Cambridge O Level

BANGLADESH STUDIES	**7094/02**
Paper 2 Environment and Development of Bangladesh	**May/June 2022**
MARK SCHEME	
Maximum Mark: 75	

Published

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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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This document consists of **22** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)(i)	**Use Fig. 1.1 to name the following features:** **river <u>A</u>** Padma / Ganges-Padma	1
1(a)(ii)	**river <u>B</u>** Meghna / Surma-Meghna	1
1(a)(iii)	**river port <u>C</u>** Dhaka	1
1(a)(iv)	**sea port <u>D</u>** Chittagong / Chattogram	1
1(b)	**Describe how a river and its channel changes its characteristics when it reaches the lowland (lower course).** Wider Deeper Faster / stronger flow Lower gradient / flatter / lower slope angle Increased discharge / high volume of water / more flow Channel bed smoother Load size smaller / more consistent / rounder Load quantity greater Braiding River deposition **Only changes to the river itself, not river valley.** NOT Meander Delta Ox-bow lake	4
1(c)(i)	**What is a floodplain?** A wide area of flat, low-lying land either side of a river channel / land on both sides of the river that is flooded annually	1

Question	Answer	Marks
1(c)(ii)	**Complete Fig. 1.2 by adding the labels <u>A</u>, <u>B</u>, <u>C</u> and <u>D</u> in the correct place. Labels <u>E</u> and <u>F</u> have been completed for you.** <table><tr><th>Feature</th><th>Location</th></tr><tr><td>A (bedload)</td><td>At base of river channel</td></tr><tr><td>B (levée)</td><td>Banks next to channel</td></tr><tr><td>C (river channel)</td><td>Between the levées</td></tr><tr><td>D (finer material)</td><td>Far from the river</td></tr></table>	4
1(d)(i)	**Why are rivers important for transport in Bangladesh?** Large network of rivers / rivers everywhere Well connected to rest of transport system Cheap means of transport Making use of a natural resource / environmentally friendly 2/3 of country flooded during monsoons – roads / railways limited use 2/3 of country flooded during monsoons – provide aid / essential services Roads and railways expensive to build / maintain Roads congested / traffic jams / pressure on roads Main towns / commercial centres on riverbanks Villages not always accessible by road / poor quality roads Large amounts / bulky goods carried Ferries instead of bridges Inland ports	4
1(d)(ii)	**Complete the pie chart on Fig. 1.3 using the key provided. Two causes have been completed for you.** 1 mark for correct shading. 2 marks for lines in correct place. <table><tr><th>cause of accident</th><th>%</th><th>shading</th></tr><tr><td>collision</td><td>43</td><td></td></tr><tr><td>overloading</td><td>25</td><td></td></tr><tr><td>bad weather</td><td>24</td><td></td></tr><tr><td>fire and explosion</td><td>5</td><td></td></tr><tr><td>damage to boat</td><td>3</td><td></td></tr></table> **Segments can be plotted in any order.**	3

Question	Answer	Marks
1(e)(i)	**'It is impossible to stop all river flooding in Bangladesh.'** **Suggest <u>one</u> reason why it is impossible to stop all river flooding in Bangladesh.** Many rivers flow through Bangladesh Heavy rain / monsoons / flash floods / exacerbated by climate change Lack of funding No control over upper reaches of rivers / head waters in India Deforestation in Himalayas High cost of flood prevention measures Majority of land is floodplain / delta / low-lying Variation in flow River shifting etc. **NOT** Sea level rise as it is river flooding.	1
1(e)(ii)	**Suggest <u>one</u> method used to reduce river flooding.** Agreements with India /Nepal Embankments / sluice gates / flood barriers / dams / barrages built or strengthened Dredge / deepen river channels Afforestation / reforestation	1
1(e)(iii)	**Do you agree that it is impossible to stop all river flooding in Bangladesh? Give reasons for your answer.** Points can be taken from those in **(i)** and **(ii)** and developed further. No marks for stating their view, only for reasons. Accept answers that support both sides of the argument or just one side.	3
2(a)(i)	**Using Fig. 2.1, describe the pattern of average temperatures in January.** Isotherms run in a general east-west direction With temperatures decreasing northwards / increasing southwards Coolest in north / 17.0(–17.5) °C in the north/northwest of the country Central parts 18 °C to 19.5 °C Warmest in south / (20.0 °C)–21.0 °C in the south/coastal areas **Allow reference to latitude and longitude.** **Reserve 1 for pattern.**	3

