INSTRUCTIONS

1. Fill in your name, school code (your teacher will give you this), school’s postcode, your gender and age. **You must fill in the ovals**, not just write the letters and numbers, as the computer only reads the ovals. For example, a filled-in postcode (for some other school) would look like the sample on the right. Also fill in an oval in the school assigned column if instructed to do so by your teacher. Otherwise leave it blank.

2. If you are 13 years or under on 31 August 2015 complete Questions 1-30.

3. If you are 14 or 15 years old on 31 August 2015 complete Questions 1-40.

4. If you are 16 to 18 years old on 31 August 2015 complete Questions 16-50.

5. Answer all questions by filling in **only one** oval on the answer sheet corresponding to the most appropriate answer for each question. If you change your mind, you must **erase** the wrong answer so that only one oval is filled in for each question.

6. You have 35 minutes to answer the questions. The time to fill in the preliminary information is extra.

7. Do not mark the front or back of the answer sheet in any other way as this can lead to errors in the computerised marking, or to your not getting a result.
1 From Figure 1, what is Darwin’s average annual rainfall?
   A between 600 and 1000 mm
   B between 1000 and 1500 mm
   C between 1500 and 2000 mm
   D between 2000 and 3000 mm
   E above 3000 mm

2 From Figure 1, which state or territory has the driest climate overall?
   A New South Wales
   B Northern Territory
   C Queensland
   D South Australia
   E Western Australia

3 From Figure 2, when did Horsham receive the most rain in 2014?
   A autumn and winter
   B spring and summer
   C summer and autumn
   D summer and winter
   E winter and spring
4 Using Figures 1 and 2, was Horsham’s 2014 rainfall:
   A about average
   B above average
   C below average
   D more than 400 mm above average
   E more than 400 mm below average

5 One benefit of the process shown in Figure 3 is that it uses:
   A fresh water
   B ground water
   C melted ice
   D salt water
   E water vapour

6 What do some protesters see as a disadvantage of the process shown in Figure 3?
   A It affects the marine environment at the waste outlet.
   B It does not produce water suitable for drinking.
   C It takes unsustainable amounts of water from aquifers.
   D Its production is greatly reduced in times of drought.
   E all of the above

7 Why does Dubai, in the United Arab Emirates, rely on the technology in Figure 3 for nearly 99% of its water supply?
   A Dubai needs less water as tourist numbers are falling.
   B Dubai’s average annual rainfall is less than 100 mm.
   C It is cheaper than taking water from rivers.
   D It uses a lot of energy.
   E Rising sea levels flooded Dubai’s dams.

8 Which of these is a primary source of data that could be used in a liveability study?
   A census website
   B climate graph
   C interviews with local residents
   D newspaper article on local crime
   E population pyramid

9 The text in Figure 4 describes the settlement of:
   A Australia
   B Canada
   C Mexico
   D New Zealand
   E United States of America

10 Which of these farming practices reduces soil erosion?
   A leaving paddocks bare between crops
   B ploughing down the slope of hills
   C removing vegetation beside watercourses
   D retaining stubble after harvest
   E tilling the soil to remove weeds

11 The consumption of coffee, tea and chocolate in Australia has contributed to the clearing of which type of vegetation in other countries?
   A grassland
   B rainforest
   C savannah
   D tundra
   E woodland
Figure 5. Topographic map, 2015

© The State of Queensland © Commonwealth of Australia (Geoscience Australia)
12 The area shown in Figure 5 is representative of which type of landscape?
A arid
B coastal
C karst
D mountain
E volcanic

13 What runs along the eastern boundary of Banksia Beach S.S. (B3 Figure 5)?
A 4WD track
B high voltage transmission line
C local road
D major road tunnel
E walking trail

14 In which direction is the marina (A6) from the Fire Station (C5)?
A ENE
B NE
C SW
D W
E WSW

15 What is the distance across the water spanned by Bribie Bridge (B6)?
A 330 m
B 740 m
C 830 m
D 1.4 km
E 3.3 km

Start at Question 16 if you are 16 to 18 years old on 31 August 2015. If you are younger, continue answering questions.

16 What is the scale of the map in Figure 5?
A 1:2,500
B 1:10,000
C 1:25,000
D 1:50,000
E 1:100,000

17 What is located at grid reference 152064 in Figure 5?
A lake
B national park
C police station
D waterfront
E Welsby Parade
18 Which sketch in Figure 6 best represents the terrain and land-use between points X and Y in Figure 5?
A sketch A
B sketch B
C sketch C
D sketch D
E sketch E

19 Using Figures 5 and 7, what is located at ‘R’ on the Landsat image?
A Banksia Beach S.S.
B Cosmos Park
C major commercial centre
D marina
E police station

20 What is the land cover at ‘Q’ in Figure 7 likely to be?
A airport
B beach
C built-up area
D national park
E swamp

21 Compare the area in B4-C4 (Figure 5) with the same area in the 1994 image (Figure 7). Which of these statements is correct?
A The area is a good example of habitat protection.
B Fewer people now live in the area.
C The mangrove community now occupies more area.
D There is an increased nursery area for aquatic species.
E Urban development has replaced the wetland ecosystem.

