

G12 ECZ GEOGRAPHY P2 2019 INTERNAL SOLUTIONS

Geography Paper 2, 2019 Internal/School Certificate sitting (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

Tuesday

26 NOVEMBER 2019

Additional Material(s):

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 of the question.
- 2 The Insert contains **Figure 1** and **Figure 2**.
- 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.**

SECTION A: ZAMBIA

1 Study **figure 1** (insert) of Zambia.

(a) Name, in the spaces provided below **figure 1**, forest Area **A** and any one forest plantation found in Area **B**. [2]

(b) Name;

(i) the type of wood obtained from Zambia's exotic plantations and, [1]

(ii) the type of wood obtained from Zambia's indigenous forests. [1]

(c) What advantages do the exotic trees have over the indigenous trees? [4]

(d) How do the local people make use of the indigenous forests near them? [4]
[12]

2 **(a)** Explain the advantage of road and rail transport, as means of transporting passengers and goods. [6]

(b) What are the disadvantages of using roads and rail to transport passengers and goods? [6]
[12]

3 **(a)** Which provinces in Zambia are well served with hydro electricity and why? [6]

(b) Name any **four** forms of energy the other provinces use. What limitations do these other forms of energy have? [6]
[12]

4 **(a)** **(i)** Name **two** crops grown by subsistence farmers in Western Province. [1]

(ii) Explain how the physical environment influences the farming types practised in the various parts of Western Province. [3]

(b) How have the traditional agricultural systems in Zambia led to soil impoverishment? [4]

(c) How is the soil conserved for sustainable agriculture in Zambia? [4]
[12]

SECTION B: SUB REGION

- 5** Study **figure 2** (insert) of Zimbabwe.
- (a) In the spaces provided below **figure 2**, name coal producing Areas **A** and **B**, and the iron and steel producing centre **C**. [3]
 - (b) What are the main iron and steel products produced at centre **C**? [4]
 - (c) What are the negative effects of coal mining and usage on the miners, the local people and the environment? [5]
- [12]**
- 6** Regarding petroleum refining in Angola.
- (a) Why was the pipeline chosen as the means of transport to other countries in the sub-region? [4]
 - (b) Explain how petroleum is refined and state the major products obtained from the refinery. [4]
 - (c) What are the main uses of the refined petroleum products? [4]
- [12]**
- 7** Explain how water, road and rail transport in the sub-region have been influenced by;
- (a) physical features, [4]
 - (b) climate and, [4]
 - (c) natural vegetation. [4]
- [12]**

SECTION C: SETTLEMENTS AND POPULATION STUDIES.

- 8** (a) The youth population grows very fast in Zambia. What problems have the youths faced as a result? [7]
- (b) The elderly population in Zambia is very small. Give reasons for the small number of elderly people in the country. [5]
- [12]**
- 9** (a) Give reasons why the towns of Zambia have low density, medium density and high density residential areas. [6]
- (b) How do the three types of residential areas differ? [6]
- [12]**
- 10** (a) What major things characterise a mining town? [6]
- (b) How are mining towns similar to other towns? [6]
- [12]**



