Name: _____ ( ) **Class:** _____

WHITLEY SECONDARY SCHOOL

A Caring and Learning Community

Discipline * Integrity * Respect * Responsibility

END-OF-YEAR EXAMINATION 2022

SUBJECT	**:**	**GEOGRAPHY**
LEVEL	**:**	**SECONDARY TWO (G3)**
DATE	**:**	**7 October 2022**
DURATION	**:**	**1 hour 30 minutes**
TOTAL MARK	**:**	**50 marks**
SETTER	**:**	**Miss Tifany Tay and Miss Low Hooi Yee**
VETTER	**:**	**Mr Edward Nathan**

READ THESE INSTRUCTIONS FIRST
Do not turn the page unless you are told to do so.
Write in dark blue or black pen.
You may use a soft pencil for any rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer all the questions.

Candidates are encouraged to support their answers with the use of relevant examples.
Diagrams should be drawn whenever they serve to illustrate an answer.
At the end of the examination, fasten all your work securely together with Insert.
The number of marks is given in brackets [ ] at the end of each question or part question.

This paper consists of **16 pages** inclusive of this page.

Section A: Short Answer Questions

1. (a) Study Fig. 1, which shows the location of Gemopolis (circled in Fig 1), an industrial estate on the edge of Bangkok, Thailand.

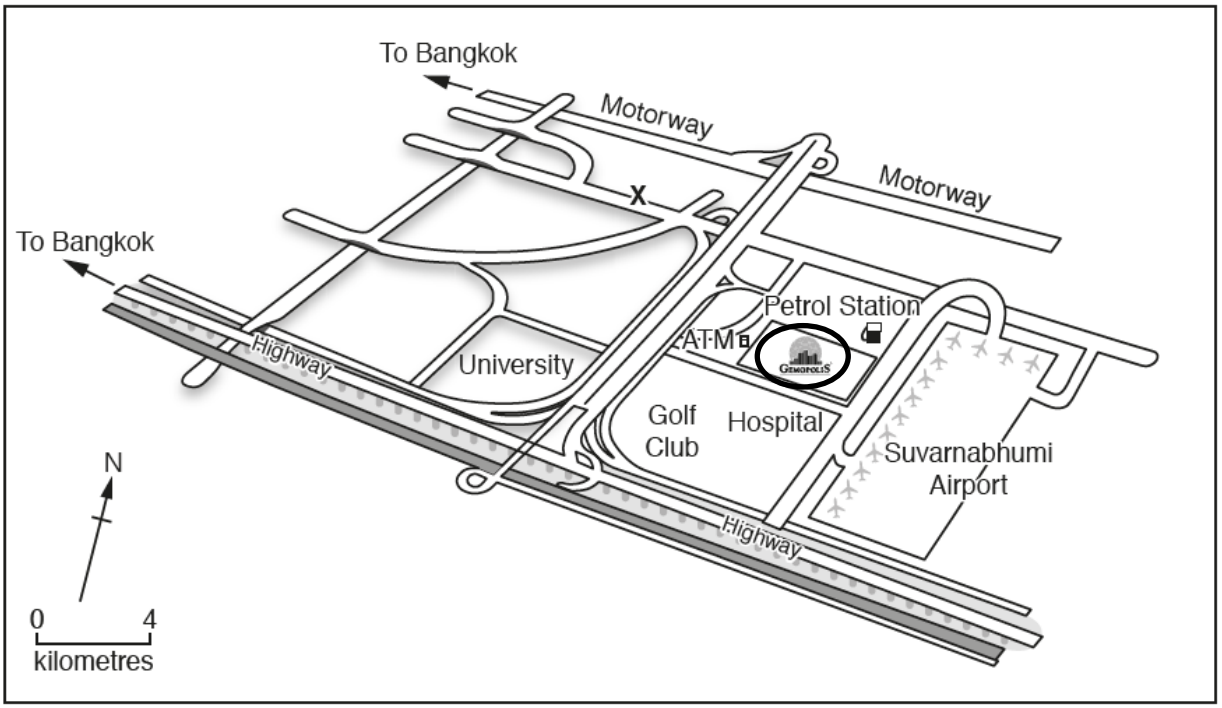


Fig. 1

(i) With reference to Fig. 1, state **three** transport features that make this location accessible.

1 _____

2 _____

3 _____ [3]

(ii) A worker at Gemopolis lives at X on Fig. 1. Using evidence from Fig. 1 only, suggest **two** advantages and **one** disadvantage of living at X.

Advantages: _____

_____

_____

_____

Disadvantage: _____

_____ [3]

(b) Study Fig. 2, which shows information about Berlin, a city in Germany (a Developed Country in Europe).