22 Which statement best fits the statistics in Table 1?
A Applying fertiliser above the optimum rate is wasteful.
B Applying fertiliser does not increase the yield.
C Canola needs fertiliser to grow.
D Yield decreases at the same rate as fertiliser is applied.
E Yield increases at the same rate as fertiliser is applied.

Table 1. Effects of nitrogen fertiliser on yield of canola in the Victorian Wimmera

<table>
<thead>
<tr>
<th>Fertiliser applied (kg/ha)</th>
<th>Grain yield (t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.6</td>
</tr>
<tr>
<td>70</td>
<td>2.5</td>
</tr>
<tr>
<td>140</td>
<td>2.5</td>
</tr>
<tr>
<td>210</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Source: R. Norton & N. Wachsmann

© United States Geological Survey
23. From Figure 8, when is there likely to be the smallest NET transport of material under Bribie Bridge?
A. autumn  
B. spring  
C. summer  
D. summer and spring are equal  
E. winter

24. Given the longshore drift shown in Figure 8, which of these is most likely to form?
A. a fringing coral reef around Bribie Island  
B. a sea cave at the northern end of Bribie Island  
C. a sea cave at the southern end of Bribie Island  
D. a spit at the northern end of Bribie Island  
E. a spit at the southern end of Bribie Island

25. The reasons why people migrate can be classified as push or pull factors. Which of these is a PUSH factor for people moving from rural to urban areas in China?
A. Cities are centres of culture and tradition.  
B. Cities have higher-priced housing.  
C. Rural areas have cleaner environments.  
D. Rural areas have limited employment opportunities.  
E. Urban areas are drivers of economic development.

26. The vegetation shown in Figure 9 is most typical of areas with which climate?
A. hot and wet all year  
B. long hot summer, mild winter  
C. short summer, very cold winter  
D. warm summer, very cold winter  
E. warm wet summer, dry winter

27. In Figure 10, which industry’s name has been blocked out?
A. agriculture  
B. manufacturing  
C. mining  
D. retail  
E. tourism

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**Figure 8.** Modelled transport of material under Bribie Bridge  
Source: Moreton Bay Regional Council

**Figure 9.** © FreeBigPictures.com

**Figure 10.** Stop over-exploiting environment  
Source: adapted from Jakarta Post, 2 September 2011
28  With which country does Australia have the most two-way trade?
   A China
   B Japan
   C Singapore
   D South Korea
   E United States of America

29  From Figure 11, which city is projected to have the highest growth RATE between 1973 and 2053?
   A Adelaide
   B Brisbane
   C Melbourne
   D Perth
   E Sydney

30  Governments need to manage rapid urban growth to:
   A keep people connected through efficient transport links
   B maintain the environmental quality of the city’s air and water
   C preserve parts of the natural landscape for its recreational and spiritual values
   D reduce differences in accessibility to services in inner and outer areas
   E all of the above

If you are under 14 years old on 31 August 2015 stop at Question 30. If you are older, continue answering questions.

31  The Balinese worldview, *Tri Hita Karana*, focuses on living in harmonious balance with people, nature and the gods. Which geographical concept does this best illustrate?
   A change
   B place
   C scale
   D space
   E sustainability

32  From Table 2, in which population group is the gap between Indigenous and non-Indigenous life expectancy greatest?
   A females living in cities and inner regional areas
   B females living in outer regional and remote areas
   C males living in cities and inner regional areas
   D males living in outer regional and remote areas
   E there is no discernible gap

Table 2. Australians’ life expectancy at birth, 2010-12

<table>
<thead>
<tr>
<th>Population group</th>
<th>Cities and inner regional</th>
<th>Outer regional and remote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous*</td>
<td>68.0</td>
<td>67.3</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>79.9</td>
<td>78.5</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous*</td>
<td>73.1</td>
<td>72.3</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>83.0</td>
<td>82.5</td>
</tr>
</tbody>
</table>

* Aboriginal and Torres Strait Islander

Figure 11. Estimated and projected populations for Australia’s larger capital cities

Source: Australian Bureau of Statistics

Source: Australian Bureau of Statistics

* Australian Bureau of Statistics

* Aboriginal and Torres Strait Islander

* Australian Bureau of Statistics
33. Which statement about influences on life expectancy is correct, based on the data in Table 2?
   A. People's indigenousness has more influence than where they live.
   B. People's indigenousness has no influence.
   C. Where people live has more influence than their gender.
   D. Where people live has more influence than their indigenousness.
   E. Where people live has no influence.

