



Western Australian Certificate of Education Examination, 2010

Question/Answer Booklet

GEOGRAPHY

Stage 3

Please place your student identification label in this box

Student Number: In figures

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In words

Time allowed for this paper

Reading time before commencing work: ten minutes
Working time for paper: three hours

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer Booklet
Multiple-choice Answer Sheet
Broadsheet

To be provided by the candidate

Standard items: pens, pencils, eraser, correction fluid/tape, ruler, highlighters

Special items: coloured pencils, dividers, drawing compass, string, protractor, non-programmable calculators satisfying the conditions set by the Curriculum Council for this course

Note: Atlases are not permitted

Section 3: Parts A & B			
Place ticks in boxes to indicate the questions you answered			
Part A			
Q 29	<input type="checkbox"/>	or	Q 30 <input type="checkbox"/>
Part B			
Q 31	<input type="checkbox"/>	or	Q 32 <input type="checkbox"/>

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of exam
Section One: Multiple-choice	20	20	30	20	20
Section Two: Short response	8	8	30	20	20
Section Three Part A: Extended response	2	1	120	60	60
Section Three Part B: Extended response	2	1			
Total					100

Instructions to candidates

- The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2010*. Sitting this examination implies that you agree to abide by these rules.
- Answer the questions according to the following instructions.

Section One: Answer all questions on the separate Multiple-choice Answer Sheet provided. For each question shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. If you make a mistake, place a cross through that square, do not erase or use correction fluid, and shade your new answer. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Sections Two and Three: Write answers in this Question/Answer Booklet.

- Wherever possible, candidates are encouraged to use relevant, **fully labelled sketch maps, diagrams and actual examples** to illustrate and support your answers.
- You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
- Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.
 - Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
 - Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

See next page

Section One: Multiple-choice

20% (20 Marks)

This section has **20** questions. Answer **all** questions on the separate Multiple-choice Answer Sheet provided. For each question shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. If you make a mistake, place a cross through that square, do not erase or use correction fluid, and shade your new answer. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Suggested working time: 30 minutes.

Refer to the Broadsheet for the **Perth Topographic Map – 1985** to answer questions 1–8.

1. What is the latitude and longitude of King Edward Memorial Hospital GR 882644?
 - (a) 115° 49'W 31° 7'S
 - (b) 115° 49'E 31° 57'S
 - (c) 31° 57'S 115° 49'W
 - (d) 31° 57'S 115° 49'E

2. What cultural feature is located at GR 907632?
 - (a) roundabout
 - (b) ANZAC Bluff
 - (c) car park
 - (d) war memorial

3. In what direction does a train travel from the West Perth train station to the Perth train station?
 - (a) east-north-east
 - (b) east
 - (c) east-south-east
 - (d) west-north-west

4. What is the approximate area of Perth Water from the Narrows Bridge GR 909629 to the eastern edge of the topographic map?
 - (a) 2.75 km²
 - (b) 3.25 km²
 - (c) 3.75 km²
 - (d) 2.50 km²

5. What is the closest bearing that a passenger ferry would take when travelling from the Jetty at GR 916621 to the Barrack Street Jetties at GR 919633?
 - (a) 199°
 - (b) 110°
 - (c) 290°
 - (d) 019°

See next page

6. Which best describes the type of slope that extends from the lake at GR 885627 to the lookout at GR 899628?
- (a) uniform
 - (b) concave
 - (c) convex
 - (d) undulating
7. Which of the routes between GR 889622 and GR 901631 has the steepest gradient?
- (a) Forrest Drive
 - (b) the cycleway merging with Forrest Drive
 - (c) Lovekin Drive
 - (d) none, because the gradient is the same by all three routes
8. Approximately how long will it take a Perth Cat bus travelling at an average speed of 30km/hr to travel from the corner of Adelaide Terrace and Plain Street (GR 935632) to the corner of Kings Park Road and Fraser Avenue (GR 906639)?
- (a) 3 minutes
 - (b) 6 minutes
 - (c) 9 minutes
 - (d) 12 minutes

Refer to the Broadsheet for the **Perth Aerial Photograph – 2009** and the **Perth Topographic Map – 1985** to answer question 9.

9. What was the previous land use of the site of the Perth Convention and Exhibition Centre located at point **A** on the aerial photograph?
- (a) built-up area
 - (b) parks and recreation
 - (c) lake
 - (d) car park

Refer to the Broadsheet for the **Perth Aerial Photograph – 2009**, and **Source 1: Graham Farmer Freeway Tunnel** to answer question 10.

