



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER



**ENVIRONMENTAL MANAGEMENT**

**0680/42**

Alternative to Coursework

**February/March 2015**

**1 hour 30 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 **all** 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.

Study the appropriate source materials before you start to write your answers.

Credit will be given for appropriate selection and use of data in your answers and for relevant interpretation of these data. Suggestions for data sources are given in some questions.

You may use the source data to draw diagrams and graphs or to do calculations to illustrate your answers.

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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **14** printed pages and **2** blank pages.

map of the world



map of Bangladesh



**Area of Bangladesh:** 144 000 sq km

**Population:** 164 million

**Children per woman:** 2.5

**Life expectancy:** 70 years

**Currency:** Taka (85 BDT = 1 US\$)

**Language:** Bangla, English

**Climate:** tropical

**Terrain:** mainly flat low-lying plain, hilly in south east

**Main exports:** clothing, agricultural products, frozen seafood, jute and leather

1 Bangladesh is a developing country with an annual economic growth rate of seven percent. Most of the population live in rural communities and work on the land. People living in the coastal region are particularly at risk from cyclones.

(a) Describe the effects of cyclones on coastal communities.

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.....[3]

(b) Dhaka, the capital city, had a large population estimated to be 15.5 million people in 2014.

(i) Suggest reasons why the population of Dhaka can only be estimated.

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.....[3]

(ii) The population of the three largest cities is shown below.

city	population / millions
Dhaka	15.5
Chittagong	4.0
Khulna	1.5

Calculate the percentage of the total population of Bangladesh that live in the three largest cities.

Space for working.

..... % [2]

(iii) The population of Dhaka continues to increase and building materials are always in demand. Bangladesh has about six thousand brick factories that continually supply new bricks. The process of brick making is shown below.

- mud is dug out of the ground
- the mud is placed in a mould
- the moulded brick is turned out to air dry
- air-dried bricks are stacked in a kiln
- the kiln is heated by burning coal to harden (fire) the bricks
- the finished bricks are stacked for delivery

Each brick factory has a small labour force that lives near the kiln. Bricks can only be made for five months of the year. A weather station near some brick factories recorded the following data.

month	J	F	M	A	M	J	J	A	S	O	N	D
average temperature/°C	25	28	33	35	34	32	31	31	31	31	29	26
average rainfall/mm	18	31	58	103	194	321	437	305	254	169	28	2
average number of wet days	1	1	3	6	11	16	12	16	12	7	1	1
relative humidity/%	44	37	38	42	60	72	72	74	71	65	53	48

In which five months does brickmaking take place? Use information from the table to support your answer.

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.....[3]

(iv) One brickmaker said,

When we are making bricks we work 12 hours a day, every day of the week.

How many hours a week do brickmakers work?

.....[1]

(v) Suggest why the brickmakers have to work every day of the week.

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

(c) A student carried out a survey of the production from five brick factories in one year. The results are shown in the table.

factory	number of workers	coal used / tonnes	number of bricks made / millions	average selling price of bricks made / 1000 Taka
A	69	960	3.5	14 150
B	56	616	2.8	13 800
C	68	690	3.0	14 000
D	78	840	4.0	14 250
E	64	704	3.2	13 900
average	.....	.....	.....	.....

(i) Complete the table. [2]

(ii) Which factory used the least coal?

.....

Which factory made the most bricks?

.....

Which factory had the lowest selling price?

.....

[3]

- (iii) The student decided to find out how many bricks could be made for every tonne of coal used at each factory.

factory	number of bricks made / million	coal used / tonnes	number of whole bricks per tonne of coal
A	3.5	960	3645
B	2.8	616	4545
C	3.0	690	4347
D	4.0	840	.....
E	3.2	704	.....

Complete the table.

[2]

- (iv) Suggest what the student decided about how efficiently coal was used in the five factories.

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.....[3]

- (d) (i) About half of the six thousand brick factories use coal as the source of energy to make bricks. Suggest the possible environmental problems caused by burning coal.

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.....[3]

- (ii) Explain, using the map information on page 2, why the factories have a sustainable supply of mud for making bricks.

