THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

113/2 **GEOGRAPHY 2**

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 1996**

Instructions

1. This paper consists of seven questions.

2. Answer a total of five questions, question number 1 is compulsory.

1. Discuss the exploitation of water resources in Africa South of the Sahara.

Water resources in Africa South of the Sahara are exploited for various purposes, including agriculture, hydroelectric power generation, domestic use, and industrial activities. The region is characterized by major rivers such as the Niger, Congo, Zambezi, and Limpopo, as well as large lakes like Victoria, Tanganyika, and Malawi. However, the level of exploitation varies depending on infrastructure, climate, and technological advancements.

One of the primary uses of water resources in the region is irrigation. Agriculture is the backbone of most economies in Sub-Saharan Africa, and due to irregular rainfall, irrigation is crucial for food production. Large irrigation schemes such as the Gezira Scheme in Sudan and the Kano Irrigation Project in Nigeria have been developed to enhance agricultural productivity. However, many areas still rely on rain-fed agriculture, making them vulnerable to drought and food insecurity.

Hydroelectric power is another major use of water resources in the region. Several dams have been constructed to generate electricity, including the Akosombo Dam in Ghana, the Kariba Dam on the Zambia-Zimbabwe border, and the Inga Dam in the Democratic Republic of Congo. These dams supply power to industries, homes, and businesses. However, challenges such as siltation, seasonal fluctuations in river flow, and lack of investment in maintenance have affected the efficiency of some hydroelectric projects.

Domestic use of water is also significant, as millions of people in the region depend on rivers, lakes, and underground water sources for drinking, cooking, and sanitation. In urban areas, municipal water supply systems provide treated water, but in rural areas, people often rely on wells, boreholes, and rivers. The lack of clean water in some areas has led to the spread of waterborne diseases such as cholera and dysentery.

Industries also exploit water resources for processing, cooling, and waste disposal. Mining activities, especially in countries such as South Africa, Zambia, and the Democratic Republic of Congo, require large amounts of water. However, industrial water use has led to pollution in some areas, with heavy metals and chemicals contaminating rivers and lakes.

Despite the importance of water resources, challenges such as climate change, deforestation, and poor water management threaten their sustainability. Droughts and erratic rainfall patterns have

2. Account for the theory of "Continental Drift."

The theory of continental drift was proposed by Alfred Wegener in 1912, suggesting that the continents were once joined together in a single supercontinent called Pangaea before drifting apart to their current positions. This theory explains the movement of continents over geological time due to forces within the Earth's crust.

One of the key pieces of evidence supporting continental drift is the fit of the continents. The coastlines of South America and Africa appear to match like puzzle pieces, indicating they were once connected. This observation led Wegener to propose that the continents had moved apart over millions of years.

Fossil evidence also supports the theory. Identical fossils of ancient plants and animals, such as Mesosaurus, a freshwater reptile, have been found on continents that are now separated by vast oceans. The presence of these fossils suggests that the continents were once joined, allowing species to spread across a single landmass before the continents drifted apart.

Geological formations provide further evidence. Similar rock structures and mountain ranges are found on continents that are now far apart. For example, the Appalachian Mountains in North America share similarities with mountain ranges in Scotland and Norway, indicating that these regions were once part of the same landmass.

Climatic evidence also supports continental drift. Coal deposits, which typically form in tropical environments, have been found in Antarctica, suggesting that the continent was once located in a warmer climate. Similarly, glacial deposits found in Africa, South America, and India indicate that these regions were once part of a colder environment.

Despite these pieces of evidence, the theory of continental drift was initially rejected because Wegener could not explain the mechanism that drove the movement of continents. It was later supported by the theory of plate tectonics, which explained that the Earth's lithosphere is divided into plates that move due to convection currents in the mantle. This discovery provided a scientific basis for continental drift, confirming that the continents are still moving today.

3. What are the reasons for the population distribution of West Africa?

The population distribution of West Africa is influenced by several factors, including physical geography, climate, economic activities, historical factors, and social infrastructure. These factors have led to uneven population densities across the region.

One major factor is climate and rainfall. Areas with high rainfall and fertile soils, such as the coastal regions of Nigeria, Ghana, and Côte d'Ivoire, have higher population densities because they support agriculture and provide adequate water supply. In contrast, the arid and semi-arid regions of the Sahel, such as northern Mali, Niger, and Chad, have low population densities due to harsh climatic conditions, limited water supply, and desertification.

