G12 ECZ GEOGRAPHY P2 2016 SPECIMEN SOLUTIONS

Geography Paper 2, 2016 Specimen (2218/2)

Answer 4 of 10: Section A Zambia (1-4) + B Sub-Region (5-7) + C Settlements/Population (8-10)

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Geography 2218/2

Paper 2

Additional Information:
Answer Booklet

Time 2 hours

Instructions to Candidates

1 Write your **name, centre number** and **candidate number** in the spaces provided on the **Answer Booklet.**

2 There are **ten (10)** questions in this paper.

3 Answer only **four (4)** questions according to the instructions below:

(i) Answer **one** question from Section **A.**

(ii) Answer **one** question from Section **B.**

(iii) Answer **one** question from Section **C.**

(iv) You are free to choose the **fourth** question from any Section: **A, B** or **C.**

4 Write your answers in the separate **Answer Booklet** provided.

Information for candidates

1 The number of marks is given in brackets **[ ]** at the end of each question or part question.

2 The Insert contains Figure 1.

3 Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

4 **Cell phones and calculators are not allowed in the examination room.**

This question paper consists of 3 printed pages

SECTION A: ZAMBIA

1 Study Figure 1 (Insert) of Zambia.

(a) Name in the spaces provided below **Figure 1**, land tenure systems common in Area **A** and in Area **B**. [2]

(b) Explain how traditional farming activities may lead to the loss of soil fertility. [4]

(c) **(i)** Explain the effects of bad agricultural practices on the environment. [3]

(ii) Describe the measures taken to encourage soil conservation in Zambia. [3]

[12]

2 **(a)** Explain **five** differences in the way the indigenous trees and the exotic trees are exploited for timber in Zambia. [5]

(b) **(i)** List **four** types of exotic trees. [2]

(ii) What advantages do the exotic trees have over indigenous timber trees? [5]

[12]

3 **(a)** **(i)** What tourist attractions has Zambia not fully developed or utilized? [4]

(ii) Explain the differences between game parks and game reserves. [3]

(b) What is the Government of Zambia doing promote the tourism industry? [5]

[12]

4 **(a)** Draw a sketch map of Zambia and on it **mark** and **name** the following hydroelectric power stations; **Kariba North Bank, Lusiwasi, Musonda falls**. [4]

(b) What factors have favoured the development of the Kariba North Bank Hydroelectric Power Stations? [4]

(c) State the disadvantages of hydroelectric power over thermal power. [4]

[12]

SECTION B: SUB REGION

5 **(a)** Draw a sketch map of South Africa and on it **mark** and **name** the **Vaal Dam** and the **Vaal river** on which the dam was constructed. [3]

(b) What necessitated the construction of the Vaal Dam? [4]

(c) What are the benefits of the lake behind the Vaal Dam to South Africa? [5]

[12]

6 **(a)** **(i)** Name **two** minerals mined in Zimbabwe. [1]

(ii) Describe the importance of mineral processing to Zimbabwe. [5]

(b) Discuss the impact of mining on the environment. [6]

[12]

7 **(a)** Explain the role played by road and railway transport in the social and economic development of the sub-region. [4]

(b) **(i)** What problems does the sub-region face regarding air and water transport? [4]

(ii) How can the problems of air and water transport in the sub-region be overcome? [4]

[12]

SECTION C: SETTLEMENTS AND POPULATION STUDIES.

8 **(a)** **(i)** Name **two** provinces of Zambia which have experienced a high rate of rural – rural migration in recent years. [1]

(ii) Explain why the provinces stated in **(i)** above have experienced rural-rural migration within themselves. [5]

(b) Explain the consequences of rural-urban migration.

(i) in rural areas

(ii) in towns [6]

[12]

9 **(a)** With the help of a diagram, describe the general land use pattern of the Zambian cities and towns. [6]

(b) Regarding the high and low residential areas in the cities of Zambia;

(i) Explain the difference in the standard of housing. [3]

(ii) How does the quality of life differ between the two? [3]

[12]

10 Concerning population in Zambia;

(a) Explain the effects associated with rapid population growth. [6]

(b) What are the solutions to the effects of over-population in cities and towns? [6]

[12]