Question	Answer	Marks
2(a)(ii)	**Give reasons to explain the pattern of temperatures in January.** Cold air from Himalayas in winter Winter monsoon / winds blow from high pressure / NW India General decrease in temperatures poleward + DEV Increasing distance from the warming waters of the Bay of Bengal / distance from sea + DEV In winter, the sea is relatively warmer than the land	3
2(b)(i)	**Name <u>two</u> greenhouse gases.** Carbon dioxide Methane Nitrous oxide Water vapour	2
2(b)(ii)	**Use Fig. 2.2 to help you explain how greenhouse gases contribute to global warming.** SW radiation / light / heat <u>from</u> sun Passes through atmosphere Sun's rays absorbed by earth / heat earth LW radiation <u>from</u> earth Earth heats atmosphere Greenhouse gases added to atmosphere Greenhouse gases 'trap' heat / prevent heat escaping / LW radiation trapped So, atmosphere warms Short wave radiation = 0 Long wave radiation = 0	4
2(c)(i)	**What is the general trend shown in Fig. 2.3?** Temperature increases over time	1
2(c)(ii)	**Which year has the highest change in average temperature?** 2016	1
2(c)(iii)	**Calculate the difference in the average temperature change from 1980 to 2019.** 0.67 °C **Units needed** Allow 0.66–0.68	1

Question	Answer	Marks
2(c)(iv)	**Explain the ways that Bangladesh is at risk from global warming.** <u>Temperature rise:</u> polar and Himalayan ice caps to melt rise in sea level + effects <u>Rising sea level:</u> low lying delta regions submerged + effects of flooding <u>Increase in sea temperature:</u> aids in the formation of cyclones + effects of cyclones <u>Changing pattern of rainfall:</u> more rain – flooding of farmland / removes soil fertility less rain – more drought – lower yields leads to food shortages / increased famine, malnutrition <u>Effects such as:</u> loss of homes greater pressure on land / living space injury / death diseases like malaria and cholera less land for crops / damages crops lower harvests increase in pests more saline soil loss of income (from fishing / farming) etc. **Must explain not just describe risks / effects.**	**5**

Question	Answer	Marks
2(d)(i)	**A 'It is up to governments to reduce greenhouse gas emissions in order to stop global warming.'** **B 'It is up to all of us to stop global warming.'** **Give <u>one</u> argument which supports statement A.** Arguments could include: Governments have the resources, legal powers, international relations to effect change. It is an international problem that requires international / national strategies. Examples of how Governments can reduce greenhouse gas emissions include: Reforestation International treaties Renewable energy etc. **Accept arguments why it is up to governments or examples of how governments can reduce greenhouse gas emissions.**	1

Question	Answer	Marks
2(d)(ii)	**Give <u>one</u> argument which supports statement B.** Global warming affects people at local, national and international level. It is individuals' responsibility to effect change. Every little helps. Lots of small actions can have a big result. Grass roots action is more effective. Bottom up versus top down approach. Accept any appropriate examples of the 5 R's to reduce our carbon footprint: Refuse Reduce Reuse Recycle Repurpose Don't cut down trees / deforestation Don't fly Stop open burning / burning rubbish Switch to green power Walk / bike / use public transport Car pool Fuel efficient / electric car Plant trees Eat less meat Use a cloth bag Have only two children Use recycled paper Buy fresh not frozen food Buy local food Energy efficient light bulbs / appliances Solar water heater Turn off appliances etc. **Accept arguments why it is up to individuals or examples of how individuals can help to stop global warming.** **Actions need to relate to CO_2 or NOx (greenhouse gases).**	1
2(d)(iii)	**Which statement do you agree with the most? Give reasons for your answer.** No marks for stating A or B, only for giving reasons. Credit reasons for accepting one and rejecting the other. Accept answers that give support to both statements. Allow points to be developed.	3

Question	Answer	Marks
3(a)(i)	**What is the difference between subsistence farming and commercial farming?** Subsistence is to provide food for our family / farmers / locals / for our own use / consumption Commercial is for profit / for sale / for export	**2**
3(a)(ii)	**Name <u>two</u> pulses grown as food crops.** lentil, mung bean, chick pea/gram, black gram, masur, khesari, pigeon pea, mashkalai Allow any named beans, peas, lentils NOT staple food	**2**
3(a)(iii)	**Why are pulses an important food crop?** Nutritious / healthy Protein rich Rich in iron Roughage / fibre Cheap Easy to grow Very productive	**2**