The availability of natural resources also affects population distribution. Areas rich in minerals, such as the gold mines of Ghana and the oil-producing regions of Nigeria, attract large populations due to employment opportunities in mining and related industries. In contrast, regions with few natural resources tend to have sparse populations because they offer limited economic opportunities.

Historical factors have also played a role in shaping population distribution. During the colonial period, European powers established administrative and commercial centers along the coast, leading to the growth of major cities such as Lagos, Abidjan, and Dakar. These urban centers continue to attract large populations due to better infrastructure, education, and employment opportunities.

Economic activities influence population density. Areas with thriving commercial and industrial sectors, such as Lagos and Accra, attract large populations due to job opportunities. In contrast, rural areas that rely on subsistence farming tend to have lower population densities as people migrate to cities in search of better economic prospects.

Social infrastructure, including education, healthcare, and transportation, also affects population distribution. Regions with well-developed infrastructure, such as southern Nigeria and parts of Ghana, tend to have higher population densities because they offer better living conditions. On the other hand, remote and underdeveloped areas experience lower population densities due to a lack of essential services.

4. "Africa is a vast continent with a very small population density. Yet it suffers much from population problems." Discuss.

Africa is the second-largest continent in the world, covering about 30.4 million square kilometers. Despite its vast landmass, it has a relatively low population density compared to other continents. However, Africa faces significant population-related challenges, including rapid population growth, urbanization, and resource scarcity.

One of the key population problems in Africa is rapid population growth. Many African countries have high birth rates and a young population, leading to an increasing demand for food, housing, education, and healthcare. This rapid growth puts pressure on government resources, making it difficult to provide adequate services to the population.

Urbanization is another major issue. Many African countries are experiencing high rural-to-urban migration as people move to cities in search of better job opportunities and improved living conditions. This has led to the growth of overcrowded informal settlements with poor housing, inadequate sanitation, and high unemployment rates. Cities such as Lagos, Nairobi, and Kinshasa struggle with congestion, pollution, and inadequate social services.

Unemployment and poverty are also significant concerns. Despite having abundant natural resources, many African countries face economic challenges that limit job creation. High population growth without corresponding economic expansion has resulted in widespread unemployment, leading to poverty and social instability.

Environmental degradation is another consequence of population pressure. Deforestation, desertification, and overgrazing are common in many parts of Africa due to the increasing demand for land and resources. In regions such as the Sahel, population growth has contributed to land degradation, making agriculture more difficult and increasing food insecurity.

Healthcare challenges also arise from high population growth. Many African countries struggle to provide adequate healthcare services due to limited resources. The high prevalence of diseases such as malaria, HIV/AIDS, and malnutrition further strains the healthcare system, reducing life expectancy and overall quality of life.

5. What is the impact of mining in the economy of Zambia?

Mining plays a crucial role in the economy of Zambia, contributing significantly to government revenue, employment, and foreign exchange earnings. Zambia is one of the leading producers of copper in the world, and its mining industry has been the backbone of the economy for decades.

One of the key impacts of mining in Zambia is its contribution to government revenue. The mining sector provides a substantial portion of tax income through royalties, corporate taxes, and export duties. This revenue is used to fund infrastructure development, healthcare, and education, which are essential for national growth.

Mining also generates employment opportunities for many Zambians. The sector directly employs thousands of people in mining operations, processing plants, and administrative roles. Additionally, it creates indirect employment in supporting industries such as transportation, construction, and equipment supply.

Another major impact of mining is its contribution to foreign exchange earnings. Copper exports account for a large share of Zambia's foreign exchange income, which helps stabilize the national economy and supports imports of essential goods such as fuel, machinery, and consumer products.

Infrastructure development is also influenced by the mining sector. The need to transport minerals to export markets has led to the construction of roads, railways, and power stations. Mining companies often invest in community infrastructure such as schools, hospitals, and housing, improving the living standards of people in mining regions.

However, mining has also had negative economic and environmental effects. The industry is vulnerable to fluctuations in global copper prices, which affect revenue and employment stability. Economic dependence on mining has limited diversification in other sectors, making the economy susceptible to downturns in global demand.

Environmental degradation is another challenge. Mining activities result in deforestation, land degradation, and pollution of water sources due to the release of toxic chemicals. This affects agriculture, biodiversity, and human health in surrounding communities.

