

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

**MARK SCHEME for the May/June 2012 question paper
for the guidance of teachers**

7094 BANGLADESH STUDIES

7094/02

Paper 2 (Environment and Development of Bangladesh),
maximum raw mark 75

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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1 (a) (i) Name the areas of high land labelled A and B.

A – Sylhet (Hills)

B – Chittagong (Hill Tracts)

[2]

(ii) Describe the distribution of high land in Bangladesh.

main area in SE,
small area in NE
area in north/NW
small area in centre

Accept reference to accurately named areas instead of compass directions

[3]

(iii) Describe the human and physical characteristics of area B.

few people/low population density
tribal peoples
practise shifting/Jhum cultivation
HEP
tea plantations

deep river valleys
hills
forested/tropical evergreen
deforestation
landslides
highest parts form a N–S ridge
highest area of Bangladesh/over 200 m high
hot springs
soil not fertile
steep slopes
waterfalls
lake(s)
high rainfall

Max 2 for physical or human characteristics

[5]

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- (b) (i) Study Fig. 2, which shows a cross-section of a river and its flood plain. Using Fig. 2 to help you, explain how levées are formed.**

rivers carry silt/load
 after heavy rain river floods
 overflows banks
 friction/speed slows on banks
 silt deposited
 heavier/coarser load deposited on river banks
 sediments build up/accumulate over time/repeated floods
 embankments formed/banks raised
 more frequently flooded on bank side

[4]

- (ii) Explain where the silt and alluvium come from.**

erosion takes place
 in Himalayas/hills to the north
 material eroded from river/meanders/banks/upstream
 most erosion when rivers high/after heavy rain
 eroded material transported by river

[2]

- (c) Describe and explain what is happening to the river bank shown in Photograph A.**

not river bed
 current close to bank
 undercutting/erosion
 forms a river cliff
 bank collapses
 material carried away by current/river
 loss of land
 potential loss of homes/crops, etc.

[4]

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(d) Study the two statements below:

A 'Rivers are the life-blood of Bangladesh.'

B 'Rivers are Bangladesh's sorrow.'

(i) Give one piece of evidence which supports statement A.

flooding adds nutrients to land
densely populated country needs annual addition of nutrients
rivers vital for water supply – washing/cooking/drinking
irrigation water for farming
rice needs a lot of water to provide high yields
water for industry
transport via river
fish from rivers source of protein
measures can be taken to protect people from worst floods, etc.
HEP in Chittagong area

[1]

(ii) Give one piece of evidence which supports statement B.

floods can cause devastation
loss of lives
loss of farmland/crops/livestock
changing courses of rivers can wreck villages
poor country so cannot protect all people against floods
bring waterborne diseases

[1]

(iii) Which statement do you agree with the most? Give reasons for your answer.

No marks for stating A or B only for reasons. Credit reasons for agreeing with one and also for rejecting the other. Accept answers that give support to both statements. Allow points to be developed.

[3]

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2 (a) Study Fig. 3, which shows a variety of predictions about how much the sea level may rise in the future. Each line on the graph represents a different prediction.

(i) What is the highest prediction for the rise in sea level between 1990 and 2030?

15 cm +/- 1 cm [1]

(ii) What is the lowest prediction for the rise in sea level between 1990 and 2030?

3 cm–6 cm [1]

(iii) Describe what the graph in Fig. 3 shows about predicted sea level rises up to 2100.

all predictions are for a rise
 great variation in predictions
 difference is 77 cm (accept 75–80 cm)/from 8–86 +/-2 cm
 cluster between 30 cm to 50 cm [2]

(iv) Sea level is predicted to rise further due to global warming. In what way does global warming affect sea level?

melting of ice caps and glaciers
 (more) water carried by rivers
 more water discharged into ocean
 water expands as it warms up [2]

(b) (i) Global warming is mainly caused by 'greenhouse gases' and the 'greenhouse effect'. Name the two main greenhouse gases.

methane
 carbon dioxide [2]

(ii) Explain how the greenhouse effect causes global warming. Credit will be given for use of a relevant diagram.

sun's rays heat earth's surface
 long wave radiation passes through gases in atmosphere
 heat radiated back from earth (in short waves)
 this radiation cannot pass through carbon/greenhouse gases
 heat is trapped
 earth becomes warmer