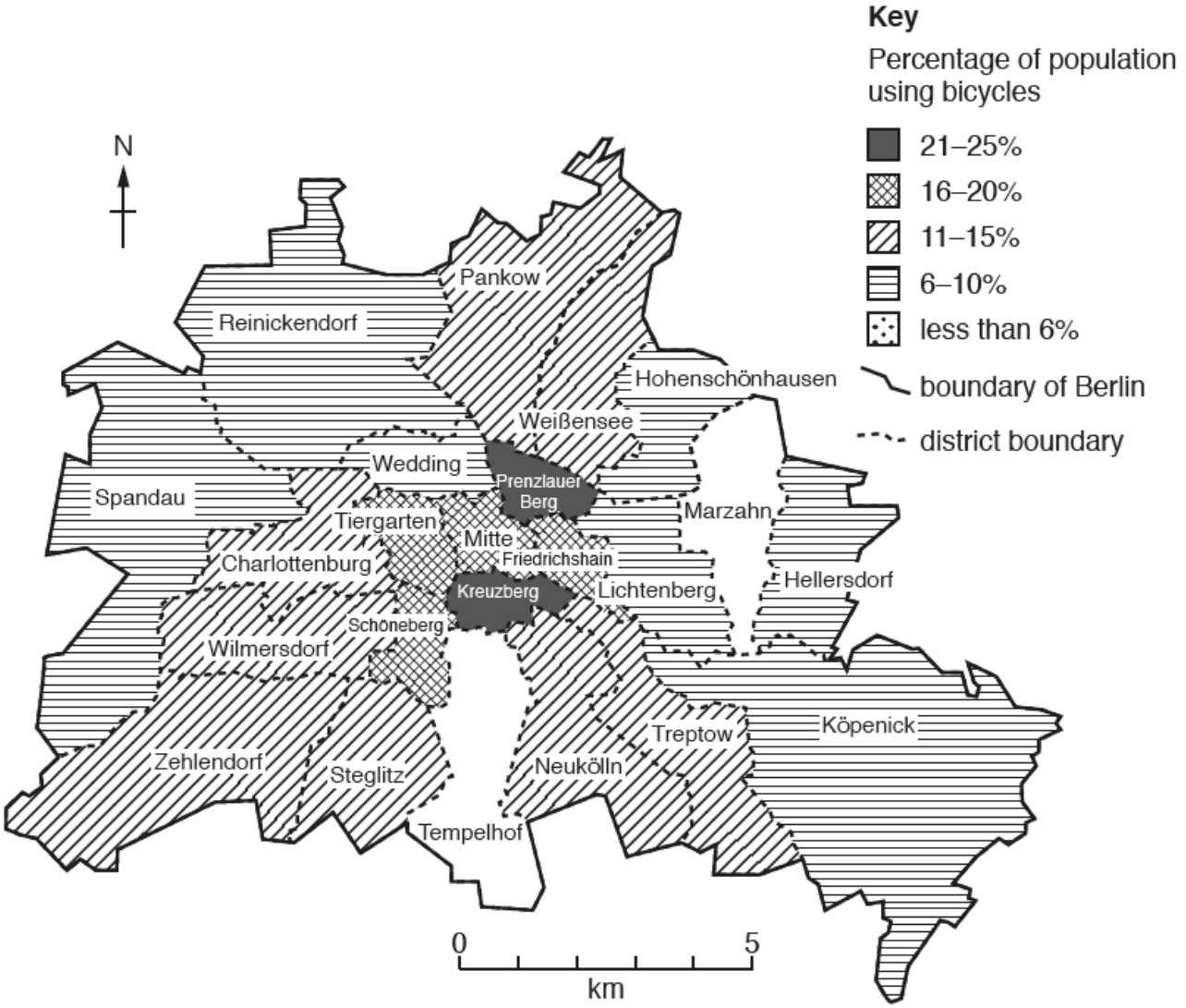


Fig. 2

(i) Put the following districts of Berlin in rank order according to the percentage of the population who use bicycles as a form of transport.

Charlottenburg Hellersdorf Kreuzberg

1st _____ highest

2nd _____ ↕

3rd _____ lowest

[1]

(ii) On Fig. 2, shade the following areas using the key provided:

- Marzahn: less than 6% of the population use bicycles;
- Tempelhof: 6 –10% of the population use bicycles.

[2]

(iii) Give **two** advantages of using bicycles in urban areas.

1 _____

_____

2 _____

_____ [2]

2. (a) Study Fig. 3, which shows information about the population and area of four countries.

Country	Area (square kilometres)	Population	Population Density (per square kilometre)
Chile	756 102	17 363 894	
France	643 801	66 259 012	102.9
Mauritania	1 030 700	3 516 806	3.41
Mongolia	1 564 116	2 953 190	1.89

Fig. 3

(i) Tick the statement in the table below which best defines population density.

Statement	**Tick (√)**
Many people live in a square kilometre of land.	
The total population who lives in the country.	
The average number of people who live in a unit of area	
A country which has high population growth.	

[1]

(ii) Calculate the population density of Chile. You should show your calculations below and round up your answer to the nearest whole number.

_____ per square kilometre [2]

(b) Fig. 4 shows the change of the rural population in the world between 1960 and 2015.