6. "Although Africa possesses a lengthy coastline and very extensive system of lakes and rivers, she has failed to develop her fishing industry." Explain.

Africa has a vast coastline stretching over 30,000 kilometers and numerous lakes and rivers, including Lake Victoria, Lake Tanganyika, the Nile River, and the Congo River. Despite these abundant water resources, the fishing industry in Africa remains underdeveloped due to several economic, technological, and environmental challenges.

One of the major reasons for the underdevelopment of the fishing industry is the lack of modern fishing technology. Many African communities still rely on traditional fishing methods such as hand nets and small wooden boats, which limit the quantity of fish caught. The absence of advanced fishing equipment and processing facilities reduces efficiency and competitiveness in global markets.

Poor infrastructure also affects the fishing industry. Inadequate transport networks, cold storage facilities, and processing plants hinder the effective distribution of fish. Many fish products perish before reaching markets due to the lack of refrigeration and proper storage facilities, reducing the profitability of the industry.

Overfishing and illegal fishing have also contributed to the decline of the fishing industry. Foreign fishing fleets, especially from Europe and Asia, exploit African waters using advanced trawlers, leading to depletion of fish stocks. Many African countries lack the capacity to enforce fishing regulations, allowing illegal fishing activities to thrive.

Pollution and environmental degradation have further weakened the fishing industry. Industrial waste, oil spills, and agricultural runoff have led to the contamination of lakes and rivers, reducing fish populations. Climate change has also affected fish breeding patterns and reduced the availability of fish in certain areas.

Limited investment in aquaculture is another reason for the underdevelopment of the fishing industry. While other regions of the world have advanced fish farming, Africa has lagged in developing large-scale aquaculture projects. The lack of technical knowledge, financial resources, and supportive government policies has slowed progress in this area.

7. Discuss the factors influencing the population distribution of East Africa.

The population distribution of East Africa is influenced by a variety of physical, economic, historical, and social factors. The region, which includes countries such as Kenya, Tanzania, Uganda, Rwanda, and Ethiopia, has an uneven population distribution, with some areas being densely populated while others remain sparsely inhabited.

One of the main factors affecting population distribution is physical geography. Fertile highland areas such as central Kenya, the Great Rift Valley, and the Lake Victoria Basin support high population densities due to their favorable climate and soil fertility, which make them suitable for agriculture. In contrast, arid and semi-arid regions such as northern Kenya, northeastern Uganda, and parts of Ethiopia have low population densities due to harsh climatic conditions and limited water availability.

Economic activities also play a crucial role in determining population distribution. Urban areas and regions with industrial and commercial activities, such as Nairobi, Dar es Salaam, and Kampala, attract large populations due to job opportunities and better infrastructure. Conversely, remote rural areas with limited economic opportunities tend to have lower population densities.

Historical factors have also influenced population distribution in East Africa. During the colonial period, administrative and economic centers were established along the coast and major trade routes, leading to the concentration of populations in these areas. The development of cash crop plantations and mining activities also attracted people to specific regions.

Social infrastructure, including education, healthcare, and transportation, impacts population distribution. Areas with well-developed facilities tend to attract more people because of better living conditions. For example, cities with universities, hospitals, and good road networks experience higher population densities compared to remote villages with limited services.

Political stability and security also influence population patterns. Regions that have experienced conflict, such as parts of South Sudan and Somalia, have witnessed population displacement, leading to lower densities in war-affected areas and higher concentrations in refugee settlements and safer regions.

8. Write an essay on Agricultural development in North Western Europe.

Agricultural development in North Western Europe has undergone significant transformations due to technological advancements, government policies, and environmental factors. The region, which includes countries such as the United Kingdom, Germany, the Netherlands, and France, has a highly mechanized and productive agricultural sector that supports both local consumption and export markets.

One of the key factors contributing to agricultural development in North Western Europe is mechanization. The use of modern farming equipment such as tractors, harvesters, and irrigation systems has increased productivity and efficiency. Mechanization has reduced the reliance on manual labor, allowing large-scale farming and higher yields.

Government policies and subsidies have also played a major role in the growth of agriculture. The European Union's Common Agricultural Policy (CAP) provides financial support to farmers, ensuring stable incomes and food security. These policies promote sustainable farming practices, research in agriculture, and modernization of the sector.