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Insert

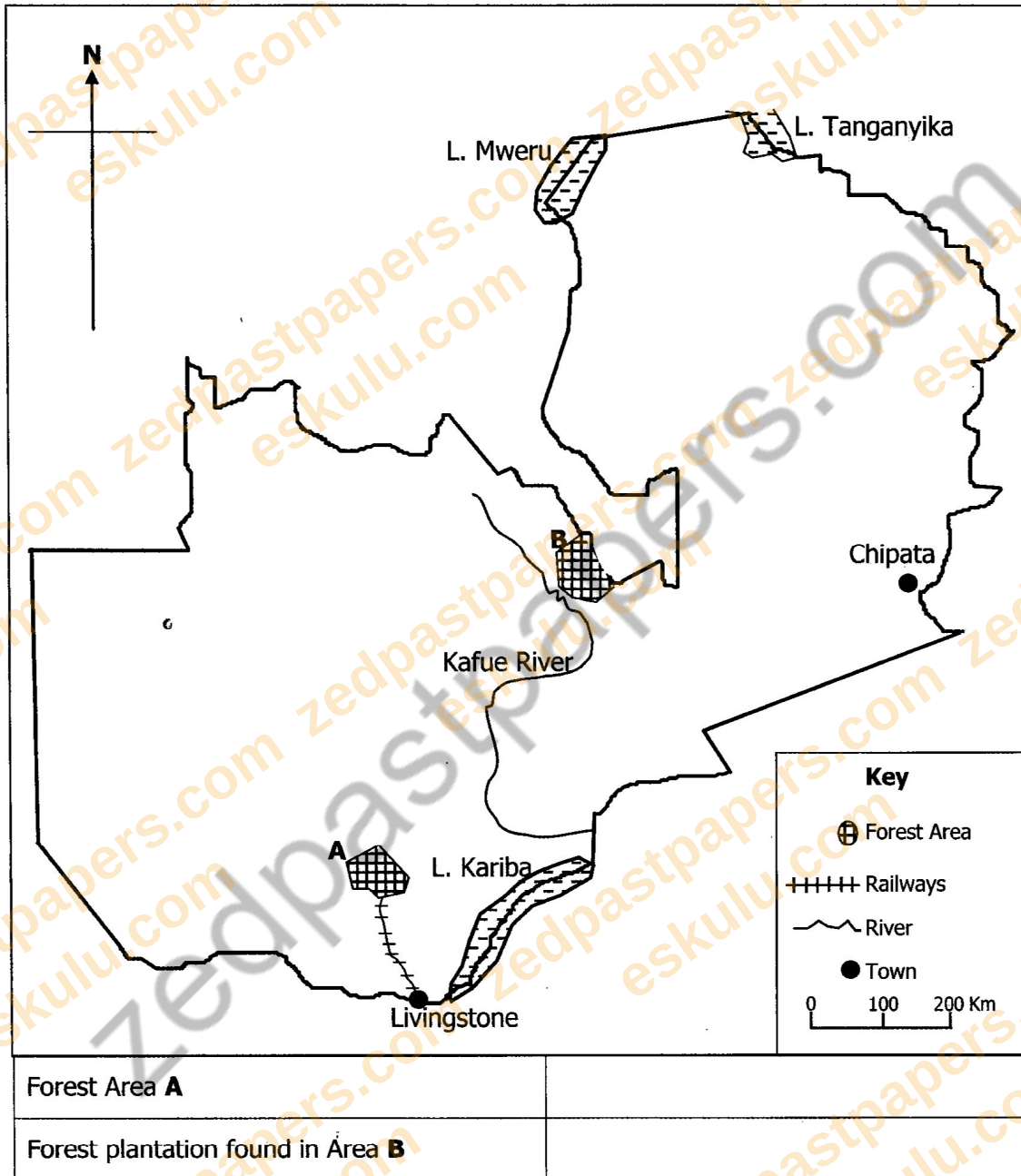
Time 2 hours

Instructions to Candidates

- 1 This Insert contains **Figures 1 and 2**.
- 2 If you use **figure 1**, or both **figures**, remove them from this Insert and attach them 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**.