34. The data in Table 2 includes an example of:
   A. an anomaly
   B. random distribution
   C. relative location
   D. spatial association
   E. a trend

35. The most likely reason that people living in cities and inner regional areas can expect to live longer is because they:
   A. are more likely to have office jobs
   B. have better access to medical services
   C. lead more active lifestyles
   D. live in environments with less air pollution
   E. none of the above

37. Which of these is a quantitative indicator of human wellbeing?
   A. community vitality
   B. cultural resilience
   C. good governance
   D. life satisfaction
   E. years of schooling

38. The serious outbreak of ebola in West Africa in 2014 has severely affected Guinea, Liberia and:
   A. Kenya
   B. Morocco
   C. Namibia
   D. Sierra Leone
   E. Tunisia

39. Which international organisation is coordinating the response to the ebola outbreak?
   A. IMF
   B. UNESCO
   C. UNHCR
   D. WHO
   E. WMO

40. Which of these was NOT a factor in the seriousness of the ebola outbreak?
   A. The disease spread to densely populated cities.
   B. Ebola is very infectious as it is an air-borne disease.
   C. The health infrastructure in the three countries is very weak.
   D. Local cultural practices ensured physical contact with the dead and dying.
   E. Tracking of cases across the three countries was poorly coordinated.

Figure 12. Network models
Source: adapted from J. Willbanks

36. The three networks illustrated in Figure 12 are, from 1 to 3:
   A. centralised, decentralised, distributed
   B. decentralised, centralised, grid
   C. distributed, grid, random
   D. radial, random, centralised
   E. random, radial, distributed

If you are under 16 years old on 31 August 2015 stop at Question 40. If you are older, continue to the end of the questions.
In Australia the McArthur Forest Fire Danger Index (FFDI) is widely used to forecast the influence of weather on fire behavior, and is a key tool for assessing fire danger. It is based on the temperature, wind speed and relative humidity at mid-afternoon, rainfall in the previous 24 hours, and the Drought Factor. The Drought Factor represents the influence of recent temperature and rainfall events on fuel availability.

**Figure 14. McArthur Forest Fire Danger Index**

Source: adapted from Centre for Australian Weather and Climate Research

**Figure 15. Time series of FFDI components at Canberra for the days around the Canberra bushfires on 18 January 2003**

Source: Centre for Australian Weather and Climate Research
44 What caused the subsequent wind shift that made the Ash Wednesday fires so dangerous?
A cold front moving east
B cold front moving west
C Coral Sea low pressure system moving north
D Coral Sea low pressure system moving south
E high pressure system moving west

45 Study Figures 14 and 15. Which weather factors on 18 January 2003 contributed to the Canberra bushfires?
A average rainfall, mild temperatures, low humidity, strong winds
B low rainfall, high temperatures, high humidity, strong winds
C low rainfall, low temperatures, low humidity, moderate winds
D no rainfall, high temperatures, low humidity, strong winds
E no rainfall, mild temperatures, low humidity, no wind

46 Which important factor in predicting fire behaviour is missing from the Forest Fire Danger Index (Figures 14 and 15)?
A fire-fighting personnel
B local government area
C population density
D soil type
E topography

47 Using Figures 14 and 15, which of these days had the most dangerous fire conditions?
A 24 December 2002
B 3 January 2003
C 14 January 2003
D 30 January 2003
E 5 February 2003

48 A major aim of prescribed burning is to mitigate the impacts of bushfires on life and property, mainly by:
A altering vegetation types
B maintaining biodiversity
C preventing fires from starting
D reducing fuel loads
E researching fire behaviour
49 Which of these statements is supported by the data in Table 3 on bushfires in Victoria from 1976-77 to 1995-96?

A  More fires were from accidental causes, than from natural or deliberate causes.
B  More fires were from natural causes, than from accidental or deliberate causes.
C  More fires were the result of arson, than from natural or accidental causes.
D  Most fires were caused by farmers.
E  Most fires were caused by tourists.

50 Using Table 3, an individual fire from which cause is statistically most likely to burn the greatest area?

A  deliberate
B  lightning
C  miscellaneous (buildings, fireworks, etc)
D  prescribed burn escapes
E  public utilities

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**Table 3. Causes of bushfires in Victoria, 1976-77 to 1995-96**  
Source: Dept. of Sustainability and Environment

<table>
<thead>
<tr>
<th>Fire cause</th>
<th>Average no. of fires per year</th>
<th>Average area burnt ha/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightning</td>
<td>149</td>
<td>53 096</td>
</tr>
<tr>
<td>Deliberate</td>
<td>145</td>
<td>15 649</td>
</tr>
<tr>
<td>Agricultural</td>
<td>96</td>
<td>7 799</td>
</tr>
<tr>
<td>Campfires</td>
<td>59</td>
<td>1 466</td>
</tr>
<tr>
<td>Cigarettes/matches</td>
<td>41</td>
<td>444</td>
</tr>
<tr>
<td>Cause unknown</td>
<td>37</td>
<td>2 974</td>
</tr>
<tr>
<td>Miscellaneous (a)</td>
<td>26</td>
<td>10 009</td>
</tr>
<tr>
<td>Machinery/exhausts</td>
<td>15</td>
<td>2 551</td>
</tr>
<tr>
<td>Prescribed burn escapes</td>
<td>9</td>
<td>5 274</td>
</tr>
<tr>
<td>Public utilities (b)</td>
<td>7</td>
<td>16 256</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>584</strong></td>
<td><strong>115 518</strong></td>
</tr>
</tbody>
</table>

(a) Includes causes like burning buildings and fireworks
(b) Includes ignitions from trains and power transmission

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