The availability of fertile soils and a temperate climate has also supported agricultural development. Countries such as the Netherlands and France have large areas of arable land that support crops like wheat, barley, potatoes, and dairy farming. The moderate climate with sufficient rainfall allows for continuous agricultural production throughout the year.

Scientific research and innovation have further enhanced agricultural productivity. The use of genetically improved seeds, fertilizers, and pesticides has led to higher crop yields and disease-resistant plants. Additionally, precision farming techniques, which use satellite technology and data analysis, help farmers optimize land use and reduce waste.

Despite these advancements, challenges such as climate change, soil degradation, and environmental concerns affect agriculture in North Western Europe. Extreme weather conditions, including droughts and

floods, threaten crop production. Efforts to adopt sustainable farming methods, such as organic farming and conservation agriculture, are being encouraged to address these challenges.

9. To what extent is natural vegetation related to the climate of Western Europe?

Natural vegetation in Western Europe is closely related to the region's climate, which varies from maritime to continental and influences the types of plants that grow in different areas. The region experiences moderate temperatures, reliable rainfall, and distinct seasonal variations, all of which shape the distribution of forests, grasslands, and other types of vegetation.

One of the dominant vegetation types in Western Europe is deciduous forests. These forests, found in countries such as the United Kingdom, France, Germany, and Belgium, thrive in the temperate maritime climate, which provides mild winters, cool summers, and sufficient rainfall throughout the year. Deciduous trees such as oak, beech, and maple shed their leaves in winter to conserve water, adapting to seasonal temperature changes.

In areas with a Mediterranean climate, such as southern France and parts of Spain, natural vegetation consists mainly of drought-resistant plants. The hot, dry summers and mild, wet winters support the growth of evergreen shrubs, olive trees, and cork oaks. The vegetation in these areas has adapted to water scarcity by developing deep root systems and thick, waxy leaves to minimize water loss.

Mountainous regions, such as the Alps and the Pyrenees, have distinct vegetation zones based on altitude. Lower slopes support mixed forests of deciduous and coniferous trees, while higher altitudes, where temperatures are lower and precipitation is higher, support alpine meadows with short grasses and hardy shrubs. The extreme cold at the highest elevations limits plant growth to mosses and lichens.

Grasslands and heathlands are also common in certain parts of Western Europe, particularly in regions with poor soil or extensive human activity. Areas such as the Netherlands and parts of Germany have vast grasslands that are used for livestock grazing and dairy farming. These grasslands thrive due to moderate rainfall and the absence of dense forests.

10. Discuss the purposes and achievements of the Delta Plan in the Netherlands.

The Delta Plan in the Netherlands was developed to protect the country from flooding caused by rising sea levels and storm surges. Given that a significant portion of the Netherlands lies below sea level, the government implemented the Delta Plan as a long-term strategy to strengthen flood defenses and improve water management.

One of the main purposes of the Delta Plan was to prevent disasters like the catastrophic North Sea flood of 1953, which caused widespread destruction and loss of life. The plan aimed to enhance coastal protection by constructing dams, barriers, and sluices to control the flow of water and reduce the risk of flooding.

Another goal of the Delta Plan was to ensure a reliable supply of fresh water for agricultural, industrial, and domestic use. The project involved regulating river flows and creating reservoirs to store fresh water, preventing saltwater intrusion into farmlands and drinking water sources.

Economic development was also a key purpose of the Delta Plan. By protecting valuable land from flooding, the project enabled the continued growth of agriculture, industry, and urban expansion. Securing low-lying areas allowed for long-term investment in infrastructure, housing, and commercial activities.

The achievements of the Delta Plan have been significant. One of its most notable successes is the construction of the Oosterschelde Storm Surge Barrier, a massive engineering project designed to protect the southwestern Netherlands from storm surges while maintaining the natural tidal ecosystem. This barrier is considered one of the most advanced flood defense systems in the world.

Additionally, the Delta Plan has improved the country's overall flood management system, reducing the frequency and severity of flooding. The project has also contributed to advancements in hydraulic engineering, setting an example for other countries facing similar challenges.

Another achievement is the integration of environmental considerations into water management. Unlike earlier flood control projects that focused solely on barriers, the Delta Plan incorporates sustainable approaches such as maintaining wetlands and dunes to support biodiversity while still protecting human settlements.

