CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT

Paper 2

0680/23

October/November 2016

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **both** questions.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **16** printed pages.

**[Turn over**

**1 (a) (i)** State what is meant by the term *earthquake*.

...................................................................................................................................................

..............................................................................................................................................[1]

**(ii)** Look at the maps opposite.

Describe the global distribution of earthquakes.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................
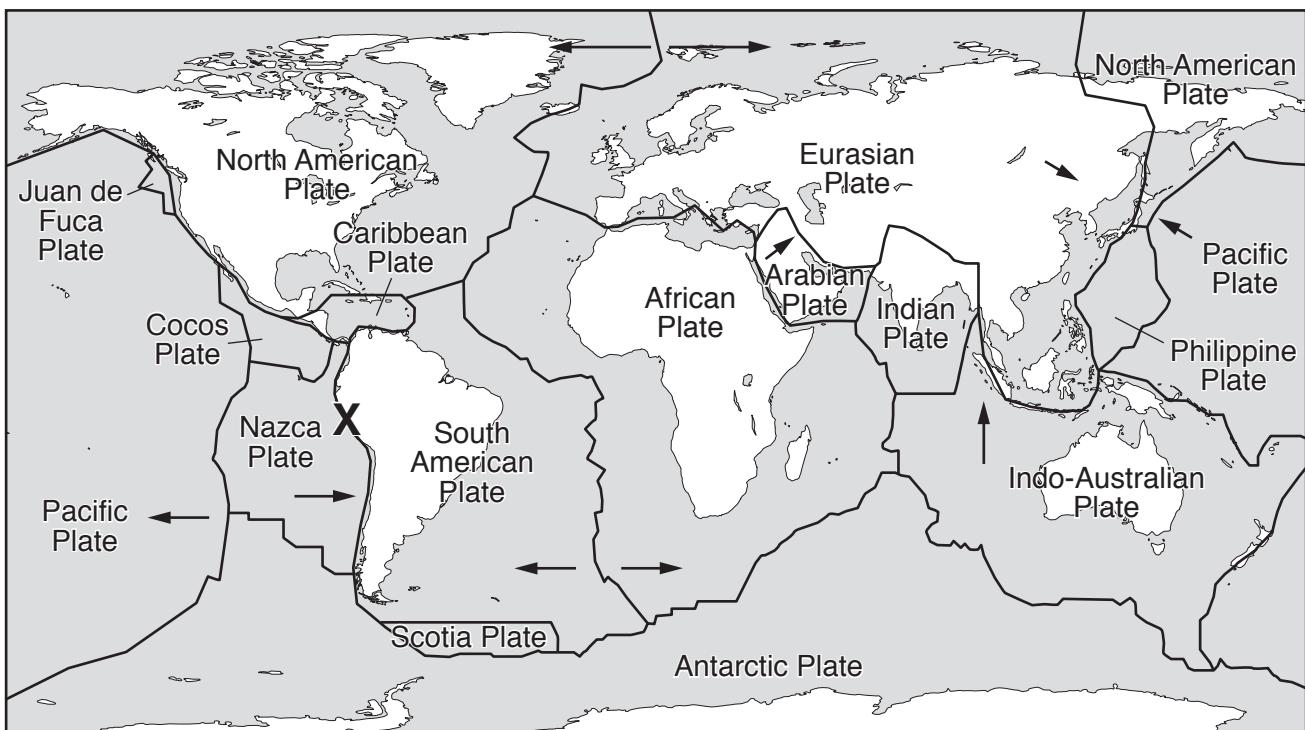
..............................................................................................................................................[3]
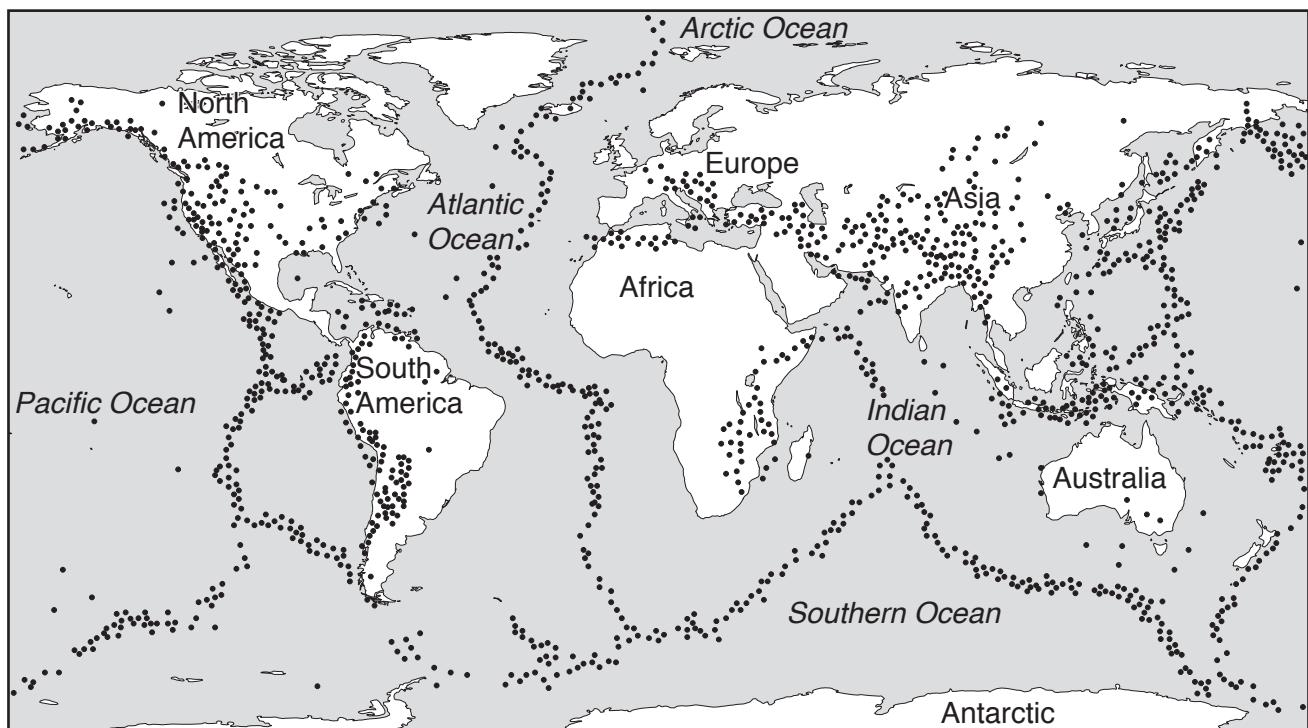
**(iii)** Look at the map, which shows plate boundaries. Explain how earthquakes are formed at location **X**.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