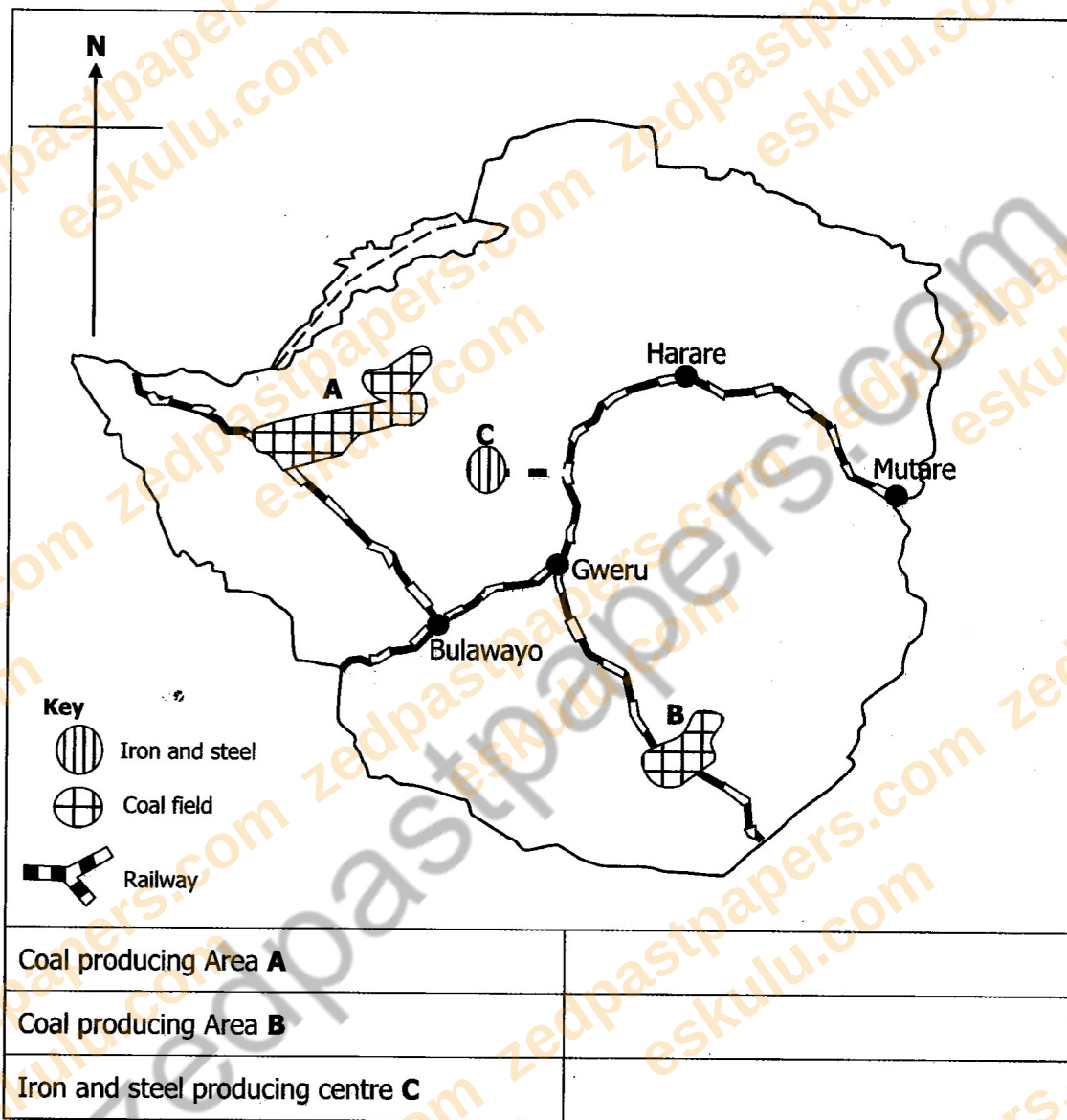
Name Examination Number /

Figure 1 for Question 1



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Figure 2 for Question 5





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Question Q1 (Section A: Zambia). Study Figure 1 (insert) of Zambia. (a) Name, in the spaces provided below Figure 1, forest Area A and any one forest plantation found in Area B [2]. (b) Name: (i) the type of wood obtained from Zambia's exotic plantations [1]. (ii) the type of wood obtained from Zambia's indigenous forests [1]. (c) What advantages do the exotic trees have over the indigenous trees? [4]. (d) How do the local people make use of the indigenous forests near them? [4]

Answer: (a)(i) Forest Area A (west of Lake Kariba, near Livingstone): the Zambezi Teak Forests (Mulobezi/Kataba Forest Reserve area), a well-known indigenous hardwood forest region of Southern/Western Zambia.