In conclusion, the Delta Plan in the Netherlands was developed to prevent flooding, secure water resources, and support economic growth. Its achievements include the successful construction of flood defenses, improved water management, and global recognition for innovative hydraulic engineering. The plan continues to evolve to address future climate change challenges and rising sea levels.

11. What are the chief characteristics of the climates of Norway and Sweden? Explain their influence on the type of agriculture practiced in these countries.

The climates of Norway and Sweden are characterized by cold temperatures, long winters, and moderate precipitation. However, due to their geographical location and varied landscapes, the countries experience different climatic zones that influence agricultural activities.

One of the main climatic characteristics of Norway and Sweden is the dominance of a cold, temperate climate. Much of the region experiences long, harsh winters with snowfall, while summers are short and mild. In Norway, the coastal areas benefit from the warming influence of the North Atlantic Drift, which keeps temperatures relatively moderate compared to inland regions.

In Sweden, the climate is divided into three main zones. The southern part of the country has a temperate climate with milder winters and warm summers, making it the most suitable region for agriculture. The

central region experiences a more continental climate with colder winters and moderate rainfall, while the northernmost areas, near the Arctic Circle, have a subarctic climate with extreme cold and very short growing seasons.

The influence of climate on agriculture is significant. Due to the cold temperatures and short growing seasons, crop farming is limited to certain areas. In the southern parts of both countries, where temperatures are warmer, farmers grow crops such as barley, wheat, potatoes, and oats. These crops can withstand cooler conditions and have shorter growth cycles.

In the central and northern regions, agriculture is more focused on livestock farming than crop production. Dairy farming is common, with cows, sheep, and reindeer being raised for milk, meat, and wool. In Norway, fisheries also play an important role in food production, given the country's extensive coastline and rich marine resources.

Greenhouse farming is an important adaptation to the cold climate. In both Norway and Sweden, advanced greenhouse technology is used to extend growing seasons for vegetables and fruits, allowing production of crops that would otherwise not survive the natural climate.

In conclusion, the climate of Norway and Sweden is characterized by long winters, short summers, and varying degrees of cold temperatures. These climatic conditions have led to a focus on livestock farming, hardy crops, and innovative agricultural techniques such as greenhouse farming. Despite climatic challenges, both countries have adapted their agricultural systems to maximize productivity.

12. With the help of a diagram or sketch map, account for the development of the Ruhr Industrial Region in the Republic of Germany.

The Ruhr Industrial Region in Germany is one of the largest and most important industrial areas in Europe, known for its heavy industries such as coal mining, steel production, and chemical manufacturing. Its development was influenced by several factors, including natural resources, strategic location, infrastructure, and labor availability.

One of the primary reasons for the Ruhr region's industrial growth is the abundance of coal deposits. The area has rich reserves of high-quality coal, which provided a cheap and reliable source of energy for industries such as iron and steel production. The presence of iron ore deposits in nearby regions further supported industrial development by supplying raw materials for steel manufacturing.

The strategic location of the Ruhr region also played a crucial role in its development. It is situated along the Rhine River, which serves as a major transportation route for importing and exporting raw materials and finished products. The river, along with a network of canals, allowed industries to transport coal, iron, and other goods efficiently to domestic and international markets.

Infrastructure development contributed significantly to industrial expansion in the Ruhr. The region has a well-developed transport network, including railways, roads, and ports, which facilitated the movement of goods and labor. This connectivity made it easier for industries to access raw materials and distribute their products across Germany and beyond.

The availability of labor was another factor in the Ruhr's development. The industrial boom attracted workers from different parts of Germany and neighboring countries, leading to rapid urbanization. Cities such as Essen, Dortmund, and Duisburg grew into major industrial centers, housing a large workforce needed for mining and manufacturing activities.

Despite its industrial success, the Ruhr region faced challenges such as economic restructuring and environmental degradation. The decline of coal mining due to competition from alternative energy sources led to the closure of many mines, resulting in job losses and economic difficulties. In response, the region has shifted towards technology, service industries, and environmental rehabilitation to maintain economic stability.

In conclusion, the Ruhr Industrial Region developed due to the availability of coal and iron, its strategic location, strong infrastructure, and a large workforce. While traditional heavy industries have declined, the region continues to evolve, focusing on modern industries and sustainable development.