Do not double credit in text and on diagram. Allow development. [4]

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(iii) Explain two effects of global warming on Bangladesh other than rising sea level.

increased frequency of cyclones
 due to water in Bay of Bengal being warmer
 increased droughts
 due to unpredictability of rainfall
 migration of people to areas less prone to flooding
 increase temperature

max 1 = extinction of species, loss of crops, houses damaged, waterborne diseases, forest fires, etc. [4]

(c) Read the account of the village of Sona Mollar Dangi which is based on a case study in a government report on the impact of global warming on Bangladesh. Explain how these changes will help this community to cope with global warming.

raised buildings 0.5 m above flood level
 buildings not swept away in floods
 raised gardens and orchards
 continue to grow food during floods
 solar panel provides (free) electricity reducing greenhouse gases
 without contributing carbon to atmosphere
 health clinic to overcome problems of disease/flood
 raised tubewells to keep water clean

[3]

(d) The example of Sona Mollar Dangi is given as an example of 'Thinking globally but acting locally'. Study the two statements below.

A 'Thinking globally but acting locally would enable Bangladesh to cope with global warming.'

B 'A major investment is needed if Bangladesh is to cope with global warming.'

(i) Give one piece of evidence which supports statement A.

people can do things for themselves/local projects or example
 floating gardens enable crops to survive floods
 solar energy reduces carbon emissions
 other examples of reducing production of carbon gases e.g. bio digesters
 world/global problem
 developed countries responsible

[1]

(ii) Give one piece of evidence which supports statement B.

local action cannot deal with major projects/need for funding of even local changes
 e.g. infrastructure, flood warnings, cyclone shelters
 afforestation
 putting pressure on other countries to reduce carbon emissions
 building vehicles that do not use fossil fuels/reduce emissions
 national campaigns to support people trying to take local action

[1]

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- (iii) **What do you think is the best way for Bangladesh to respond to global warming? Give reasons for your answer.**

Allow points to be developed.

Reasons can support either or both statements or neither if valid reasons are given.

[4]

- 3 (a) (i) **Study Fig. 4, which shows the main areas of wheat and rice production. Describe the location of the major wheat growing areas.**

mainly in NW
Rajshahi division
north of R Padma and west of R Jamuna
narrower area to east of R Jamuna
separate small area to west of R Meghana
Comilla area
central area/Dhaka to Rajshahi

[2]

- (ii) **Give reasons why wheat is a major crop in these areas.**

drier parts of the country/400–1100 mm rainfall
less reliable rainfall
grown during dry season when unsuitable for rice
inadequate rainfall for rice growing
sandy, loamy soils

Two developed statements, do not credit vague answers such as 'suitable conditions'. [2]

- (iii) **Explain why rice is the main crop in many parts of Bangladesh.**

high rainfall/1000–3000 mm
water from rivers for irrigation
warm temperatures – need 25^o C/16 °C–27 °C
high yields possible
flat land/plain (easy to irrigate)
fertile soil/alluvium
water retaining soil
plenty of labour for cultivation

Allow development of points

Accept relevant comparisons with other crops

[4]

- (b) (i) **Study Fig. 5, which shows changes in cereal production between 1980 and 2000. Compare the change in total production of cereals with the change in production per person.**

total production risen more than per person production/high v low/steady v slow
86% cf 16% =/–2%
more than 5 times greater increase
both increase = 1 if nothing else

[2]

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(ii) Suggest a reason for the differences you described in **(b)(i)**.

population growth
so less per person than if population is stable [2]

(c) (i) The changes that enabled yields to increase are often called 'the green revolution'. Explain how the green revolution led to higher yields.

new varieties of seeds which give higher yields
examples of HY varieties e.g. Maxipak, Irri 6
improved irrigation/continuous supply of water
increased use of fertilisers for higher yield
consolidation of land
use of pesticides
machinery – less wastage/more productivity
education/training [3]

(ii) Study Fig. 6, which shows some of the problems arising from the green revolution. Explain how the green revolution can give rise to two of the problems listed in Fig. 6.

use of HYVs can lead to reduction in genetic variety
can lead to outbreak of pests
extract large quantities of nutrients from soil
too much fertiliser use can ruin soil
gives rise to unhealthy plants
eutrophication
too much use of pesticides can affect quality of food
and kill off natural predators
waterlogging
salinisation
soil erosion
Allow development [4]

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(d) Study the two statements below.