(ii) [FLAG -- best-effort] Forest plantation in Area B (near the Kafue River bend, north-central position): read as a Copperbelt softwood plantation (e.g. Mwekera), given the map's schematic style and the position roughly matching the Copperbelt/Central Province area.

Answer: (b)(i) Type of wood from Zambia's exotic plantations: softwood (e.g. pine).

Answer: (ii) Type of wood from Zambia's indigenous forests: hardwood (e.g. teak, mukwa).

Answer: (c) Advantages of exotic trees over indigenous trees: they grow much faster, giving quicker economic returns and shorter harvesting rotations; they are planted in uniform rows/ages, making them easier to manage and harvest commercially; they are well suited to producing pulp/softwood timber for construction, reducing the pressure to cut down indigenous forests; and selected exotic species can tolerate a wider range of soils and climatic conditions than some indigenous species.

Answer: (d) How local people use indigenous forests near them: as a source of firewood and charcoal for domestic energy; as a source of building poles and timber for construction; as a source of medicinal herbs and plants; as a source of wild foods such as fruits, mushrooms and honey; and as grazing land for their livestock.

Question Q2 (Section A: Zambia). (a) Explain the advantage of road and rail transport, as means of transporting passengers and goods [6]. (b) What are the disadvantages of using roads and rail to transport passengers and goods? [6]

Answer: (a) Advantages of road and rail transport: road transport is flexible and offers door-to-door delivery, reaching areas rail cannot serve; rail transport can carry very bulky/heavy goods cheaply over long distances; both create employment in the transport sector; road transport feeds produce and passengers to rail stations, complementing the rail network; and both allow the movement of goods and people between production areas, markets and social services.

Answer: (b) Disadvantages of road and rail transport: roads are often in poor condition (potholes, poor surfacing), raising vehicle running costs and causing delays and accidents; road transport is also subject to traffic congestion, particularly in urban areas; rail transport is restricted to fixed routes and cannot reach many rural or remote areas without a line; Zambia's rail infrastructure is old and prone to frequent breakdowns and delays; and goods often need to be transhipped between rail and road, adding extra cost and time to a journey.

Question Q3 (Section A: Zambia). (a) Which provinces in Zambia are well served with hydro electricity and why? [6]. (b) Name any four forms of energy the other provinces use. What limitations do these other forms of energy have? [6]

Answer: (a) Provinces well served with hydro electricity: Copperbelt, Central, Lusaka and Southern Provinces -- because they lie along or close to the national grid and the major hydro-electric power stations (Kariba North and Kafue Gorge), and because historically the mining and industrial activity concentrated in these provinces justified priority investment in extending the electricity grid to them.

Answer: (b) Four other forms of energy used by other provinces: firewood/charcoal, solar energy, diesel/petrol generators, and paraffin/kerosene. Limitations: firewood and charcoal use causes deforestation and is inefficient and polluting; solar energy is costly to install and unreliable without battery storage, especially on cloudy days or at night; generators depend on costly fuel and require regular maintenance; and paraffin is expensive for many households and produces smoke that is a health hazard.

Question Q4 (Section A: Zambia). (a)(i) Name two crops grown by subsistence farmers in Western Province [1]. (ii) Explain how the physical environment influences the farming types practised in the various parts of Western Province [3]. (b) How have the traditional agricultural systems in Zambia led to soil impoverishment? [4]. (c) How is the soil conserved for sustainable agriculture in Zambia? [4]

Answer: (a)(i) Two crops grown by subsistence farmers in Western Province: cassava and millet.

Answer: (ii) How the physical environment influences farming in Western Province: the Zambezi (Barotse) floodplain, with its fertile alluvial soils flooded seasonally, favours recession farming of crops like rice as well as cattle grazing once floodwaters recede; while the surrounding sandy, infertile Kalahari plateau soils away from the floodplain can only support drought-resistant subsistence crops such as cassava and millet, which need little soil fertility.