14. Describe the relief of Denmark.

Denmark is a low-lying country with relatively flat terrain and gentle hills. Its relief is characterized by plains, small hills, coastal features, and numerous islands, which influence its climate, agriculture, and settlement patterns.

One of the main features of Denmark's relief is its flat landscape. Most of the country consists of low plains, with an average elevation of about 30 meters above sea level. This flat terrain is the result of glacial activity during the Ice Age, which shaped the landscape and left behind fertile soils that are ideal for agriculture.

Denmark has a few gently rolling hills, the highest of which is Møllehøj, standing at only 170.86 meters above sea level. Other small hills, such as Ejer Bavnehøj and Yding Skovhøj, are found in the central part of the Jutland Peninsula. These elevations are minimal compared to other European countries and have little impact on Denmark's overall geography.

The coastline is an important feature of Denmark's relief. The country has an extensive coastline of about 7,300 kilometers, with numerous bays, inlets, and fjords. The western coast of Jutland is characterized by sandy dunes and low-lying wetlands, while the eastern coast has more irregular shorelines with small cliffs and rocky outcrops.

Denmark also consists of over 400 islands, including major ones such as Zealand, Funen, and Bornholm. These islands contribute to the country's fragmented geography and play a significant role in transportation, trade, and tourism. Many of them are low-lying with fertile soils that support farming.

Due to its low elevation, Denmark is vulnerable to rising sea levels and coastal erosion. The country has implemented measures such as dikes and flood barriers to protect against flooding, especially in areas prone to storm surges.

In conclusion, Denmark's relief is characterized by flat plains, gentle hills, an extensive coastline, and numerous islands. Its low-lying nature makes it suitable for agriculture and settlement but also poses challenges related to climate change and rising sea levels.

15. Assess the utilization of the Tennessee River Scheme.

The Tennessee River Scheme, also known as the Tennessee Valley Authority (TVA), is a large-scale development project in the United States aimed at improving water management, generating hydroelectric power, controlling floods, and boosting economic growth in the Tennessee Valley. The scheme has played a crucial role in transforming the region's economy and infrastructure.

One of the major benefits of the Tennessee River Scheme is hydroelectric power generation. The construction of dams along the Tennessee River, such as the Norris Dam and Wilson Dam, has provided a reliable source of electricity to the region. This has supported industrial development, improved living standards, and attracted investment in manufacturing and technology.

Flood control is another important function of the scheme. Before the TVA was established, the Tennessee Valley was prone to severe flooding, which destroyed farmlands and settlements. The construction of dams and reservoirs has helped regulate river flow, reducing the risk of floods and protecting communities from natural disasters.

The scheme has also improved agriculture through irrigation and soil conservation. The regulation of water supply allows farmers to irrigate their crops more effectively, increasing productivity. Additionally, the TVA introduced soil conservation measures to prevent erosion and land degradation, ensuring long-term sustainability for farming.

Navigation has been enhanced through the development of locks and dams, which have made the Tennessee River more accessible for transportation. This has facilitated the movement of goods and raw materials, contributing to economic growth in the region. Improved river navigation has supported industries such as mining, forestry, and manufacturing.

However, the scheme has also faced challenges. The construction of dams led to the displacement of communities and loss of agricultural land. Environmental concerns, such as habitat destruction and changes in aquatic ecosystems, have also been raised. Despite these issues, the benefits of the Tennessee River Scheme outweigh the drawbacks, as it continues to provide electricity, flood control, and economic opportunities to millions of people.

In conclusion, the Tennessee River Scheme has been successfully utilized for hydroelectric power generation, flood control, agriculture, and transportation. While there have been environmental and social challenges, the overall impact of the scheme has been positive, contributing to economic and infrastructural development in the Tennessee Valley.

16. Give an account of Wheat Farming in the Canadian Prairies.

Wheat farming in the Canadian Prairies is a major agricultural activity that contributes significantly to Canada's economy and global food supply. The Prairies, which include the provinces of Alberta, Saskatchewan, and Manitoba, provide ideal conditions for large-scale wheat cultivation due to their vast fertile lands, favorable climate, and advanced farming techniques.

One of the main reasons for the success of wheat farming in the Canadian Prairies is the availability of extensive flatlands with fertile soils. The region's deep, nutrient-rich chernozem (black soil) is well-suited for wheat cultivation, as it retains moisture and provides essential nutrients for crop growth.