Question	Answer	Marks
3(b)	**Using data from Fig. 3.1, describe how wheat production changed between 2000 and 2018.** Overall Decrease From 1700 (000 mt) to 1200 (000 mt) By 500 (000 mt) Fluctuates <u>Year by year (allow years within)</u> 2000 to 2006 rapid decrease from 1700 to 740 (000 mt) 2006 to 2007 increase to 1200 (000 mt) 2007 to 2008 decrease to 850 (000 mt) 2009 to 2014 increase to 1300 (000 mt) 2014 to 2017 gradual decrease to 1150 (000 mt) 2017 to 2018 increase to 1200 (000 mt) **Reserve 1 for data.** **Only allow 1 increase and 1 decrease unless qualified,** e.g. 2004–2017 decreased more slowly or 2004–2017 decreased from 1300 to 1150. **Refer to Fig. 3.2.** **Units not required.** **Tolerance + or –10.**	4

Question	Answer	Marks
3(c)	**Describe the physical and human inputs to the farming system shown in Fig. 3.2.** Human inputs Labour / manpower / farmers Seed / seedlings Oxen / plough / cows Irrigation (only credit water once) Bunds / embankments Physical inputs Waterlogged / flooded (only credit water once) Flat land Large area **Reserve 1 for each: human and physical.** **Credit following inputs for rice farming:** Physical Temperature: 20–35 Celsius Rainfall: min 1000 mm / 1000–2500 mm Soil fertile / alluvial / clay / water retentive soil DO NOT CREDIT: Low lying Flood plain Delta Mechanisation High rainfall	**4**
3(d)(i)	**What is meant by the term *Green Revolution*?** Dramatic change in agriculture Increase in yield / productivity / production Due to new HYVs / chemical fertilisers / pesticides / irrigation / modern technology / scientific techniques	**2**

Question	Answer	Marks
3(d)(ii)	**Explain how <u>each</u> of the following limits the spread of the Green Revolution:** <u>the very small size of many farms in Bangladesh</u> fields too small for tractors difficult to irrigate small / fragmented small land difficult to achieve economies of scale <u>rural poverty</u> HYVs / chemical fertiliser / irrigation pumps expensive risk aversion subsistence farmers have very little or no income lack of education / illiteracy / lack of skills / training to adopt new ideas / methods etc. **Reserve 1 for each section.** Rural poverty = 0 2 marks available here for expensive …. and farmers poor so cannot afford. Allow 'can't afford' if no other detail. Allow small farms do not have enough money for…only if not included in rural poverty.	4
3(e)(i)	**A 'Modern farming methods are essential to increase food production.'** **B 'Modern farming methods cause many problems.'** **Give <u>one</u> argument which supports statement A.** Population increase needs more food / prevent malnutrition HYVs increase yield – multiple cropping – mature faster Fertilisers increase yield, soil fertility Pesticides prevent loss of crops to insects Irrigation provides reliable supply of water Machinery / technology efficient / fast / prevents wastage Training / education / awareness of new techniques Focus on food production.	1

Question	Answer	Marks
3(e)(ii)	**Give <u>one</u> argument which supports statement B.** Fertilisers damage the soil over time Fertilisers cause water pollution – eutrophication Pests become resistant to pesticides Pesticides cause water pollution Mechanisation causes unemployment / air pollution Irrigation causes arsenic contamination of water Problems linked to GM crops Only rich farmers can afford modern farming methods, they are too expensive for small farmers Causes problems for illiterate farmers to adopt new techniques etc.	1
3(e)(iii)	**Which statement do you agree with the most? Give reasons for your answer.** No marks for stating A or B, only for giving reasons. Credit reasons for accepting one and rejecting the other. Accept answers that give support to both statements. Allow points to be developed.	3
4(a)(i)	**Give <u>two</u> examples of cottage industries in Bangladesh.** Handicrafts / crafts Bamboo goods Jute goods Handloom weaving / Jamdani saree Metalworking / bronze / brass utensils Embroidery / Nakshi Katha Wooden toys Paper flowers Pottery Carpets Ornaments Shitol Pati (Cane) furniture etc.	2

Question	Answer	Marks
4(a)(ii)	**Describe the main features of cottage industries in Bangladesh.** Small scale / low output / low value output Low productivity / growth Mainly rural Low wage / income / profit Home based Few employees (1–10) Family labour Women and children employed Low capital / low investment Local raw materials Use traditional crafts / methods Low / simple technology / labour intensive / less modern machines Low export value Cottage industries employ a large number of people in Bangladesh = 0 Do not pay tax = 0 Not regulated by government = 0	**4**
4(a)(iii)	**Explain how cottage industries can help people break out of the cycle of poverty.** Employment Self-esteem / empowers women Income Develop skill Only need a small investment / capital to get started Do not need formal education	**2**