..............................................................................................................................................[4]

**Key**

⌇ plate boundary

→ direction of plate movement



**Key**
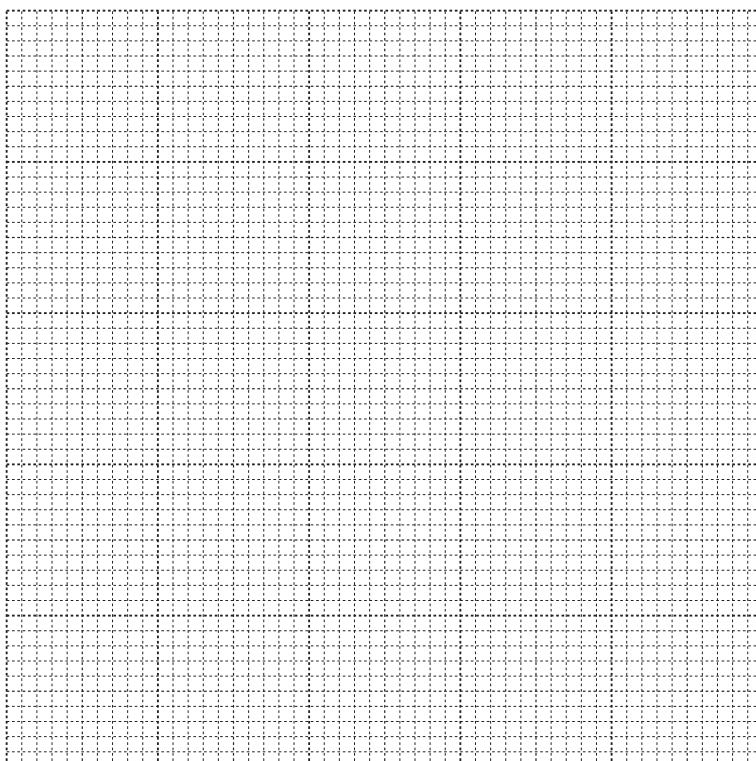
∴ earthquake zones

**(b)** Look at the table below, which gives information about the magnitude (strength) of some earthquakes in different parts of the world and the number of deaths that they caused.