The climate of the Prairies also supports wheat farming. The region experiences a continental climate with warm summers and cold winters. The long daylight hours during the growing season enhance photosynthesis, leading to higher yields. Although rainfall is moderate, wheat varieties grown in the Prairies are adapted to dry conditions, making them resilient to drought.

Mechanization has played a crucial role in wheat farming. Large-scale farms use advanced machinery such as tractors, combine harvesters, and irrigation systems to maximize efficiency and productivity. The adoption of precision farming technologies, including GPS and satellite monitoring, has further improved crop management and reduced waste.

The region specializes in different varieties of wheat, including hard red spring wheat, which is high in protein and preferred for bread-making. Durum wheat, used for pasta production, is also widely grown. Canada is one of the largest exporters of wheat, supplying major markets in Asia, Europe, and North America.

Despite its success, wheat farming in the Prairies faces challenges such as climate variability, soil erosion, and market fluctuations. Climate change has led to unpredictable weather patterns, affecting crop yields. To address these challenges, farmers have adopted conservation farming practices such as crop rotation, reduced tillage, and sustainable water management.

In conclusion, wheat farming in the Canadian Prairies is a vital agricultural activity supported by fertile soils, a favorable climate, mechanization, and export markets. While challenges such as climate change persist, advancements in technology and sustainable farming practices continue to enhance productivity and maintain Canada’s position as a leading wheat producer.

17. What is the role of cotton production in the Southern states of the United States of America?

Cotton production has played a crucial role in the economic development of the Southern states of the U.S.A., including Texas, Georgia, Mississippi, Alabama, and Arkansas.

Support for the textile industry has been a key contribution. Cotton is a primary raw material for textile manufacturing, which has historically been concentrated in the Southern states and continues to be a significant industry in the U.S. economy.

Employment and income generation in rural areas is another major role. Cotton farming provides jobs for thousands of workers, including farm laborers, machine operators, and workers in cotton-processing industries. It also supports agribusinesses such as fertilizer and machinery companies.

Export earnings and trade benefit the U.S. economy. The Southern states export raw cotton to countries such as China, Bangladesh, and Turkey, earning foreign exchange and strengthening the agricultural trade balance.

Technological advancement in agriculture has been driven by cotton production. The mechanization of cotton farming, including genetically modified (GM) cotton varieties and irrigation systems, has increased yields and efficiency. The cotton gin, invented in the South, revolutionized agriculture by making cotton processing faster and more profitable.

Diversification of agriculture and sustainability have been improved through cotton farming. Many farmers practice crop rotation, planting cotton alongside crops like soybeans and corn to maintain soil fertility and reduce pests.

Cotton production remains a major agricultural and economic pillar in the Southern U.S., supporting industries, exports, and employment while driving technological advancements in farming.

18. Account for the location and function of Ottawa in Canada.

Ottawa, the capital of Canada, is strategically located in the province of Ontario, along the Ottawa River, near the border with Quebec. Its location was chosen due to historical, geographical, and economic factors.

Strategic political location played a key role in Ottawa's selection as the capital in 1857. Its central position between English-speaking Ontario and French-speaking Quebec helped maintain national unity. The city was also far from the U.S. border, reducing the risk of foreign invasion.

Government and administrative functions dominate Ottawa's economy. As the capital, it hosts Canada's Parliament, Supreme Court, and federal government offices. The city is home to numerous government agencies, embassies, and international organizations.

Technological and research hub is another key function. Ottawa is a center for information technology and high-tech industries, housing companies such as Shopify and government-funded research institutions. The city has several universities, including the University of Ottawa and Carleton University, which contribute to innovation and education.

Cultural and tourism center activities attract millions of visitors. Ottawa is home to historical landmarks such as Parliament Hill, the Rideau Canal (a UNESCO World Heritage Site), and national museums, making it a significant cultural destination in Canada.

Trade and economic activities benefit from Ottawa's location along major transport routes, including highways and railways that connect it to Toronto, Montreal, and other key cities. The Ottawa River also historically facilitated trade and transportation.

Ottawa's location and function as a political, technological, cultural, and economic center make it a vital city in Canada's development.

19. Explain the relief and climate of the former U.S.S.R.

The former U.S.S.R. covered a vast territory stretching from Eastern Europe to the Pacific Ocean, leading to diverse relief and climatic conditions.

Relief:
The Ural Mountains divided European Russia from Siberia and played a role in mineral extraction. These mountains are relatively low but rich in iron ore, coal, and other minerals.