Answer: (b) How traditional agricultural systems have led to soil impoverishment: shifting cultivation (chitemene) involves cutting and burning vegetation, which exposes bare soil to erosion once a plot is abandoned; continuous cropping of the same land without fertiliser or fallow periods steadily depletes soil nutrients; overgrazing by livestock removes vegetation cover and compacts the soil, encouraging erosion; and repeated planting of the same crop (monocropping) exhausts specific soil nutrients.

Answer: (c) How soil is conserved for sustainable agriculture: practising crop rotation to restore soil nutrients naturally; contour ploughing/ridging on sloping land to reduce surface runoff and erosion; agroforestry, intercropping with nitrogen-fixing trees to replenish soil fertility; applying organic manure and compost/fertiliser to replace lost nutrients; leaving land fallow to allow natural recovery; and planting trees (afforestation) to reduce wind and water erosion.

Question Q5 (Section B: Sub Region). Study Figure 2 (insert) of Zimbabwe. (a) In the spaces provided below Figure 2, name coal producing Areas A and B, and the iron and steel producing centre C [3]. (b) What are the main iron and steel products produced at centre C? [4]. (c) What are the negative effects of coal mining and usage on the miners, the local people and the environment? [5]

Answer: (a)(i) Coal producing Area A (north-west of the country): the Hwange Coalfield, Zimbabwe's principal coal-mining area, matching its real north-western location on the map.

(ii) [FLAG -- best-effort] Coal producing Area B (south of the country): read as a secondary Zimbabwean coalfield, given the map's schematic style provides no clear real-world label to confirm the exact site.

Answer: (iii) Iron and steel producing centre C (central position, between Gweru and Harare): Kwekwe/Redcliff, home of the Zimbabwe Iron and Steel Company (ZISCO), matching its real central Zimbabwe location.

Answer: (b) Main iron and steel products produced at centre C: steel bars and rods, pig iron, steel sheets/plates, and wire and pipes.

Answer: (c) Negative effects of coal mining and usage: on miners -- respiratory diseases (such as pneumoconiosis) from long-term inhalation of coal dust, and injury or death from mining accidents such as cave-ins and explosions; on local people -- air and water pollution from coal dust and mine effluent, and land degradation near mining areas; on the environment -- deforestation and habitat destruction from opencast mining, and air pollution (smoke and greenhouse gases contributing to acid rain) and water pollution from mine drainage harming rivers and aquatic life.

Question Q6 (Section B: Sub Region). Regarding petroleum refining in Angola. (a) Why was the pipeline chosen as the means of transport to other countries in the sub-region? [4]. (b) Explain how petroleum is refined and state the major products obtained from the refinery [4]. (c) What are the main uses of the refined petroleum products? [4]

Answer: (a) Why the pipeline was chosen for transport to other countries in the sub-region: pipelines can move very large volumes of liquid petroleum continuously and efficiently over long distances; they are cheaper to operate for sustained bulk transport than fleets of road or rail tankers; they are safer, avoiding the numerous accidents associated with many individual tanker trips; and once built they require relatively little day-to-day labour and are largely unaffected by weather or road conditions.

Answer: (b) How petroleum is refined and major products obtained: crude oil is heated in a furnace and fed into a fractionating/distillation column, where it separates into fractions according to their different boiling points as vapours rise and cool at different heights, condensing into liquids drawn off at different levels of the column; the major products obtained are petrol, diesel, kerosene/paraffin, heavy fuel oil, bitumen and LPG.

Answer: (c) Main uses of refined petroleum products: fuel for road, rail and water transport (petrol, diesel); fuel for aircraft (jet fuel/kerosene); domestic cooking and lighting fuel (paraffin); lubricants for machinery; raw material for the petrochemical/plastics industry; and bitumen for

road surfacing.