| location of earthquake | magnitude | deaths |
|---|---|---|
| Indonesia | 9.1 | 228 000 |
| United States of America | 7.8 | 3000 |
| China | 7.5 | 243 000 |
| Italy | 7.2 | 72 000 |

**(i)** Draw a bar graph to show the information about **magnitude** from the table. [4]

**(ii)** Rewrite the locations of the earthquakes in rank order for the number of deaths in the space provided below. [2]

highest

1 ......................................................

2 ......................................................

3 ......................................................

4 ......................................................

lowest

**(iii)** Look again at the table. State what is unusual about the information for the United States of America.

...................................................................................................................................
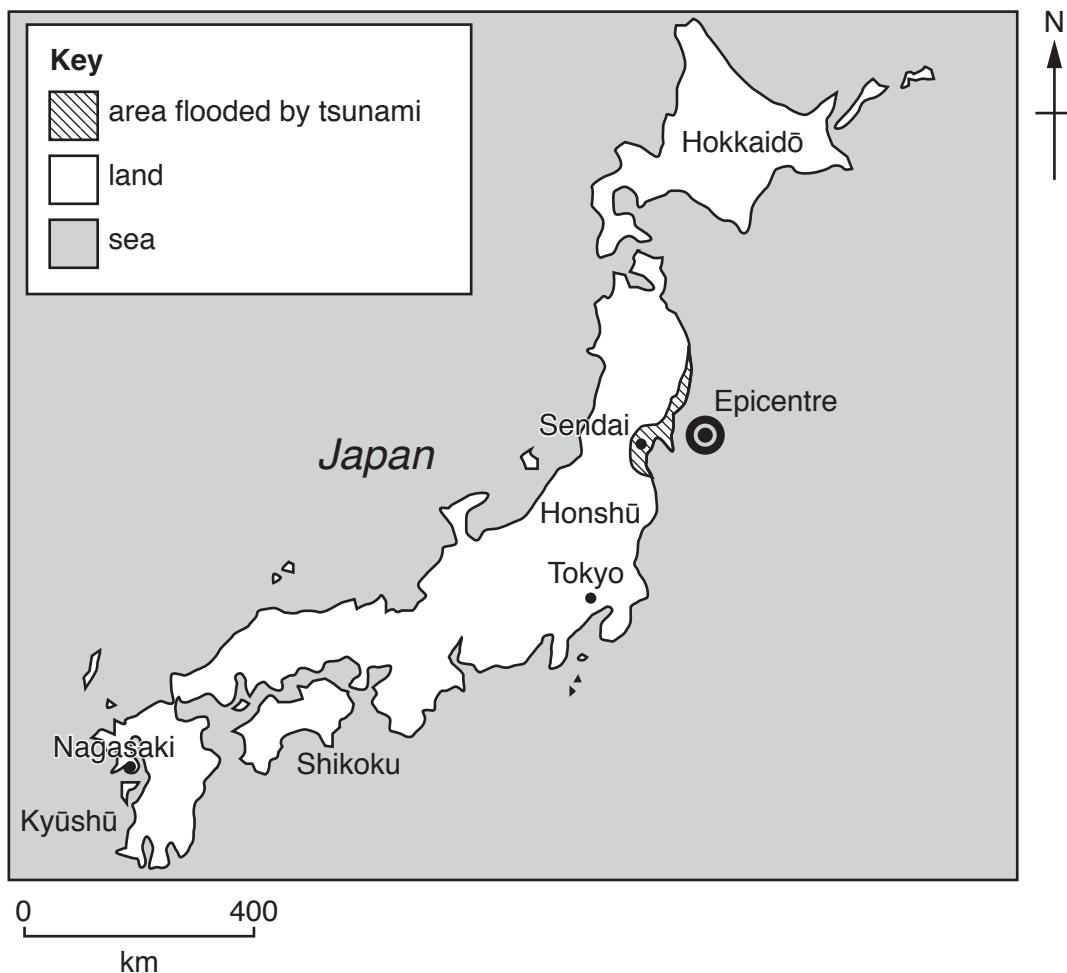
..............................................................................................................................[1]

**(iv)** Describe strategies that countries can use to manage the impacts of earthquakes.

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

..............................................................................................................................[4]

**(c)** Look at the map below, which shows information about a recent earthquake in Japan. The earthquake caused a tsunami (huge wave).