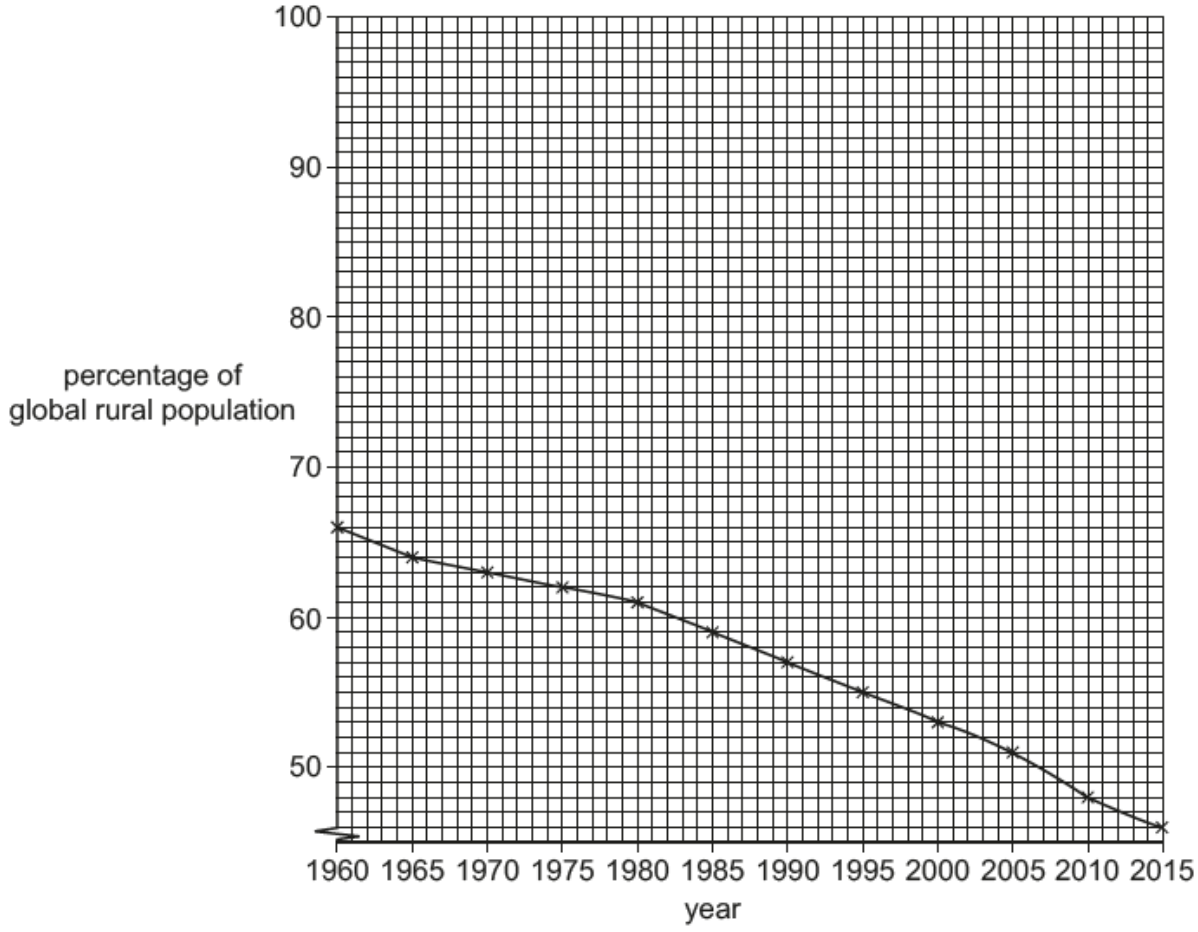


Fig. 4

(i) Using Fig. 4, state the percentage of global rural population in 1990.

_____ % [1]

(ii) Briefly describe the changes in global rural population shown in Fig. 4. Refer to statistics in your answer.

_____

_____

_____ [2]

(c) Table 5 shows the characteristics of people moving from a village to a local town.

Table 5

	percentage
Male	70
Female	30
Age (years):	
20–29	53
30–39	26
40–49	15
50–59	4
60 and above	2
Married	21
Single	79

(i) Which type of graph would be suitable to show the age data shown in Table 5.

_____ [1]

(ii) Using Table 5, state **two** main characteristics of the migrants moving from the village to the town.

_____

_____ [2]

[Total marks 20 marks]

Section B: Structured Question

3. (a) Study Fig. 6 and Fig. 7, which show the planned land supply (in hectares) allocated to different land uses in Singapore by the Ministry of National Development in 2010 and 2030 respectively.