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Paper 2

INSERT

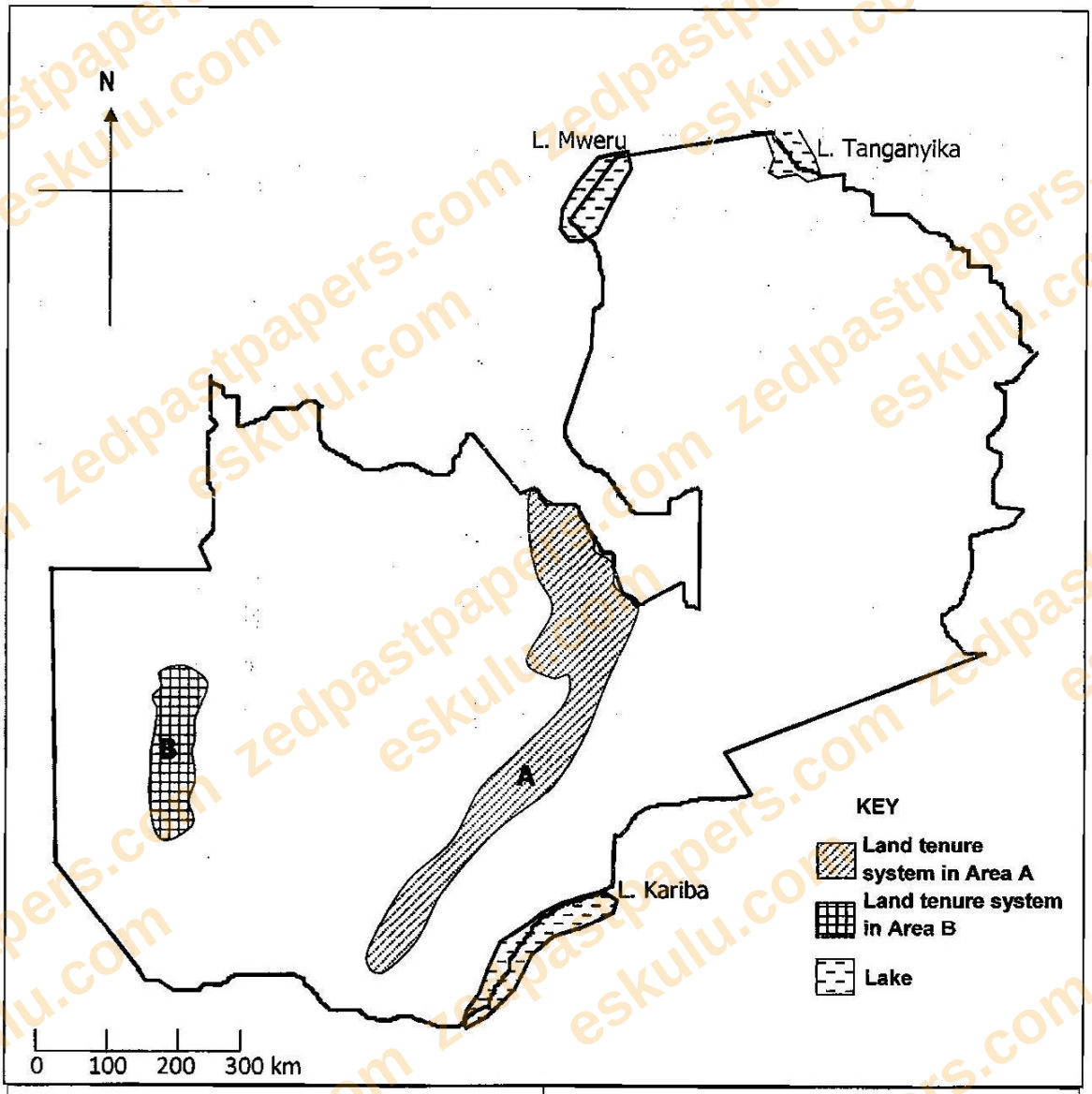
Time **2 hours**

Instructions to Candidates

1. This Insert contains Figure 1.
2. If you use figure 1, remove it from this Insert and attach it to your **Answer Booklet**.
3. Write your **name, centre number** and **candidate number** in the spaces provided on the figure you attach to your **Answer Booklet**.

Name ..... Examination Number ..... / .....

Figure 1 for Question 1



Land tenure system in Area **A**	
Land tenure system in Area **B**	

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Question Q1 (Section A: Zambia). Study Figure 1 (Insert) of Zambia. (a) Name the land tenure systems common in Area A and Area B [2]. (b) Explain how traditional farming activities may lead to the loss of soil fertility [4]. (c)(i) Explain the effects of bad agricultural practices on the environment [3]. (ii) Describe the measures taken to encourage soil conservation in Zambia [3]

Answer: (a) Land tenure system in Area A (the broad central corridor running from near Lake Mweru down to Lake Kariba, matching Zambia's line-of-rail): State Land (leasehold tenure), since this covers Zambia's main urban, mining and infrastructure corridor, where land has been formally alienated and is held under statutory leasehold title. Land tenure system in Area B (a smaller patch in the rural west): Customary Land (traditional tenure), held and administered under the authority of traditional chiefs according to customary law, without formal title deeds.