**(i)** Suggest why Sendai was more affected by this earthquake (and resulting tsunami) than Nagasaki.

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.........................................................................................................................................[3]

**(ii)** Look at the photographs below, which show the impact of the earthquake (and resulting tsunami) in Japan.





Suggest ways in which earthquakes impact upon people both immediately after the disaster and in the months that follow.

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................[5]

**(d) (i)** Read the information below about river flooding in the United States of America.

In April and May 2011 the Mississippi River flooded. This was caused by storms with very heavy rainfall in the area around the Mississippi River. The heavy rainfall came at the same time as the spring snow-melt. Thousands of homes had to be evacuated. A large channel was opened allowing water to flow from the river onto the surrounding land, flooding 12 000 square kilometres. This strategy meant that cities close to the Mississippi River were saved from the worst of the flooding.

Complete the table below with **one** example of each. [3]

| river | Mississippi |
|---|---|
| cause of flooding | ......................................................... |
| impact | ......................................................... |
| how managed | ......................................................... |
| date | April and May 2011 |
| country | United States of America |

**(ii)** Explain how deforestation can increase the risk of river flooding.

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................

...................................................................................................................................
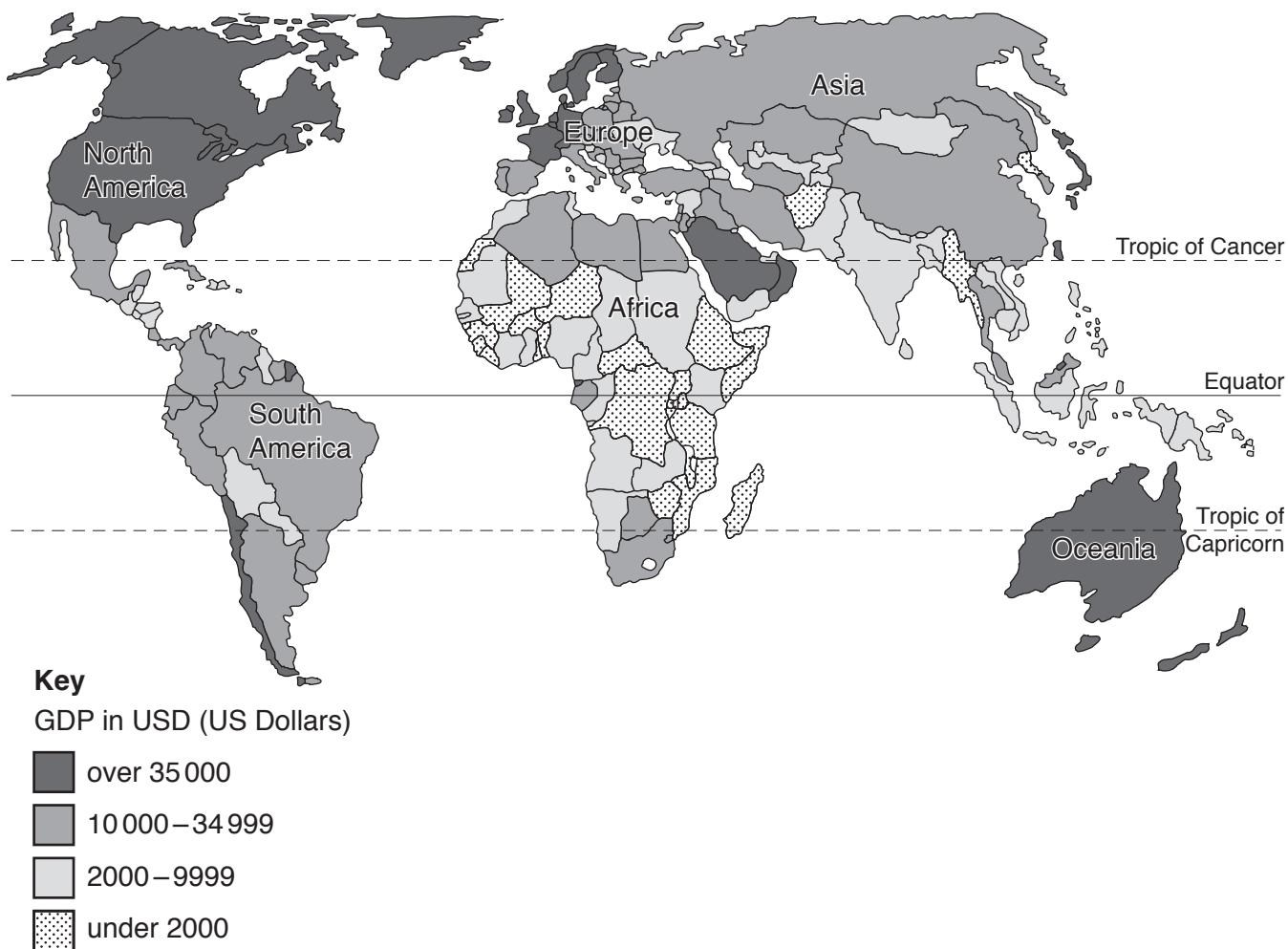
...............................................................................................................................[4]