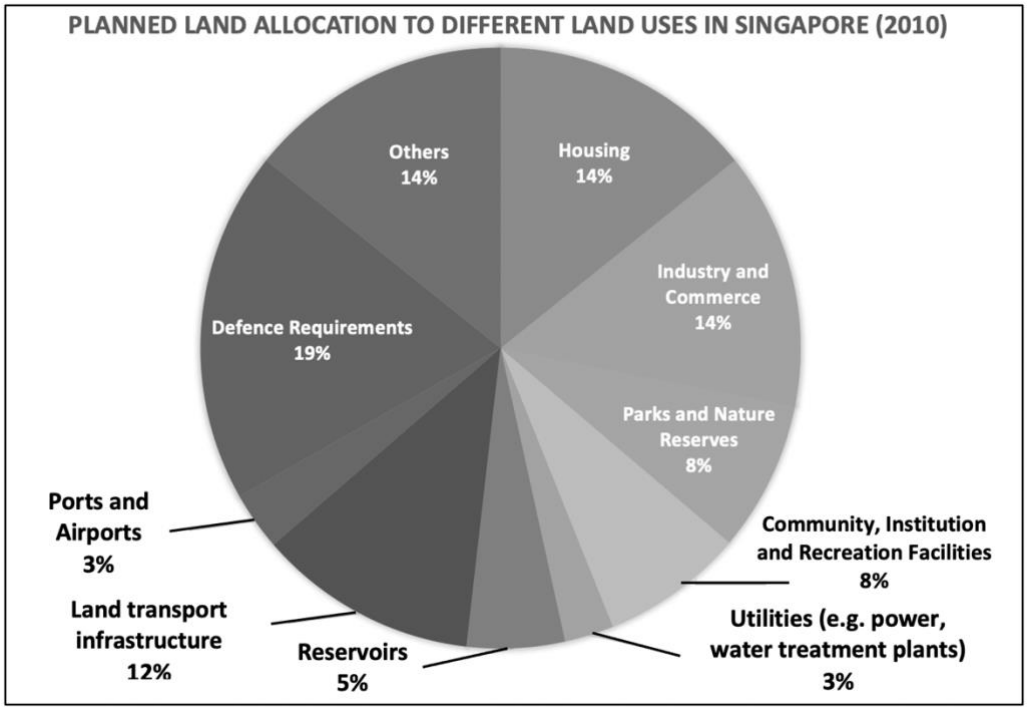


Fig. 6

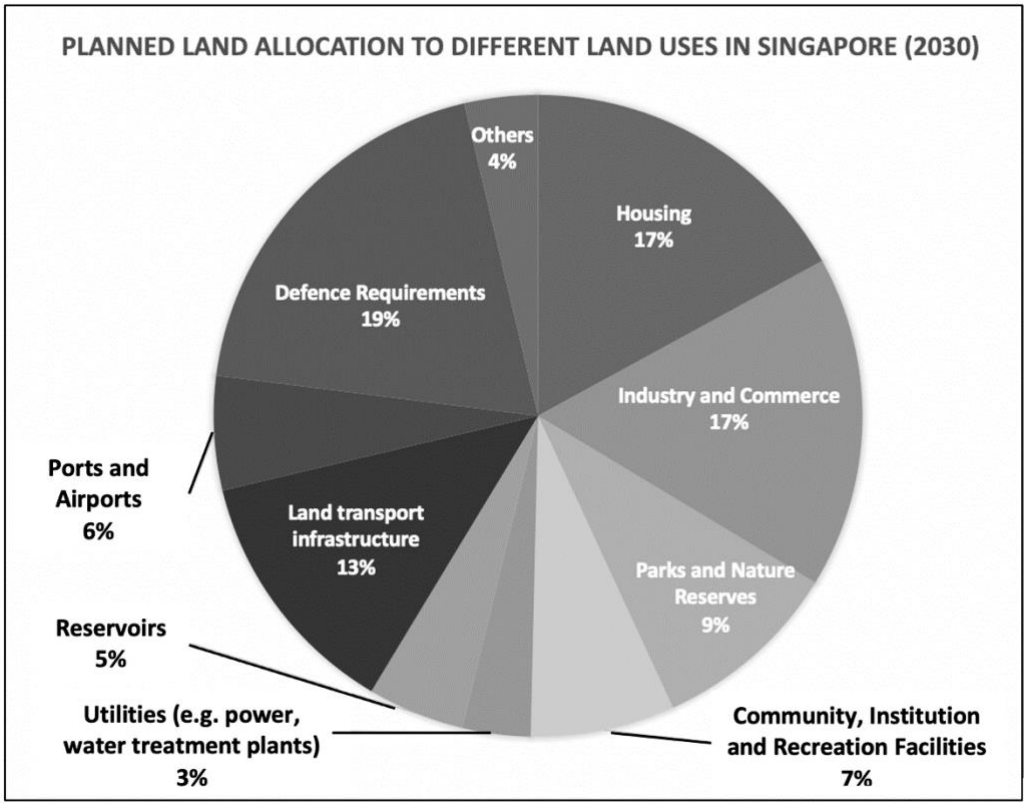


Fig. 7

(i) Using Fig. 6 and Fig. 7, compare the land use allocation in Singapore in 2010 and 2030.

_____

_____

_____

_____

_____ [2]

(ii) Suggest how the changes in land use allocation may affect the price of housing.

_____

_____

_____

_____

_____ [2]

(b) Compare the characteristics of formal and informal housing.

_____

_____

_____

_____

_____

_____

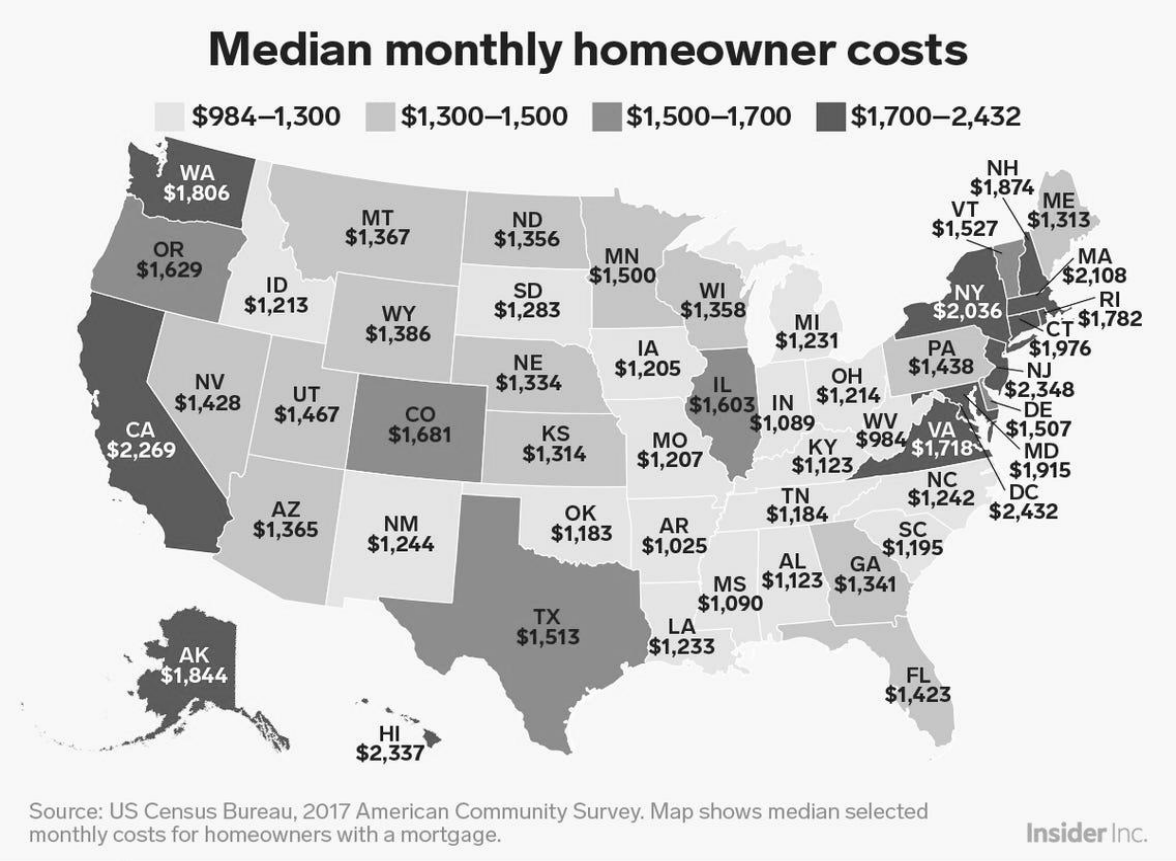
_____

_____

_____

_____ [4]

(c) Study Fig. 8, which shows the median monthly homeowner costs in the USA.