The Siberian Plain covered much of northern Russia and was characterized by lowlands, permafrost, and tundra vegetation. The harsh conditions made it difficult for settlement and agriculture.

The Central Asian Deserts and Steppes included the Karakum and Kyzylkum Deserts, which had arid conditions, making farming challenging except in irrigated areas such as Uzbekistan. The steppe regions, including Ukraine and southern Russia, were highly fertile and formed the agricultural heartland of the U.S.S.R.

Mountainous regions such as the Caucasus and Altai Mountains in the south created natural borders and were important for hydroelectric power production.

Climate:

Arctic and Tundra Climate dominated northern Siberia, with extremely cold temperatures, long winters, and short summers. This region was largely uninhabited due to permafrost.

Continental Climate covered much of the U.S.S.R., including Moscow, St. Petersburg, and Ukraine. This zone experienced cold winters and hot summers, supporting agriculture and industrial activities.

Steppe Climate in Ukraine, Kazakhstan, and southern Russia had moderate rainfall, supporting wheat and livestock farming.
Desert Climate in Central Asia had hot summers and cold winters, with limited rainfall, making irrigation essential for agriculture.

Maritime and Mediterranean Climate along the Black Sea coast had mild winters and warm summers, supporting wine production, fruit farming, and tourism.

The former U.S.S.R.'s relief and climate greatly influenced economic activities, with fertile lands in the west supporting agriculture, mountains providing minerals, and harsh Siberian conditions limiting population growth and industrial expansion.

20. Account for the mineral production in the former U.S.S.R.

The U.S.S.R. was one of the world's leading producers of minerals due to its vast natural resource base. Mineral production was essential for industrial development, energy security, and exports.

Abundant coal deposits in Ukraine (Donbas region), Kuznetsk Basin, and Siberia fueled industries and power plants. Coal was crucial for steel manufacturing and electricity production.

Oil and natural gas reserves in Siberia, the Volga region, and the Caspian Sea made the U.S.S.R. one of the largest energy producers. The country exported oil and gas to Europe, generating revenue and geopolitical influence.

Iron ore and steel production were concentrated in the Ural Mountains, Kursk, and Krivoy Rog. These resources supported the large steel and machine-building industries, making the U.S.S.R. a global leader in metallurgy.

Gold, diamonds, and precious metals were mined in Siberia, Yakutia, and Kazakhstan, contributing to the country's financial reserves. The U.S.S.R. was among the top gold-producing nations, securing its economic power.

Uranium mining in Kazakhstan and Central Asia played a crucial role in the development of nuclear energy and weapons, making the U.S.S.R. a leading nuclear power during the Cold War.

Phosphate and potash mining in Belarus and Russia supported the production of fertilizers, boosting agriculture across the Soviet republics.

The U.S.S.R.'s mineral wealth was essential for industrialization, energy security, and global economic influence, but it also led to environmental challenges such as pollution and resource depletion.

21. To what extent has the former U.S.S.R. developed her agriculture?

Agriculture in the former U.S.S.R. was highly developed through large-scale farming, mechanization, and state-controlled agricultural policies, but it faced significant challenges.

Collectivization and state farms were implemented under Soviet policies. The government created collective farms (kolkhozes) and state farms (sovkhozes) to increase agricultural production, but forced collectivization led to food shortages and peasant resistance.

Mechanization and use of modern technology improved productivity. The Soviet Union invested in tractors, combine harvesters, and irrigation projects, especially in Ukraine and southern Russia, which were the main grain-producing regions.

Large-scale grain production made the U.S.S.R. a leading wheat and barley producer. The fertile chernozem (black earth) soils in Ukraine and Russia supported high yields, making these regions the "breadbasket" of the Soviet economy.

Irrigation and desert farming were developed in Central Asia, where projects like the Karakum Canal in Turkmenistan allowed cotton farming in dry areas. However, these projects led to environmental problems, such as the shrinking of the Aral Sea due to excessive water use.

Challenges such as low efficiency, poor incentives, and food shortages affected agricultural growth. Despite vast lands and resources, state control over farms reduced farmer motivation, and food production often lagged behind demand, leading to periodic shortages.

Although the U.S.S.R. developed a large and technologically advanced agricultural system, inefficiencies, poor policies, and environmental degradation limited its full potential.