**(e)** Suggest strategies that can be used to limit the negative impacts of flooding.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

.............................................................................................................................................[6]

**2 (a)** Look at the map below, which shows world gross domestic product (GDP) per person. GDP is a measure of wealth.



**Key**

GDP in USD (US Dollars)

- over 35 000
- 10 000 – 34 999
- 2000 – 9999
- under 2000

Describe the pattern of GDP under 2000 US Dollars shown by the map.

....................................................................................................................................................

....................................................................................................................................................

....................................................................................................................................................

....................................................................................................................................................

....................................................................................................................................................

............................................................................................................................................ [3]

**(b)** Look at the table below, which shows information for some countries. Use the information to complete the questions that follow.

| country | GDP per person / USD | birth rate per 1000 |
|---|---|---|
| Brazil | 11 173 | 15 |
| Japan | 38 468 | 8 |
| Mali | 646 | 45 |
| Niger | 443 | 48 |
| United Kingdom | 39 372 | 13 |
| United States of America | 53 001 | 13 |

**(i)** State the country with the second lowest GDP.

...................................................... [1]

**(ii)** Calculate the difference in GDP per person between Niger and Japan.

Space for working.

....................................... USD [1]

**(iii)** Calculate how many times greater the birth rate is in Niger than in Japan.

Space for working.

...................................... times [1]

**(iv)** Look again at the table. Describe the relationship between GDP per person and birth rate. Use information from the table to support your answer.

.............................................................................................................................................

.............................................................................................................................................

.............................................................................................................................................

.............................................................................................................................................

.............................................................................................................................................

..........................................................................................................................................[3]

                                       **[Turn over**

**(v)** Suggest which country in the table is the most developed. Give a reason for your answer.

country: ........................................................

reason ..........................................................................................................................

..................................................................................................................................[2]

**(c) (i)** Infant mortality rates are higher in developing countries. Suggest reasons for this.

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................[4]

**(ii)** GDP per person, birth rate and infant mortality are all ways of measuring poverty. State **three** other ways in which poverty can be measured.

..................................................................................................................................

..................................................................................................................................

..................................................................................................................................[3]

**(d)** Read the information about trade below.

> Developed countries buy primary products, such as timber or minerals, which have a low value. They sell manufactured goods, such as cars, which have a high value. They earn a lot of money from these exports.
>
> Developing countries sell primary products, such as cocoa or iron ore, which have a low value. They do not earn much money from their exports and often rely on only one product.

**(i)** Complete the table. [2]

| country | type of exports | example | value |
|---------|-----------------|---------|-------|
| developed | manufactured goods | ................................. | ................................. |
| ................................. | ................................. | cocoa | low |

**(ii)** Suggest why developing countries might have problems if they rely on one main export.

.........................................................................................................................................

.....................................................................................................................................[1]

**(iii)** One way to reduce poverty in developing countries is to make trade fairer. Describe strategies that could be used to reduce poverty by making trade fairer.

.........................................................................................................................................

.........................................................................................................................................