Median monthly homeowner costs – the average monthly costs spend on housing

Fig. 8

Which state would see most informal housing? Explain your answer using evidence from Fig. 8.

_____

_____

_____

_____

_____

_____

_____ [3]

(d) Using relevant examples, explain how formal housing improves the quality of life for residents.

[4]

4. **(a)** Study Fig. 9, which shows worldwide carbon dioxide emissions from the transportation sector between 1990 and 2020.

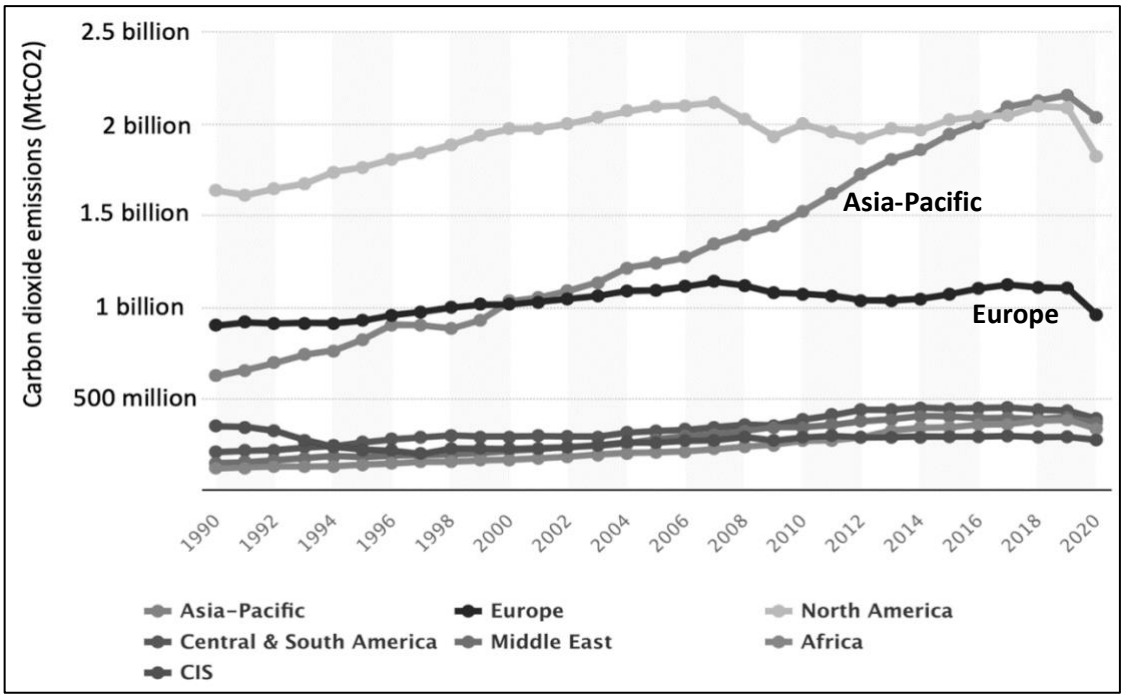


Fig. 9

Using Fig. 9, describe the changes in carbon dioxide emissions in the transportation sector for Asia-Pacific and Europe from 1990 to 2020.

_____

_____

_____

_____

_____

_____

_____

_____ [3]

(b) Study Fig. 10, which shows the carbon dioxide emissions per passenger per kilometre of different modes of transport.