Question	Answer	Marks
4(b)(i)	**Compare foreign direct investment (FDI) into Bangladesh with FDI into Pakistan between 2000 and 2018.** Overall Both increase Both fluctuate Pakistan fluctuates more than Bangladesh Bangladesh increases more than Pakistan Bangladesh goes from 0.3 to 2.9 bill, Pakistan goes from 0.3 to 2.4 bill Bangladesh changes by 2.6 bill, Pakistan by 2.1 bill Year by year 2000 Pakistan and Bangladesh 0.3 bill (no double credit for Pakistan = Bangladesh *) Pakistan > Bangladesh in 2000–2007, 2016–2017 (or any year in between) Bangladesh > Pakistan in 2011–2016, 2018 Bangladesh = Pakistan * in 2000 or 2003 or 2011 or 2016 Pakistan peak 2007 or 5.6 bill, Bangladesh peak 2018 or 2.9 bill Pakistan lowest value 2000 or 0.3 bill, Bangladesh lowest 2001 or 0.1 bill 2018 Bangladesh is 2.9 bill and Pakistan 2.4 bill Credit comparative changes such as: 2000–2007 Pakistan (rapid) increases, Bangladesh fluctuates 2007–2012 Pakistan falls, Bangladesh increases 2012–2017 Pakistan increases, Bangladesh fluctuates 2018 Pakistan falls, Bangladesh increases **NO RESERVE FOR DATA** **Must compare** **Units needed:** bill. (but not US$) **Only allow figures given** **Tolerance + or –0.1** B increases from 0.3 to 2.9 bill, P increases 0.3 to 2.4 bill = 2 marks	4
4(b)(ii)	**Describe how foreign direct investment and multinational companies (MNCs) can help the development of industry.** Provide capital / investment Local companies need investment to raise productivity and improve quality of products Difficult to raise capital from Bangladeshi banks Provide expertise from other countries Provide technology / machinery Provide links for inputs / raw materials Open up international markets / global market Train workers / develop management skills / more skilled workers **Credit e.g.s:** Gas industry has attracted foreign investment Garment making industry attracts foreign companies	4

Question	Answer	Marks
4(c)(i)	**Use Fig. 4.2 to describe the distribution of the natural gas fields in Bangladesh.** All on eastern side Mainly N-E / Sylhet province / Sylhet to Comilla / Noakhali / Feni Around Dhaka S-E / Chittagong / Chattogram Offshore / Bay of Bengal / offshore island	**3**
4(c)(ii)	**Name the industry shown in Fig. 4.2 that is linked to natural gas production.** Fertiliser production	**1**
4(d)(i)	**A 'Bangladesh should invest in new gas fields to provide more energy for use in Bangladesh.'** **B 'Bangladesh should invest in new gas fields so gas can be exported.'** **Give one argument which supports statement A.** Demand for energy is increasing More energy (is needed) for industry / electricity … Gas is cheap Bangladesh has large gas reserves Gas is efficient / produces a lot of energy Can increase fertiliser production Which helps increase food production	**1**
4(d)(ii)	**Give one argument which supports statement B.** Bangladesh needs more income for development / increase GDP Foreign exchange earnings Rising world prices benefits Bangladesh Money needed for education / health / infrastructure Money for diversification	**1**
4(d)(iii)	**Which statement do you agree with the most? Give reasons for your answer.** No marks for stating A or B, only for giving reasons. Credit reasons for accepting one and rejecting the other. Accept answers that give support to both statements. Allow points to be developed. Credit reasons why Bangladesh should invest in new gas fields such as: Will attract MNCs Provides jobs with high wages.	**3**

Question	Answer	Marks
5(a)	**Define the population term *natural increase* and show how it is calculated.** Natural increase Difference between the number of births and number of deaths / births minus deaths (during a year) Calculated Birth rate – death rate, per 1000, (usually expressed as a %)	2
5(b)(i)	**Complete the graph on Fig. 5.1 using the data below.** 1 mark for solid line joining points 1 mark for each 2 points correctly plotted <table><tr><td>**year**</td><td>**Death rate (per 1000)**</td></tr><tr><td>1960</td><td>20.3</td></tr><tr><td>1965</td><td>18.2</td></tr><tr><td>1970</td><td>19.0</td></tr><tr><td>1975</td><td>18.0</td></tr></table> Each small square = 0.4 20.3 needs to be < or = first line above 20	3
5(b)(ii)	**Using Fig. 5.1, in which year was the death rate 10 per 1000?** 1991	1