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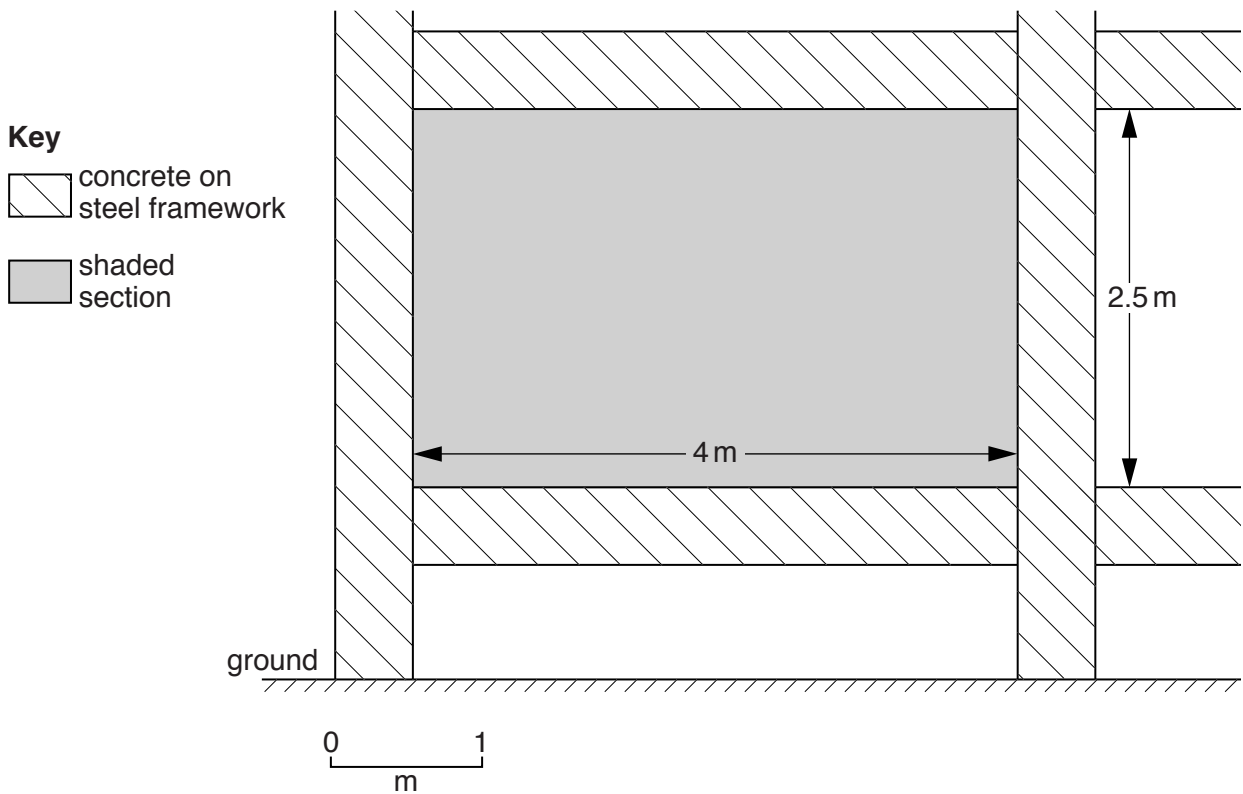
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.....[2]

- (e) Most of the bricks are taken by truck to building sites in Dhaka. New buildings start with a steel and concrete frame. Each section of the frame is then filled in with brickwork.





- (i) Bricklayers use the rule of 50 bricks per square metre when building walls. How many bricks are needed to completely fill the shaded section shown in the diagram?

Space for working.

..... [1]

- (ii) How many bricks are needed to complete four sections of wall?

Space for working.

..... [1]

- (iii) Suggest why bricklayers usually order 10 percent more bricks than the minimum needed to complete a wall.

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

- (f) The government does not want bricks to be imported from other countries. Suggest reasons why the government takes this view.

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.....[3]

2 (a) Many districts of Dhaka suffer from flooding. The greatest risk is in July.

(i) Using information from 1(b)(iii), explain why the biggest floods usually occur in July.

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

Some districts get flooded with up to 60 cm of water. Two students measured the depth of water outside their house during one flooding event. They combined their results in a notebook.

9 am house 1 34 cm house 2 39 cm	11 am house 1 30 cm house 2 28 cm	3 pm H1 17 H2 11	1 pm H2 20 H1 25	5 pm H1 10 6
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(ii) Present the information from the notebook in a suitable table in the space below.