Question Q7 (Section B: Sub Region). Explain how water, road and rail transport in the sub-region have been influenced by: (a) physical features [4]. (b) climate [4]. (c) natural vegetation [4]

Answer: (a) Influence of physical features: mountainous or rugged terrain (such as the Great Rift Valley escarpments and the Drakensberg) makes road and rail construction difficult and costly, requiring tunnels, bridges and winding routes; large rivers and lakes (the Zambezi, the Congo, Lake Malawi/Tanganyika) provide natural routes for water transport but also form barriers requiring bridges or ferries for road and rail crossings; and flat plateau areas make road and rail construction easier, allowing straighter and cheaper routes.

Answer: (b) Influence of climate: heavy rainy-season rains cause flooding that washes away roads and rail lines, disrupting transport seasonally; drought lowers river water levels, limiting the navigability of water transport (for example on the Zambezi); and humid, hot conditions accelerate road surface decay (potholing), increasing maintenance needs.

Answer: (c) Influence of natural vegetation: dense forest (such as the DRC rainforest) makes road and rail construction difficult and costly, requiring extensive clearing; swampy, waterlogged vegetation zones (such as the Bangweulu and Kafue Flats wetlands) restrict where roads and railways can be built, forcing detours; and sparser vegetation in drier areas allows easier, cheaper road construction.

Question Q8 (Section C: Settlements and Population Studies). (a) The youth population grows very fast in Zambia. What problems have the youths faced as a result? [7]. (b) The elderly population in Zambia is very small. Give reasons for the small number of elderly people in the country [5]

Answer: (a) Problems faced by the youths as a result of the fast-growing youth population: high unemployment, as job creation has not kept pace with the growing number of young job-seekers; overcrowding in schools and limited places at higher levels of education; increased involvement in crime and social vices (such as drug and alcohol abuse) linked to idleness and poverty; rural-urban migration by youths seeking work, leading to overcrowded urban and informal settlements; strain on health services; and early/teenage pregnancies linked to overcrowding and social pressures.

Answer: (b) Reasons for the small number of elderly people in Zambia: relatively low life expectancy caused by a high disease burden (including HIV/AIDS and malaria); widespread poverty limiting access to good healthcare and nutrition throughout life; historically high maternal and child mortality reducing the numbers who survive to old age; and generally weak healthcare infrastructure, especially in earlier decades, reducing survival into old age.

Question Q9 (Section C: Settlements and Population Studies). (a) Give reasons why the towns of Zambia have low density, medium density and high density residential areas [6]. (b) How do the three types of residential areas differ? [6]

Answer: (a) Reasons why towns have low, medium and high density residential areas: differences in the income levels of residents, since wealthier residents can afford larger plots (low density) while poorer residents are crowded onto small plots (high density); the legacy of colonial-era town planning, which zoned separate areas by race and class; the cost and availability of land, since land near the CBD is scarce and expensive, encouraging high-density development, while land further out is cheaper, allowing low-density plots; and government housing policy together with the uncontrolled growth of informal settlements adding further high-density areas.

Answer: (b) How the three types of residential areas differ: low-density areas have large plots and houses, wide roads, more gardens/greenery and good infrastructure (water, sewerage, electricity), occupied mostly by higher-income residents; medium-density areas have moderately sized plots and houses with reasonably adequate infrastructure, occupied by middle-income residents; and high-density areas have small, closely packed plots and houses, narrow roads/lanes and often poor or inadequate services, occupied mostly by low-income residents.

Question Q10 (Section C: Settlements and Population Studies). (a) What major things characterise a mining town? [6]. (b) How are mining towns similar to other towns? [6]

Answer: (a) Major things that characterise a mining town: its economy is dominated by mining activity, often with the mine as the single major employer; its population is relatively young and often skewed towards males, historically due to the migrant-labour system; it grows and declines rapidly in step with the life of the mine (boom-and-bust cycles tied to mineral prices); it typically has distinctive company-built housing/townships; and its infrastructure is heavily oriented towards mine operations (rail sidings, processing plants, workshops).

Answer: (b) How mining towns are similar to other towns: they have a Central Business District providing commercial and administrative services; they have residential areas of varying densities; they provide social services such as schools, hospitals and recreational facilities; and they perform service and administrative functions for the surrounding population, just as other categories of towns do.

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