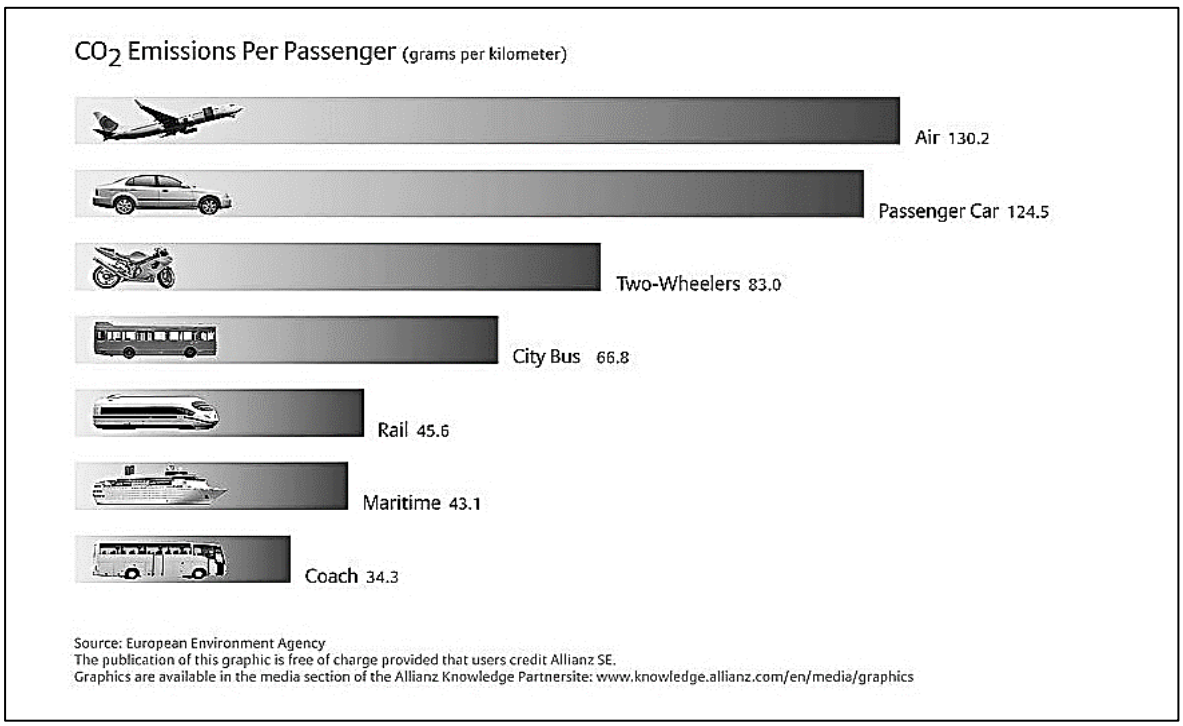


Fig. 10

With reference to Fig. 10, suggest **two** ways that we can travel more sustainably.

_____

_____

_____

_____ [2]

(c) **(i)** Describe traffic congestion.

_____

_____

_____

_____ [2]

(ii) Explain the impacts of traffic congestion on health and safety.

[4]

(d) Using relevant examples, explain how integrated land use and transport planning helps to sustainably manage transport systems.

[4]

[Total marks 30 marks]

END OF PAPER

Additional Page

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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SECONDARY TWO (G3) WSS EOY 2022
GEOGRAPHY
MARKING SCHEME

LEVEL: **SEC2 G3**
SETTER: **Low Hooi Yee**
Assessment Objectives 1+2 (knowledge and explanation) **46%**
Assessment Objectives 1+3 (knowledge and use of resources) **54%**

SECTION A (20 marks)			
Qn.	**Suggested Answers**	**Marks**	**AO**
1ai)	Study Fig. 1, which shows the location of Gemopolis, an industrial estate on the edge of Bangkok, Thailand. With reference to Fig. 1, state three transport features that make this location accessible. - Airport - Motorway / highway - Junction for access - Gas station / Petrol station - Routes to Bangkok / roads are connected	3@1m each, max 3m	**AO 1+3**
1aii)	A worker at Gemopolis lives at X on Fig. 1. Using evidence from Fig. 1 only, suggest **two** advantages and **one** disadvantage of living at X. Advantages: - Close to walk / can walk to work - Local facilities / golf club / hospital / ATM / gas station Disadvantage: - Lots of traffic - Noise from airport Did not accept the following for advantages - travel easily or more conveniently / able to go to Bangkok or airport easily / more roads to travel around Did not accept the following for disadvantages – may get into accidents / not safe / dangerous since many cars	2@1m each, 1@1m max 3m	
bi)	Study Fig. 2, which shows information about Berlin, a city in Germany (a Developed Country in Europe). Put the following districts of Berlin in rank order according to the percentage of the population who use bicycles as a form of transport. - Kreuzburg / Charlottenburg / Hellersdort	1m All 3 needed max 1m	
ii)	On Fig. 2, shade the following areas using the key provided: - Marzahn: less than 6% of the population use bicycles = dots - Tempelhof: 6 –10% of the population use bicycles = horizontal lines Few students did not shade / do this question and for Tempelhof, some shaded diagonal lines	2@1m each, max 2m	
iii)	Give **two** advantages of using bicycles in urban areas. - Reduces amount of vehicles being used / reduce traffic jams - No need to use large parking areas - Less emissions / air pollution / fumes - Not using fossil fuels - Low cost method of transport / cheaper - Healthy / exercise / breathing problems reduce - Less noise pollution - Get to places quicker *Accept any other plausible answers. No double credit or if answer is not written clearly / vague* *Did not accept:*	Any 2@1m each, max 2m	**AO 1+2**

<table>
<tr><td></td><td>

- *Urban areas have bicycle paths or lanes*
- *Less accidents when riding bicycles*
- *Help save the environment*
- *Promotes community spirit*

</td><td></td><td></td></tr>
<tr><td>2ai)</td><td>Study Fig. 3, which shows information about the population and area of four countries.
Tick the statement in the table below which best defines population density.

<table>
<tr><th>Statement</th><th>Tick (√)</th></tr>
<tr><td>Many people live in a square kilometre of land.</td><td></td></tr>
<tr><td>The total population who lives in the country.</td><td></td></tr>
<tr><td>The average number of people who live in a unit of area</td><td>√</td></tr>
<tr><td>A country which has high population growth.</td><td></td></tr>
</table>
</td><td>1m for instrument
1m for how to use it, max 2m