10. In what direction does the entrance to the Graham Farmer Freeway tunnel GR 915651 face?
- (a) east-south-east
 - (b) west-north-west
 - (c) west-south-west
 - (d) east-north-east

Refer to the Broadsheet for **Source 2: Leederville Railway Station** to answer question 11.

11. Which combination of urban problems is being addressed most directly by the changes in land use that have occurred at GR 902656?
- (a) traffic congestion, pollution, urban sprawl
 - (b) traffic congestion, provision of services, water shortages
 - (c) traffic congestion, slums and blight, urban sprawl
 - (d) traffic congestion, loss of amenity, pollution

Refer to the Broadsheet for **Source 3: Subiaco GR 881648** and **Source 4: Subiaco GR 881649**, the **Perth Aerial Photograph – 2009**, and the **Perth Topographic Map – 1985** to answer question 12 and 13.

12. What major land use change occurred between 1985 and 2009 in the Subiaco redevelopment area located between GR 876650 and GR 890650?
- (a) low density housing changed to medium density housing with some retail/commercial
 - (b) medium density housing changed to high density housing with some retail/commercial
 - (c) light industrial changed to medium density housing with some retail/commercial
 - (d) retail/commercial changed to medium density housing and some light industrial
13. What is likely to have been the most important factor influencing the redevelopment of part of Subiaco (GR 876650 to GR 890650) as shown on the topographic map, the aerial photograph and **Source 3: Subiaco GR 881648** and **Source 4: Subiaco GR 881649**?
- (a) proximity to major medical facilities
 - (b) proximity to major public transport routes
 - (c) proximity to a major sporting facility
 - (d) proximity to the Perth CBD
14. Which of the following urban processes is **not** evident in **Source 3: Subiaco GR 881648** and **Source 4: Subiaco GR 881649**?
- (a) invasion and succession
 - (b) planning
 - (c) urban sprawl
 - (d) renewal/redevelopment
15. The ‘internal morphology’ of Perth is best described as
- (a) the study of Perth’s boundary.
 - (b) the physical landscape of Perth.
 - (c) the study of Perth’s built up area.
 - (d) the layout of functions and transport routes of Perth.

16. Which of the following urban processes is most likely to occur in Perth's rural-urban fringe?
- (a) blight
 - (b) shadow
 - (c) gentrification
 - (d) consolidation

Refer to the Broadsheet for **Source 5: Arctic sea-ice extent and CO₂** to answer questions 17–18.

17. Which statement best describes the information shown on the graph?
- (a) Both the extent of Arctic sea-ice and atmospheric CO₂ levels are increasing.
 - (b) Both the extent of Arctic sea-ice and atmospheric CO₂ levels are decreasing.
 - (c) There is a weak correlation between a decrease in atmospheric CO₂ levels and an increase in the extent of Arctic sea-ice.
 - (d) There is a strong correlation between an increase in atmospheric CO₂ levels and a decrease in the extent of Arctic sea-ice.
18. Which of the following inferences can best be drawn from the data?
- (a) An increase in atmospheric CO₂ levels is responsible for the decrease in the extent of Arctic sea-ice.
 - (b) An increase in atmospheric CO₂ levels is not responsible for the decrease in the extent of Arctic sea-ice.
 - (c) A reduction in the extent of Arctic sea-ice is leading to a decrease in atmospheric CO₂ levels.
 - (d) An increase in the extent of Arctic sea-ice is leading to an increase in atmospheric CO₂ levels.

Refer to the Broadsheet for **Source 6: Changes in the global carbon budget from 1850 to 2000** to answer questions 19–20.

19. Which of the following statements is correct?
- (a) The ocean sink absorbed eight gigatonnes of carbon per year (GtC/y) in the year 2000.
 - (b) Fossil fuel emissions have increased as a major source of CO₂ emissions over the last half century.
 - (c) The proportion of CO₂ in the atmosphere is decreasing.
 - (d) The amount of CO₂ in the land and the ocean is decreasing.
20. The global carbon budget from 1850–2000 best demonstrates that
- (a) the amount of carbon emitted by sources outweighed the amount of carbon absorbed by sinks.
 - (b) the amount of carbon absorbed by sinks outweighed the amount of carbon emitted by sources.
 - (c) the amount of carbon emitted by sources was equal to the amount taken up by carbon sinks.
 - (d) the amount of carbon in the atmosphere has stabilised.