[3]

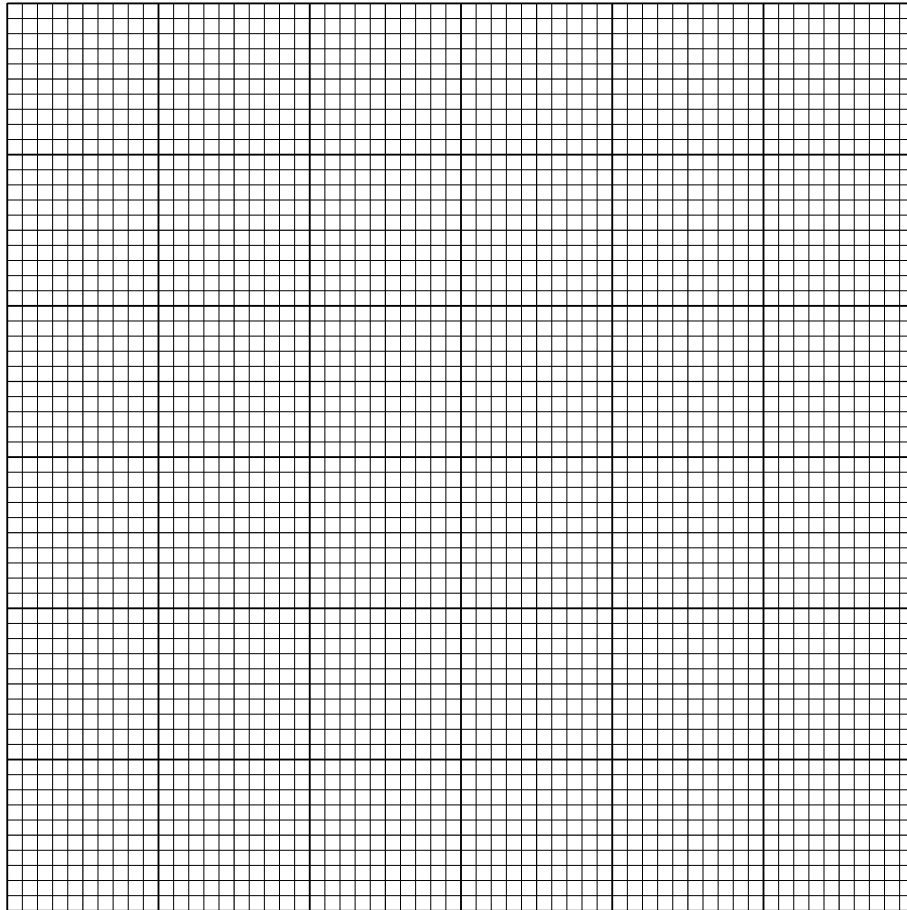
(iii) State from which house the water drained more slowly and suggest a possible reason for this.

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

The students found out more information about the maximum depth of flooding in six districts of Dhaka.

district	P	Q	R	S	T	U
maximum depth of flooding/cm	55	40	19	25	20	33

(iv) Plot the data as a graph in the grid below.



[4]

(v) Suggest what the results indicate about a pattern of flooding depth.

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

(b) Dhaka has many lakes, called khals, to collect water draining from the streets.

bubbles of  
pumped air



(i) Suggest which of the districts P–U is nearest to this khal.

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

(ii) The students noticed that this khal had bubbles of pumped air on the surface of the water. Explain how this pumped air prevents the collapse of this ecosystem.

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

- (c) To find out about different views on the causes of flooding, the students carried out a survey of different groups of people. They interviewed a total of 100 people using a questionnaire. The question the students asked was, 'Which of the following do you consider to be a major cause of flooding? You may select more than one response.'

The results are shown below.

Which of the following is a major cause of flooding?	number of yes responses /%
very high rainfall	74
population growth and unplanned development	95
poor waste management	82
reduction of khal size	82
poor drainage system	83
lack of regulations	45

- (i) Suggest **four** groups of people the students could have interviewed.

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

- (ii) Suggest why the students decided to select equal numbers of each group of people to interview.

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

(d) The city authorities are investing more money in strategies to limit the problems caused by flooding in Dhaka. Suggest **two** strategies the city authorities could invest in to help reduce flooding in the future.

Strategy

.....

Explanation

.....

.....

Strategy

.....

Explanation

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[6]



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