Answer: (b) How traditional farming activities may lead to loss of soil fertility: continuous cultivation of the same piece of land without adequate fallow periods depletes soil nutrients; shifting cultivation systems like chitemene, if practised with shortened fallow cycles due to population pressure, don't allow soils enough time to regenerate; overgrazing by livestock on the same land compacts soil and removes vegetation cover, exposing soil to erosion; and traditional burning practices (to clear land or as part of chitemene) can destroy organic matter and expose soil to erosion by wind and rain.

Answer: (c)(i) Effects of bad agricultural practices on the environment: soil erosion, as exposed, unprotected soil is washed or blown away; loss of soil fertility, reducing long-term agricultural productivity; siltation of rivers and dams from eroded soil, affecting water quality and HEP generation; and deforestation/loss of vegetation cover from clearing land without proper management.

Answer: (ii) Measures taken to encourage soil conservation in Zambia: promoting conservation farming techniques (e.g. minimum tillage, ripping, use of cover crops) that protect soil structure; encouraging contour ploughing and construction of contour ridges/bunds to reduce erosion on sloping land; promoting agroforestry (planting trees alongside crops) to protect and enrich soil; and providing agricultural extension education on sustainable land-use practices.

Question Q2 (Section A: Zambia). (a) Explain five differences in the way the indigenous trees and the exotic trees are exploited for timber in Zambia [5]. (b)(i) List four types of exotic trees [2]. (ii) What advantages do the exotic trees have over indigenous timber trees? [5]

Answer: (a) Five differences in exploitation of indigenous vs exotic trees for timber in Zambia: (1) indigenous trees grow naturally in mixed, scattered stands, requiring selective logging across large areas, whereas exotic trees are grown in dense, uniform plantations, allowing more efficient, concentrated harvesting; (2) indigenous trees grow slowly, so exploitation must be carefully managed/limited to avoid depletion, whereas fast-growing exotic trees can be harvested on shorter, more frequent rotations; (3) indigenous timber harvesting is often less regulated/more informal (small-scale pit-sawing), whereas exotic plantation harvesting is typically large-scale and mechanised, run by forestry companies; (4) indigenous trees are harvested mainly for high-value hardwood products (furniture, curios), whereas exotic trees are harvested mainly for bulk industrial uses (poles, pulp, construction timber, mine props); (5) indigenous forest exploitation typically requires long-distance transport from remote natural forest areas, whereas exotic plantations are often established close to where the timber is needed (e.g. near the Copperbelt mines), reducing transport costs.

Answer: (b)(i) Four types of exotic trees: pine, cypress, eucalyptus (gum tree), and wattle.

Answer: (ii) Advantages of exotic trees over indigenous timber trees: they grow much faster, allowing shorter harvesting rotations and quicker returns on investment; they can be grown in dense, uniform plantations, making planting, management and harvesting more efficient; they are often easier to process (softer wood, more uniform grain); and they can be selectively bred/managed for specific desirable traits (straightness, disease resistance) more easily than wild indigenous species.

Question Q3 (Section A: Zambia). (a)(i) What tourist attractions has Zambia not fully developed or utilized? [4]. (ii) Explain the differences between game parks and game reserves [3]. (b) What is the Government of Zambia doing to promote the tourism industry? [5]

Answer: (a)(i) Tourist attractions Zambia has not fully developed or utilised: lesser-known national parks and game management areas (e.g. Sioma Ngwezi, Liuwa Plain) that receive far fewer visitors than South Luangwa or Victoria Falls; historical and cultural heritage sites (e.g. rock art sites, traditional ceremonies) that could attract more cultural tourism; potential adventure/eco-tourism activities (e.g. canoeing, hiking trails) in various parts of the country; and Zambia's other waterfalls besides Victoria Falls (e.g. Kalambo Falls, Ngonye Falls).

Answer: (ii) Differences between game parks and game reserves: in a national/game park, hunting is entirely prohibited and the focus is on conservation and photographic tourism; in a game reserve, regulated/licensed hunting (safari hunting) is permitted alongside conservation, generating revenue through hunting concessions.