A 'The green revolution has been of great benefit to Bangladesh.'

B 'Bangladesh must develop more sustainable forms of agriculture.'

(i) Give one piece of evidence which supports statement A.

increased food production to meet needs of growing population
would have been hunger/malnutrition
large population in small land area needs high yields

[1]

(ii) Give one piece of evidence which supports statement B.

yields will start to decline
use of chemicals affecting water/people's health/soil
fertilisers, etc expensive
GM crops
land scarce but population growing
roof top gardens

[1]

(iii) What do you think is the best way for Bangladesh to develop its agriculture?
Give reasons for your answer.

No marks for stating A or B only for giving reasons. Credit reasons for agreeing with one and also for rejecting the other. Accept answers that give support to both statements. Allow points to be developed.

[4]

4 (a) Study Fig. 7, which shows population density for Bangladesh. Describe how population density changes along the River Padma from the Bay of Bengal to the border with India.

low density \leq 500 per sq km in islands/at the beginning
medium density (or figure) as pass through delta
high density to east of river but medium to west
after confluence with Meghna/Dhaka high density to NE but medium to SW
medium on both sides before confluence with Jamuna (about 50 kms)
then medium all way to Indian border
exception of one small area on south bank

Accept references to left and right banks provided correct as facing mouth.
Accept references to correct names of places or provinces.

[3]

(b) (i) Study Fig. 8, which shows Bangladesh's actual and predicted population growth. By how much is the population expected to grow between 2010 and 2020?

15 million +/- 1 million

[1]

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(ii) Describe the trends in population growth from 1940 to 2020 shown in Fig. 8.

general trend of rapid growth = 1 if nothing else
 Steady/slow growth from 1940 to 1960/14 million
 then faster growth to 1970/22 million
 slightly slower growth to 1980/12 million
 steady/consistent growth to 2010/54 million
 growth predicted to continue to 2020

Reserve 1 for identifying projected or estimated growth.

Max 2 for quoting figures. Need the difference

[3]

(iii) A Suggest three reasons for the population changes shown in Fig. 8.

better health care
 improved food supply
 improved sanitation, access to safe drinking water
 tradition of large families
 religion
 high birth rate/poor family planning
 lack of education/awareness – early marriages

Allow 2 max for different aspects of improved health e.g. infant mortality decreases, vaccination, etc.

[3]

B For one of the reasons you have described in (iii) A, explain how it contributes to population growth.

health care – more hospitals/clinics/doctors – people cured, live longer
 education and awareness of better living styles
 food supply – more, better nutrition
 healthier environment – sanitation, access to safe drinking water- less disease
 large families – son as heir, help on farms/in home, income
 early marriages – longer child bearing years

[3]

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(iv) A Briefly describe three problems caused by population growth.

pressure on limited amount of land
 urbanisation and overcrowding/strain on housing/rural-urban migration
 deforestation
 landlessness
 strain on infrastructure – named
 difficult to provide education and health care
 difficult to help all when disasters occur
 unemployment
 shortage of food
 unemployment

[3]

B For one of the problems you have described in (iv) A, explain fully how it is affected by population growth.

pressure on land – farms too small, crowded, substandard housing
 urbanisation – fewer people farming, unemployment, shanty towns
 deforestation – more land needed for farming, houses, global warming
 landlessness – increase in poverty, land fragmentation, migration
 infrastructure – load shedding, traffic congestion
 education and health care – lack of schools, hospitals, etc.
 unemployment leads to crime, etc. – rural-urban migration

[3]

(c) Study the two statements below.

A ‘There are good reasons for people in Bangladesh to have large families.’

B ‘Family sizes in Bangladesh need to be reduced.’

(i) Give one piece of evidence which supports statement A.

many children still die in infancy
 large families needed so elderly can be looked after
 more to work on the land
 more to earn a living/increased income
 lack of education

[1]

(ii) Give one piece of evidence which supports statement B.

limited amount of land available
 resources stretched to feed everyone
 cannot afford to provide services to more people
 with fewer children more scope for a better life
 already a poor country

[1]

(iii) Which statement do you agree with the most? Give reasons for your answer.