End of Section One

See next page

Section Two: Short response

20% (20 Marks)

This section has **eight (8)** questions. Answer **all** questions. Write your answers in the spaces provided.

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Suggested working time: 30 minutes.

Question 21

(2 marks)

Describe **one** site feature and **one** situation feature of Perth.

Site feature:

Situation feature:

Question 22

(2 marks)

Refer to **Source 7: Perth demographic pattern of selected age groups** and describe the population distribution of people aged over 60 years and under five years living in the Perth metropolitan area.

Question 23

(2 marks)

Outline **two** factors that have affected the distribution of people in the Perth metropolitan area, who are aged over 60 years and under five years.

Factor one: _____

Factor two: _____

Question 24

(4 marks)

Factors impacting planning and management policies	
•	Environment
•	Economic
•	Social
•	Political

From the table above, choose **one** factor for Perth and a **different** factor for a megacity that you have studied. Discuss how the **two** factors you have chosen affect decisions about planning and management policies in Perth and your chosen megacity.

Perth – factor: _____

Name of megacity: _____ Factor: _____

Question 25

(2 marks)

Outline **one** piece of evidence used to support the concept of climate change over geological time.

Question 26

(2 marks)

For **either** an agricultural land use **or** an urban land use, name **one** human practice and explain how it affects climate change.

Question 27

(2 marks)

Choose **one** of the following natural processes and explain how it affects climatic cycles.

- | | | |
|---|---|--|
| <ul style="list-style-type: none">• solar output• orbital variations• geological patterns and processes | <ul style="list-style-type: none">• volcanoes• atmospheric gases and chemistry• El Niño and La Niña effects | <ul style="list-style-type: none">• Pacific decadal cycle• North Atlantic variations• polar ice variations• other |
|---|---|--|

Question 28

(4 marks)

Name a stakeholder and outline a proposed strategy that reflects their view on minimising the effects of climate change.

Name of stakeholder: _____

Proposed strategy: _____

View of stakeholder:

End of Section Two

See next page

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Section Three: Extended response**60% (60 Marks)**

This section contains **four (4)** questions. You must answer **two (2)** questions: **one (1)** from **Part A** and **one (1)** from **Part B**. Write your answers in the spaces provided.

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Suggested working time: 120 minutes.

Part A: Unit 3A – Geography of planning cities**Answer either question 29 or 30**

Question 29**(30 marks)**

- (a) Describe and account for the external morphology of Perth. (6 marks)
- (b) Outline and discuss **two** major urban problems that have resulted from interactions and processes in Perth and in a megacity that you have studied. The problems do not have to be common to both cities. (12 marks)
- (c) Evaluate the extent to which **two** planning practices implemented in Perth reflect the principles of sustainability. (12 marks)

or

Question 30**(30 marks)**

- (a) With reference to an urban spatial model, describe the internal morphology of Perth. (6 marks)
- (b) Identify **two** urban processes and explain the changes in interactions and patterns that they bring about with respect to Perth and a megacity that you have studied. The processes do not have to be common to both cities. (12 marks)
- (c) Evaluate **two** planning strategies that address a current urban problem in Perth. (12 marks)

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Part B: Unit 3B – Geography of climate change

Answer **either** question 31 **or** 32

Question 31**(30 marks)**

- (a) Define the concepts of 'sustainability', 'climate change' and 'the greenhouse effect'.
(6 marks)
- (b) Using information obtained from **Source 8: World biomes**, **Source 9: World agriculture & major urban areas**, **Source 10: Projected changes in precipitation** and **Source 11: Projected changes in temperature**, explain the likely impact of climate change on spatial patterns in the natural and cultural environments.
(12 marks)
- (c) With reference to **either** agriculture **or** human settlement and industry, discuss at least **two** strategies that have been, or could be, implemented in order to reduce the adverse effects of climate change.
(12 marks)

or

Question 32**(30 marks)**

- (a) Outline the key elements of **one** of the following natural systems that drive the earth's climates:
 - heat budget
 - hydrological cycle
 - carbon cycle
 - atmospheric circulation
(6 marks)
- (b) Using information obtained from **Source 8: World biomes**, **Source 9: World agriculture & major urban areas**, **Source 10: Projected changes in precipitation** and **Source 11: Projected changes in temperature**, examine how climate change is likely to impact on the spatial patterns of either agriculture or human settlement.
(12 marks)
- (c) Discuss how **either** agriculture **or** human settlement and industry have adapted (or may be required to adapt) to climate change.
(12 marks)

End of questions

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