Answer: (b) What the Government of Zambia is doing to promote tourism: improving infrastructure (roads, airports) to and around tourist destinations; marketing and promoting Zambia internationally as a tourist destination (e.g. through the Zambia Tourism Agency); enacting policies to protect wildlife and natural attractions in parks and reserves; and encouraging private-sector investment in hotels, lodges and tourism-related services through

incentives.

Question Q4 (Section A: Zambia). (a) Draw a sketch map of Zambia and mark and name the hydroelectric power stations: Kariba North Bank, Lusiwasi, Musonda Falls [4]. (b) What factors have favoured the development of the Kariba North Bank Hydroelectric Power Stations? [4]. (c) State the disadvantages of hydroelectric power over thermal power [4]

Answer: (a) Sketch map instruction: mark Kariba North Bank on Lake Kariba/the Zambezi River (Southern Province); Lusiwasi on the Lunsemfwa River (Central Province); and Musonda Falls on the Luapula River (Luapula Province).

Answer: (b) Factors favouring the development of the Kariba North Bank HEP station: the presence of the Zambezi River with a large, reliable water flow; the Kariba Gorge's steep-sided topography, ideal for building a large dam and reservoir with a substantial head of water; the large reservoir (Lake Kariba) created by the dam, providing consistent water storage even during dry periods; and proximity to major demand centres (the Copperbelt, Lusaka) via transmission lines.

Answer: (c) Disadvantages of hydroelectric power over thermal power: hydro-power generation is vulnerable to droughts and low water levels, reducing output when it's needed most; hydro-power stations require a specific site (a suitable river with sufficient flow and a gorge/dam site), limiting where they can be built, unlike thermal stations which can be sited more flexibly; the construction of large dams for hydro-power displaces communities and floods farmland/habitats; and hydro-power stations typically require very large upfront capital investment and long construction periods.

Question Q5 (Section B: Sub Region). (a) Draw a sketch map of South Africa and mark and name the Vaal Dam and the Vaal river on which the dam was constructed [3]. (b) What necessitated the construction of the Vaal Dam? [4]. (c) What are the benefits of the lake behind the Vaal Dam to South Africa? [5]

Answer: (a) Sketch map instruction: mark and name the Vaal Dam and the Vaal River in South Africa's Gauteng/Free State region.

Answer: (b) What necessitated the construction of the Vaal Dam: the rapid growth of Johannesburg and the Witwatersrand (Rand) industrial/mining region created a huge and growing demand for water for domestic, industrial and mining use that the natural river flow alone could not reliably meet; and the need for a reliable water storage system to buffer against seasonal variability in rainfall/river flow in this relatively dry part of South Africa.

Answer: (c) Benefits of the lake (reservoir) behind the Vaal Dam to South Africa: it provides a reliable water supply for domestic use in Johannesburg and surrounding urban areas; it supplies water for industrial and mining processes on the Witwatersrand; it supports irrigation for agriculture in the surrounding area; and it provides recreational and tourism opportunities (boating, fishing) on the reservoir.

Question Q6 (Section B: Sub Region). (a)(i) Name two minerals mined in Zimbabwe [1]. (ii) Describe the importance of mineral processing to Zimbabwe [5]. (b) Discuss the impact of mining on the environment [6]

Answer: (a)(i) Two minerals mined in Zimbabwe: gold and chrome (chromite).

Answer: (ii) Importance of mineral processing to Zimbabwe: it adds value to raw minerals before export, increasing export earnings compared with exporting unprocessed ore; it creates additional employment in processing/refining industries beyond the mining itself; it supports the development of related manufacturing industries (e.g. the iron and steel industry using processed chrome/iron ore); and it reduces the country's dependence on exporting low-value raw materials.

Answer: (b) Impact of mining on the environment: land degradation from open-pit and underground mining operations, including waste-rock and tailings dumps; water pollution from mine drainage and effluent, contaminating rivers and groundwater; air pollution from mineral processing/smelting operations; and deforestation/loss of vegetation from clearing land for mining infrastructure.

Question Q7 (Section B: Sub Region). (a) Explain the role played by road and railway transport in the social and economic development of the sub-region [4]. (b)(i) What problems does the sub-region face regarding air and water transport? [4]. (ii) How can the problems of air and water transport in the sub-region be overcome? [4]

Answer: (a) Role of road and railway transport in social/economic development of the sub-region: they enable the movement of goods (minerals, agricultural produce, manufactured goods) from production areas to markets and ports, supporting trade and economic growth; they connect people to employment, education and healthcare services, improving social wellbeing; they support regional economic integration by linking landlocked countries to coastal ports of neighbouring countries; and they facilitate rural development by connecting remote areas to urban markets and services.