Question	Answer	Marks
5(c)	**Outline the approaches taken in <u>two</u> of the schemes shown in Fig. 5.2 to reduce the number of deaths in Bangladesh.** Control of diarrhoeal diseases (CDD) • Oral rehydration therapy (ORT) • Epidemiological surveillance to track outbreaks of diseases • Emergency medical teams for floods, cyclones and epidemics • Setting up temporary mobile hospitals to deal with epidemics • Health education / increase awareness about oral rehydration / hygiene / sanitation • Improve water treatment / clean water / sanitation Malaria control programme (MCP) • Insecticide spraying in high risk areas • Monitoring of the resistance to drugs • Increased use of (mosquito) nets • Vaccination (since 2021) • Health education / awareness about what causes malaria and how to prevent it Expanded immunisation programme (EIP) • National programme (since 1979) • NGO involvement, especially in rural areas • Polio, DPT (diphtheria, pertussis and tetanus), measles • Government target 90% immunisation • Health education / increased awareness about the need or availability of vaccinations National Action Plan for Nutrition • Introduced 1997 • Target calorie intake 2300 per person • NGOs provide food in rural areas to reduce malnutrition • Health education / increased awareness about diet / nutrition **Max 3 marks if only one scheme.**	4

Question	Answer	Marks
5(d)(i)	**Compare the change in secondary school enrolment in Bangladesh with enrolment in Myanmar and India between 1980 and 2018. Use data from Fig. 5.3 to support your answer.** Bangladesh compared to Myanmar Both increased Bangladesh has increased more than Myanmar 1980 Myanmar > Bangladesh and 2000 / 2018 Bangladesh > Myanmar Bangladesh changed from 19% to 72%, Myanmar from 20% to 68% Bangladesh changed by 53%, Myanmar by 48% Bangladesh compared to India Both increased Bangladesh has more change than India Bangladesh changed from 19% to 72%, India 29% to 75% Bangladesh changed by 53%, India by 46% 1980–2000 then 2000–2018 Refer to Fig. 5.3. **Reserve 1 for data** **Must be a comparison** **Must be a change** **Allow tolerance of 0.5%** **% needed** Bangladesh increased from 19% to 72%, Myanmar increased from 20% to 68% = 2 marks. Bangladesh increased from 19% to 72%, India increased from 29% to 75% = 2 marks.	4

Question	Answer	Marks
5(d)(ii)	**Explain how Bangladesh has increased enrolment in secondary education in the last 20 years.** Government drive to increase school enrolment: Especially in poor rural areas Greater participation of girls Community mobilisation schemes More female teachers Increased public spending on education More state schools Growth of non-government schools NGOs work in poor rural areas e.g. BRAC One-room schools in poor rural areas Some schools allow children who have to work to attend after work Reducing early marriage Increased awareness of benefit of education Increased provision of low-cost / free education Other valid responses accepted	4
5(d)(iii)	**State two educational challenges for Bangladesh.** Improve graduation rate of primary schools Particularly for girls Increase vocational training Increase tertiary / university enrolment Increase in trained / skilled teachers Increase schools in rural areas Increase education spending / make education more affordable	2
5(e)(i)	**'Developing education is more important than improving healthcare for the economic development of Bangladesh.'** **Give one argument why developing education is more important for the economic development of Bangladesh.** More employable / decrease unemployment Lowers illiteracy Meet needs of employers in value-added services and goods Train for skilled jobs Leads to higher output Higher wages – increase GDP, more taxes / increased standard of living Skills to operate in global economy, e.g. English and maths Educated women have fewer children / fewer dependents More professionals to improve future lives Educated workers can work abroad and send remittances home etc.	1

Question	Answer	Marks
5(e)(ii)	**Give <u>one</u> argument why improving healthcare is more important for the economic development of Bangladesh.** Controls disease, e.g. malaria, diarrhoea Enables people to work / earn money Increases LE Decreases DR etc.	**1**
5(e)(iii)	**Do you agree with the statement that developing education is more important than improving healthcare for the economic development of Bangladesh? Give reasons for your answer.** No marks for stating A or B, only for giving reasons. Credit reasons for accepting one and rejecting the other. Accept answers that give support to both statements. Allow points to be developed.	**3**