0 mark for S who ticked a few statements</td><td></td></tr>
<tr><td>2aii)</td><td>Calculate the population density of Chile. You should show your calculations below.
Calculation:
17 363 894 / 756 102 = <u>23 people</u> per square kilometre (Round up to the nearest whole number)</td><td>1m for working and 1m for correct answer, max 2m</td><td>AO 1+3</td></tr>
<tr><td>2bi)</td><td>Using Fig. 4, state the percentage of global rural population in 1990.
- 57%</td><td>1m</td><td></td></tr>
<tr><td>bii)</td><td>Briefly describe the changes in global rural population shown in Fig. 4. Refer to statistics in your answer.
- Percentage of global rural population has decreased from 1960 to 2015
- Decreased from 66% in 1960 to below 50% by 2015 / decreased by 20% / there is a X% decrease from YYYY to YYYY / X% decrease every other year</td><td>1m for change observed and 1m for use of data, max 2m</td><td></td></tr>
<tr><td>ci)</td><td>Which type of graph would be suitable to show the age data shown in Table 5.
- Bar graph OR pie chart</td><td>1m</td><td></td></tr>
<tr><td>cii)</td><td>Using Table 5, state two main characteristics of the migrants moving from the village to the town.
- Mostly male as Table 5 showed that 70% of male are migrants
- Mainly adults (53% from 20 to 29 years old and 26% from 30 to 39 years old)
- Migrants are mostly single, about 79%</td><td>Any 2@1m each, max 2m</td><td></td></tr>
<tr><td colspan="4">SECTION B (30 marks)</td></tr>
<tr><td>Qn.</td><td>Suggested Answers</td><td>Marks</td><td>AO</td></tr>
<tr><td>3ai)</td><td>Study Fig. 6 and Fig. 7, which show the planned land supply (in hectares) allocated to different land uses in Singapore by the Ministry of National Development in 2010 and 2030 respectively.
Using Fig. 6 and Fig. 7, compare the land use allocation in Singapore in 2010 and 2030.
- The proportion of land allocated for industry and commerce is higher/increased in 2030 at 17% as compared to 14% in 2010.
- The proportion of land allocated for defence requirements remains the same at 19% in 2010 and 2030.</td><td>Any 2 points @1m each.
Must use comparative language (not just</td><td>AO 1+3</td></tr>
</table>

	- The proportion of land allocated for community, institutions and recreation facilities is lower/decreased in 2030 at 7% as compared to 8% in 2010. - The proportion of land allocated for housing increases from 14% in 2010 to 17% in 2030. *Any other plausible answers*	list) e.g. higher/lower, increased/decreased Award up to 1m without data max 2m	
aii)	Suggest how the changes in land use allocation may affect the price of housing. - An increased proportion of land allocated to housing would mean greater supply of land for the government to build housing, **increasing supply of formal housing.** - This would make formal housing **more affordable / lower prices**. Other plausible answers: - Industry and commerce / transport infrastructure / other amenities are allocated to be built alongside housing would make it more desirable (more accessible / liveable) and **increase demand** [1m] - This would **increase prices**. Notes: - Reference to Fig. 7 where allocation of land for housing increased is not necessary for 2m - Need to show both **change in supply of / demand** for housing and **effect on price** for 2m - Only 1m if student indicated increased allocation of land for housing without linking to **increased supply** of housing	2 points @1m each max 2m Reference to	**AO 1+2**
b)	Compare the characteristics of formal and informal housing. - Developer: Formal housing is built by the government and private developers while informal housing is built by low-income individuals. - Legal rights: Formal housing is legally built where residents have the legal right to occupy the land and ownership of their property, while informal housing is illegally built on government or private land and residents may be evicted by legal owners of the land. - Access to basic services: Formal housing provides access to basic services such as water and electricity as it is built with the infrastructure to support these services *while* informal housing lacks access to basic services. - **Building materials**: Formal housing is made out of high-quality materials such as reinforced concrete while informal housing is made out of poor-quality materials such as wood and metal sheets. Other plausible answers: orderly vs disorderly / uniform vs disorganised; proximity to amenities vs little to no access to amenities; built in desirable areas nearby amenities vs undesirable / abandoned areas; formal in city centre vs informal in more inaccessible edges of city Not accepted: formal housing has variety of transport options while informal has limited options; safer (because…?); informal in rural vs formal in urban Note: - Students tend to write basic needs instead of basic services - Correct misconception that informal is found in rural areas while formal is found in urban areas!	1m per comparison. max 4m Students must write in a comparative format. E.g. A is … while B… Award up to 2m for points without elaboration e.g. 'They are built by different people.' / 'They differ in legal status.' / 'They are made out of different building materials.' Max 2m if only description and no comparison	**AO 1+2**
c)	Study Fig. 8, which shows the median monthly homeowner costs in the USA.		**AO 1+3**

	Which state would see most informal housing? Explain your answer using evidence from Fig. 8. - Most informal housing would likely be found in **DC** - This is because DC has the highest median monthly homeowner costs of $2,432. - As a result, many low-income residents who cannot afford to own the expensive homes in DC may turn to informal housing instead / many homeless people who sleep in the street Accepted: DC ($2,432) / NJ ($2,348) / other darkly shaded states but not listing multiple states Common issues: misreading Fig. 8 as showing income earned rather than costs of housing / thinking low costs indicates informal housing as informal housing is undesirable and thus have low value	3@1m each max 3m	
d)	Using relevant examples, explain how formal housing improves the quality of life for residents. - Formal housing provides **access to basic services** like clean water, electricity and sanitation. - This is essential in improving residents' quality of life as it **reduces the outbreak of diseases and improves people's well-being and overall health**. - Formal housing developments also provide **access to amenities** such as supermarkets, eateries and medical facilities. - The presence of such amenities allows residents to **readily access services that make their lives easier, raising their quality of life**. - Formal housing developments also tend to have **spaces for social gatherings**, such as community centres and playground. - These spaces allow residents to interact and build bonds with one another, leading to **a sense of belonging and inclusivity** for residents that improves their quality of life. - Formal housing is built of high quality materials that provide **shelter and protection** from the elements like heavy rain, strong winds or fires. - This provides residents with **a sense of safety and security**. - Formal housing is usually built **near well-developed transport infrastructure** like bus stops and MRT stations. - This makes the housing **highly accessible and brings convenience** to residents in travelling to access goods and services / workplaces. - Formal housing means residents have the legal right to occupy the land. - This gives them a **sense of security** as they do not have to worry about being evicted. - **Inclusive features** that cater to different groups like the elderly and disabled e.g. ramps - Allows everyone to have their needs met and **feel included and a sense of belonging**	Any 4 points @1m each max 4m Reserve 1m for example Max 2m per point (1m for describing the feature of formal housing; 1m for linking to quality of life) Max 1-2m if only list features Max 3m if only described the features of formal housing without **clear link to quality of life** (safety / security, comfort, convenience, accessibility etc.)	**AO 1+2**
4a)	Study Fig. 9, which shows worldwide carbon dioxide emissions from the transportation sector between 1990 and 2020. Using Fig. 9, describe the changes in carbon dioxide emissions in the transportation sector for Asia-Pacific and Europe from 1990 to 2020. General trends: • Asia-Pacific saw the **largest increase**, by about 1.4 million MtCO2. • Carbon dioxide emissions from the transportation sector in Europe **did not change much** over the years / **increased slightly** over	Any 3@1m each, reserve 1m for data. max 3m Award up to 2m if S only described one region, did not	**AO 1+3**