Answer: (b)(i) Problems the sub-region faces regarding air and water transport: for air transport, the high cost of aircraft, fuel and airport infrastructure limits its expansion, especially to smaller/rural destinations; for water transport, many rivers/lakes are not consistently navigable year-round due to seasonal water-level changes, and there is often inadequate port/harbour infrastructure.

Answer: (ii) How these problems can be overcome: for air transport, encouraging regional cooperation/investment in shared aviation infrastructure and promoting competition among airlines to lower costs; for water transport, investing in dredging and maintaining navigable channels, and developing better port/harbour facilities and regulating water levels through dam management where possible.

Question Q8 (Section C: Settlements and Population Studies). (a)(i) Name two provinces of Zambia which have experienced a high rate of rural-rural migration in recent years [1]. (ii) Explain why the provinces stated have experienced rural-rural migration [5]. (b) Explain the consequences of rural-urban migration: (i) in rural areas, (ii) in towns [6]

Answer: (a)(i) Two provinces of Zambia which have experienced high rural-rural migration: North-Western Province and Central Province.

Answer: (ii) Why these provinces have experienced rural-rural migration: North-Western Province has seen large in-migration from other rural areas because of new mining developments (e.g. Kansanshi, Lumwana) creating jobs in what were previously purely rural farming districts; and Central Province has attracted migration to newly established farming blocks (e.g. Mkushi) offering agricultural employment/land opportunities, drawing people from other rural areas seeking better farming prospects.

Answer: (b)(i) Consequences of rural-urban migration in rural areas: loss of the economically active, working-age population to towns, leaving mainly children and the elderly; reduced agricultural labour and productivity in the areas left behind; and slower rural development as skills and labour are lost to urban migration.

Answer: (ii) Consequences of rural-urban migration in towns: rapid population growth outpaces housing supply, leading to the growth of squatter/informal settlements; increased pressure on urban infrastructure and social services (water, sanitation, schools, hospitals); and rising urban unemployment and underemployment as job creation fails to keep pace with the growing urban labour force.

Question Q9 (Section C: Settlements and Population Studies). (a) With the help of a diagram, describe the general land use pattern of the Zambian cities and towns [6]. (b) Regarding the high and low residential areas in the cities of Zambia: (i) Explain the difference in the standard of housing [3]. (ii) How does the quality of life differ between the two? [3]

Answer: (a) General land use pattern of Zambian cities and towns: at the centre is the Central Business District (CBD), with high land values and commercial/administrative functions; surrounding this is a zone of industry and low-income/high-density housing; further out are medium-density residential areas; and at the outer edge are low-density (high-income) residential suburbs and any remaining undeveloped/agricultural land at the urban fringe.

Answer: (b)(i) Difference in the standard of housing between high- and low-density residential areas: low-density areas have large, spacious, well-built houses on generous plots with modern amenities (piped water, proper sanitation, electricity), whereas high-density areas have small, closely-packed, often self-built and poorer-quality housing with limited access to such amenities.

Answer: (ii) How quality of life differs between the two: residents of low-density areas generally enjoy better access to clean water, sanitation, electricity, healthcare and schools, along with less crowding and lower crime rates, resulting in a higher standard of living; residents of high-density areas typically face overcrowding, poorer sanitation and service access, and higher levels of poverty and unemployment, resulting in a lower standard of living.

Question Q10 (Section C: Settlements and Population Studies). Concerning population in Zambia: (a) Explain the effects associated with rapid population growth [6]. (b) What are the solutions to the effects of over-population in cities and towns? [6]

Answer: (a) Effects associated with rapid population growth: increased pressure on social services (schools, hospitals, housing), which struggle to expand fast enough; rising unemployment as the labour force grows faster than job creation; greater pressure on land and natural resources (deforestation, soil degradation) from the need for more farmland and settlement; and strain on food security as demand for food outpaces production growth in some areas.

Answer: (b) Solutions to the effects of over-population in cities and towns: government/council investment in expanding housing, water, sanitation and other urban infrastructure to match population growth; promotion of family planning/reproductive health services to help slow population growth; development of satellite towns/decentralised growth centres to reduce pressure on the largest cities; and investment in job creation (industry, services) to absorb the growing urban labour force.

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