No marks for stating A or B only for reasons. Credit reasons for agreeing with one and also for rejecting the other. Accept answers that give support to both statements. Allow points to be developed.

[4]

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- 5 (a) (i) Study Fig. 9, which shows changes to the percentage of people employed in agriculture in Bangladesh.

Describe how employment in agriculture has changed between 1960 and 2009.

decrease in general = 1 mark
 by 34%–36%
 declined steeply from 1960 to 1980/23%
 less steep decline from 1980 to 2000/9%
 (slight) increase from 2000 to 2005/1%
 steep decline again to 2009/4–5%

Max 1 for accurate figures [2]

- (ii) Give reasons for the changes you have described in (a)(i).

people moving to towns and cities/rural-urban migration/push-pull factors
 opportunities for jobs in services and industry
 consolidation of land holdings/land scarcity
 greater use of machinery [2]

- (b) (i) Study Fig.10, which shows the percentage of people working in the industrial sector in a variety of countries.

Which country had the biggest overall increase between 1990 and 2008?

Sri Lanka [1]

- (ii) Compare the changes shown on Fig. 10 that took place in Japan with those that took place in Bangladesh.

1990–1995 Bangladesh decreased but Japan stayed the same
 1995–2000 both decreased
 2000–2005 Japan still decreased but Bangladesh increased
 2005–2008 Japan stayed the same but Bangladesh increased at a slower rate

Must be a comparison. Allow comparison of figures. [4]

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(c) (i) Name four important industries in Bangladesh.

garments
jute and jute goods
leather
craft goods/cottage industry
paper
juice/food processing edible oil
oil/petroleum
gas
sugar
fertiliser
tea
fishing

4 correct for 2 marks, 2–3 correct for 1 mark [2]

(ii) For one of the industries you have named, describe its main characteristics.

garments – export orientated, increasing home market, 80% employees female, dependent on imported raw materials, growing industry, products (include shirts, jackets, trousers), main markets EU and USA, use of machinery, small scale, labour intensive
jute – declining, synthetic materials more popular, many debts/losses, electricity failures, changes in government policy, products include carpet backing, sacks, bags, caps, canvas
leather – export orientated, mainly to EU, Brazil, Singapore, increasing with government support, products include shoes, jackets, bags,
craft – cottage/small scale industry, family based, local raw materials, low capital, traditional techniques, products include textiles, pottery, bamboo, cane, brass
paper – modern mills privately run, use imported pulp, some use recycled paper or jute and straw cuttings, not sufficient for local demand

Other industries may be used. Accept brand names. [3]

(iii) Bangladesh is trying to encourage more industrial development. What are the likely benefits of such development?

provides employment
reduces reliance on imports
goods can be exported
earns foreign exchange/increase GNP/income/economic development
more scope for adding value than agricultural products
encourages investment
more resources
more formal employment

Allow development [3]

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(iv) What are the obstacles to Bangladesh developing its industries?

lack of finance/loans/state benefit
shortage of skilled workers
weak home market/people cannot afford to buy goods
exports face tariff barriers/quotas
shortage of power/blackouts
lack of raw materials
poorly developed infrastructure/transport
lack of technology
can't compete with imports
political instability
corruption

Allow development

[3]

(d) Study the two statements below:

A 'Economic development in Bangladesh depends on the expansion of its industry.'

B 'The most important sector for Bangladesh's people is agriculture.'

(i) Give one piece of evidence which supports statement A.

industry provides more jobs
industry can create more wealth
scope for using higher levels of technology
create goods for export
attract foreign investment
increase foreign exchange/GNP
reduce imports

[1]

(ii) Give one piece of evidence which supports statement B.

most people work in agriculture/live in rural areas/villages
food is most basic requirement/self sufficient
very fertile soil
suitable climatic conditions to produce agricultural crops
jute/sugar cane important raw materials

[1]

(iii) Which statement do you agree with the most? Give reasons for your answer.

No marks for stating A or B only for reasons. Credit reasons for agreeing with one and also for rejecting the other. Accept answers that give support to both statements. Allow points to be developed.

[3]