.........................................................................................................................................
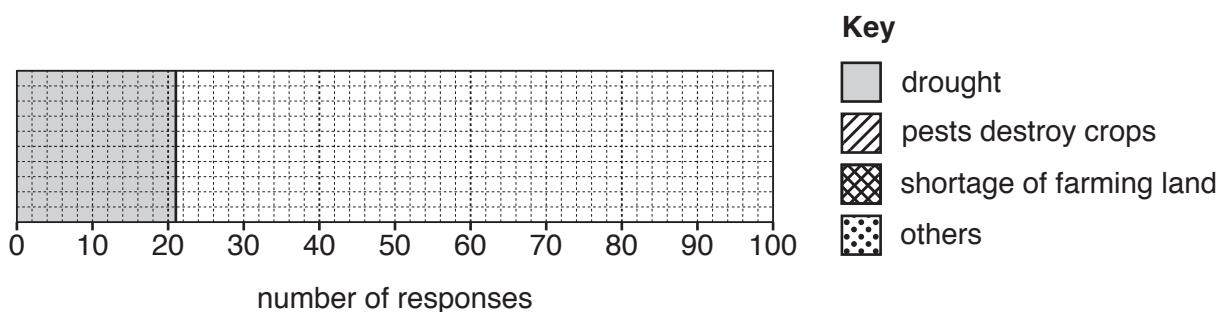
.....................................................................................................................................[2]

**(e)** People often move as a result of poverty. The table below shows the results of a questionnaire given to people in Belo Horizonte, a city in Brazil. They had all moved to the city from rural areas in north east Brazil. In the questionnaire 100 people were asked to choose a reason for leaving the rural area.

| reason for leaving rural areas | number of responses |
| --- | --- |
| drought | 21 |
| pests destroy crops | 25 |
| shortage of farming land | 24 |
| others | 30 |

**(i)** Use the information in the table to complete the divided bar graph below. [3]

**Key**

☐ drought

▨ pests destroy crops

▩ shortage of farming land

▦ others

number of responses

(ii) Look at the photographs, which show two different cities.
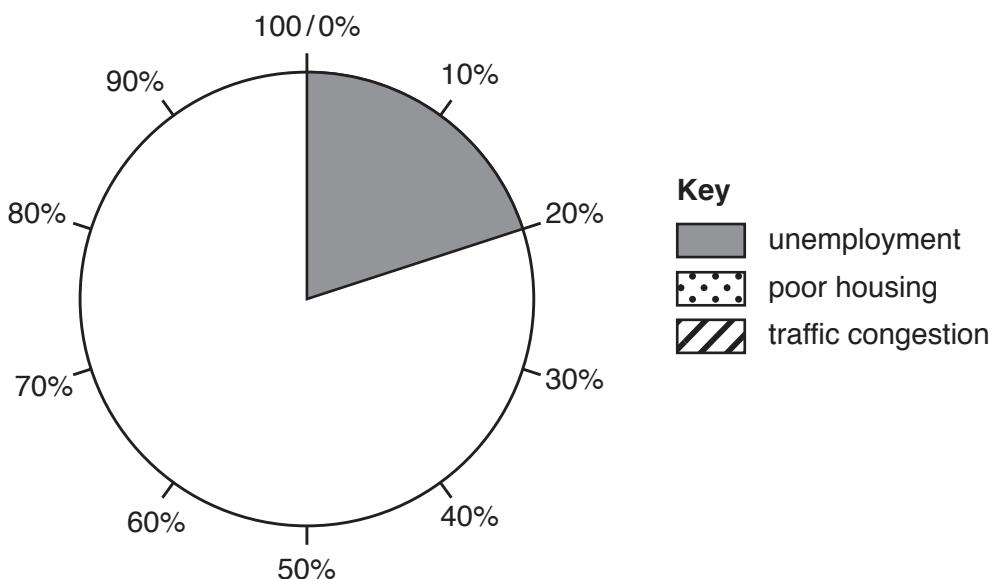




Using the photographs and your own knowledge, describe the pull factors of cities.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

.............................................................................................................................................[4]

**(iii)** The table below shows information about the main problem that some people report when they move to the city. Use the information in the table to complete the pie graph below. [2]

| problem | percentage of people |
|---|---|
| unemployment | 20 |
| poor housing | 35 |
| traffic congestion | 45 |

**Key**

□ unemployment
□ poor housing
□ traffic congestion

**(iv)** State **two** problems, other than those listed in **(iii)**, that people might have when they arrive in the city.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...............................................................................................................................................[2]

**(f)** 'Food supply should be increased to reduce poverty even though this puts the environment at risk.' Explain why some people will agree with this statement but others will disagree.

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.........................................................................................................................................[6]