	the years, from 990 to 995 million (accept slight increase / remained constant at around 990 million) Exceptional trends: • **Slight dip** in carbon emissions in Asia Pacific **from 1996-1998, 2019-2020** • Carbon dioxide emissions in Europe **fluctuated slightly throughout the years from 1990 to 2018** • Gentle increase in carbon dioxide emissions in Europe **from 1990-2007** • Decrease in carbon dioxide emissions in Europe **from 2007-2012, 2019-2020** Note: Students are **penalised for lack of data, accuracy and analysis** - E.g. Students may have written 2 points but they will only receive 1m if they did not include data / included data but got the year wrong / only described year-on-year change Students who described change but did not specify the region or described the wrong region received 0m	include (accurate) data / only described year-on-year trend	
b)	Study Fig. 10, which shows the carbon dioxide emissions per passenger per kilometre of different modes of transport. With reference to Fig. 10, suggest **two** ways that we can travel more sustainably. - Taking rail or ship instead of flying (especially for short-haul destinations) - Take public transport (e.g. bus) instead of private vehicles (e.g. cars / two-wheelers) *Accept any other plausible answers* Note: For 2m, • Students should **state the alternative** to show how this mode is more sustainable (e.g. use rail or coach instead of passenger cars) - Strict over this because some modes (e.g. rail) is not necessarily more sustainable as there are other modes in Fig. 10 like maritime and coach that release lower emissions OR • **Explain why this mode is more sustainable** (e.g. city bus releases less emissions than cars) Since the question states **with reference to Fig. 10**, • Modes like walking / cycling are only accepted if referenced to other modes in Fig. 10 e.g. bicycles produce zero emissions unlike the other modes shown in Fig. 10 which all release carbon dioxide Not accepted: travel less / reduce amount of travelling; avoid ___ (e.g. cars) without stating alternative	2@1m each, max 2m	**AO 1+3**
ci)	Describe traffic congestion. - Traffic congestion occurs when road usage **approaches or exceeds road capacity**, - disrupting the smooth flow of traffic / slowing the flow of traffic / low vehicle speeds / causes long waiting times - It tends to **occur during peak periods** when many people are using the roads as they are rushing to school or work in the mornings or are on their way home from work in the evenings. - The constant start-stop of vehicles can **increase air pollution** that affects road users.	2@1m each, max 2m	**AO 1+2**

	Note: - Students must show understanding of excessive/large no of vehicles + traffic speed is slow / disrupted for 2m - Not accepted paraphrasing: road is jammed / congested (without defining what 'congest' means)		
ii)	Explain the impacts of traffic congestion on health and safety. - Vehicles burn more fuel when stationary or constantly starting and stopping due to traffic congestion, releasing **more pollutants** into the air. - Air pollution from vehicles **increases health risk,** causing respiratory problems such as breathing difficulties, eye irritation, lung infection and even lung cancer. - Traffic congestion can also negatively affect the **physical and emotional well-being** of those caught in traffic as drivers may become tired out and frustrated from the long travelling times. - Drivers may also display aggressive behaviour and lose concentration, increasing the risk of traffic accidents. - **Traffic noise** levels may also reach unhealthy levels, leading to physical and mental problems such as hearing impairment and mental stress. *Any other plausible answers* Accepted: longer for ambulances to arrive, leading to higher casualties as victims are unable to obtain medical aid in time Not accepted: acid rain, enhanced greenhouse effect and global warming (no link to health and safety), outrage of modesty (does not happen only during congestion)	Any 4@1m each, max 4m	**AO 1+2**
(d)	Using relevant examples, explain how integrated land use and transport planning helps to sustainably manage transport systems. Describe what integrated land use and transport planning is: - Transport planning refers to the process of forecasting the operation, provision and management of infrastructure and services for various transport modes to meet current and future usage needs. - Integrating land use and transport planning results in well-planned towns and cities with plenty of opportunities for employment, education, healthcare, recreation and other services. Explain how it makes transport more sustainable (socially / environmentally) - This would make **travelling more convenient, affordable and environmentally sustainable** - by reducing the travel time, the need to travel far or make frequent single trips as people are able to **readily access services and facilities** within their vicinity. Provide a relevant example - For example, the Land Transport Master Plan aims to develop, by 2040, **"20-minute towns" and a "45-minute city"** – the goal is for journeys made using public, active and shared modes of transport to neighbourhood centres and across the city to be completed within 20 minutes and 45 minutes respectively during peak periods Also accepted • People's lives are made easier / more convenient as they can readily access services and facilities, **improving their quality of life**.	1-2m: described measures; no explanation of sustainability 3-4m: clear links to environmental / social sustainability (with examples) Reserve 1m for example	**AO 1+2**

	• Reducing usage of transport would mean **a smaller carbon footprint**. • The accessibility of different places that residents need to travel to via public transport/active modes of transport like walking and cycling also **encourages the use of these modes of transport which release less greenhouse gas emissions**.		