic role in the household.

Solution 2

(e) Mark scheme

- - A country that has moved to ecotourism would see an increase in jobs or expansion in the service sector of the economy.
- - Ecotourism often results in better-paying, salaried jobs.
- - Ecotourism may result in an increase in tourism revenue, foreign currency, and/or tax revenues.
- - Ecotourism may result in new job opportunities and/or higher-paying jobs in rural areas that lack such opportunities (e.g., communities in or adjacent to national parks or conservation areas).

Solution 2

- - A country whose government may spend money on ecotourism infrastructure projects may negatively affect the overall economy because it diverts resources from other types of infrastructure investments (e.g., education, health care).
- - Ecotourism can result in low-paying jobs and/or informal economy sector jobs that do not contribute positively to the overall economy of a country.
- - Transnational corporations may invest in ecotourism in a country, while sending the profits back to their headquarters, depriving the country of that income.

Solution 2

(f) Mark scheme

- - The high air pollution mortality rate shown in Afghanistan (211 per 100,000 people) is connected to the low percentage of the population's access to clean-burning fuels (only 32%) contributing to a lower life expectancy (61).
- - Exposure to air pollution may cause diseases and/or health issues among people with weakened immune systems and deaths (fatalities) from these diseases, which may result in high mortality rates and/or shorter life expectancies as seen in the data for Afghanistan.

Solution 2

- - The life expectancy in Brazil (69) is slightly higher than Afghanistan (61) and/or lower than Finland (81) and may be related to the high number of the country that has access to clean burning fuels (Brazil with 96%).
- - The low air pollution mortality rate and/or longer life expectancy (81) shown in Finland is connected to the fact that all (100%) of the population has access to clean- burning fuels. Responses must indicate a country or a specific statistic from the table.

Solution 2

(g) Mark scheme

- - Afghanistan is in Stage 1 (traditional society) or 2 (transitional stage/preconditions for take-off), or lower stages, because it has one or more of the following characteristics: high percentage of labor force in agriculture, low GNI per capita, low HDI ranking, and/or its economy is mainly focused on farming and natural resource extraction.

Solution 2

- - Brazil is in Stage 3 (take-off) or 4 (drive to maturity), or middle stages, because it has one or more of the following characteristics: low agricultural employment, high income disparity, a weak social welfare system, a diversified economy that increasingly focuses on services, and/or an industrial economy that exports natural resources, processed agricultural goods, vehicles, and other manufactured products.
- - Finland is in Stage 4 (drive to maturity) or 5 (high mass consumption), or higher stages, because it has one or more of the following characteristics: a high GNI per capita, a high HDI ranking and/or a strong social welfare system, a postindustrial economy, and/or Finland's economy is focused on services and technology.