

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2010 question paper**  
**for the guidance of teachers**

**0448 PAKISTAN STUDIES**

**0448/02**

Paper 2 (Environment of Pakistan), 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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

1 (a) Study Fig. 1 which shows a map of forest types in Pakistan.

(i) Name the forest types found in each of the areas A, B and C.

- A coniferous / alpine
- B riveraine / bela
- C mangrove

[3]

(ii) Name the sea D and the line of latitude E.

- D Arabian (Sea)
- E Tropic of Cancer /  $23\frac{1}{2}^{\circ}\text{N}$

[2]

(iii) Explain why the forest type A grows naturally in cool, hilly areas.

- Can tolerate cold (with a thick bark)
- Can tolerate poor / thin / dry soils
- Can shed snow (with sloping branches etc.)
- Can reduce water loss / transpiration (with needle-shaped / waxy leaves)
- Can absorb water from melting snow (with shallow roots)
- Can save energy (with evergreen leaves)

[3]

(iv) Why is it important that forests by the coast are protected?

- Breeding grounds for fish } max 2 for fish
- Feed amongst roots / protected by roots }
- Shelter from storms / cyclones / high tides / flooding
- Prevents coastal erosion
- Resource for local people – wood for houses, boats, food, fruit } max. 2 for resource
- Habitat / shelter for wildlife
- Under threat from oil spills / overcutting / polluted effluent / etc.

[4]

(b) Study Fig. 2.

With reference to Fig.2, explain how deforestation can cause soil erosion.

- Soil is exposed / lack of protection from leaves and branches
- Surface water flow carried soil away
- Lack of infiltration into ground
- Less water absorbed by roots / less evapotranspiration
- No roots to hold soil
- No leaf fall to add humus / fertility
- Leaching of nutrients / nutrients lost
- No new plants grow

[5]

Page 3	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

(c) There has been development of forests in lowland areas of Punjab and Sindh. Explain the need for irrigation.

(i) Why is irrigation necessary for new plantations of trees?

- Low rainfall / high evapotranspiration
- Seasonal rainfall
- Irregular rainfall / rain not dependable / makes a regular water supply
- Keeps the soil wet / prevents soil erosion
- Root system needs to grow

[2]

(ii) Explain the advantages and disadvantages of developing more irrigated plantations of trees in lowland areas of Punjab and Sindh.

Advantages (res. 2)

- Timber for named use e.g. construction, fencing, firewood
- Food for animals / people
- Leaf fall for humus / fertility
- Rainfall / humidity
- Shade / shelter/ reduce temperatures
- Clean air / more oxygen / absorbs CO<sub>2</sub>
- Scenic beauty/ promote tourism
- Protection from soil erosion
- Employment / work
- Habitat for wildlife
- Eucalyptus trees can reduce waterlogging and salinity

Disadvantages (res. 2)

- High cost /long term investment / not a quick profit
- Cost of maintenance / care
- Need for irrigation / more demand on water supplies
- Loss of land for housing / farmland / other land use
- Problems caused by roots, leaves etc.

[6]

[Total: 25]

Page 4	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

- 2 (a) Study Fig.3, which shows the areas of cultivation for four main crops in Pakistan.
- (i) Which crop covers the greatest area?  
Wheat [1]
- (ii) What is the area covered by this crop?  
8,450–8500 (000 hectares) [1]
- (iii) Name **two** other food crops grown in Pakistan not shown on the graph.  
Millet / jawar / bajra / sorghum  
Pulses / mung / mash / grams / masoor  
Oil seed  
Named fruit e.g. banana / apple / apricot / date / mango / almond / grape  
(apply list rule)  
Named vegetable e.g. tomato / cabbage / carrot [2]
- (b) (i) Describe the methods of cultivation of wheat on barani (rain-fed) lands.  
when the rain falls  
in winter / October-November  
seed sown  
harvested when ripe / after 3–6 months / January–March / 90–120 days  
ploughing/preparation of soil  
fertiliser  
pest control / bird scaring / pesticides  
weed control / weeding / hoeing  
allow collection of rainfall in ponds / tanks  
allow levelling of land / terracing / embankments to conserve water [5]
- (ii) Explain the advantages and disadvantages to wheat farmers of modern irrigation methods such as perennial canals and tubewells.  
Advantages (res. 2)  
Fills rainfall gap / water when needed / reduces dependence on rainfall  
Can be controlled / steady supply (not in heavy showers)  
All year round  
Provides more water / irrigates large lands  
Increases yield  
Double cropping possible  
Needed for HYVs  
Less labour required  
Tubewells can lower the water table / reduce water-logging and salinity
- Disadvantages (res. 2)  
Cost of installation / expensive  
Problems / cost of maintenance / requires fuel or electricity  
Shortages / canals may run dry / competition with other users  
Lack of technology for pumps/wells  
Lack of electricity / power cuts  
Causes waterlogging and salinity + explanation (can go to 2 marks) [5]

Page 5	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

- (c) **Waste products from food crops such as straw from cereals and bagasse from sugarcane have some uses. Explain the importance of waste products such as these. You may refer to those crops shown in Fig. 3 or others.**

bagasse for paper / cardboard / packaging  
 bagasse for chipboard,  
 molasses / bagasse for chemical industry  
 straw for bedding / roofing / strawboard  
 animal food  
 composted  
 mixed into soil / ploughed in  
 bagasse for power stations / fuel

The candidate may refer to 'importance' if so accept

Can save fossil fuels / coal / gas / oil  
 Cheaper than fossil fuels etc. / electricity  
 Etc.

[3]

- (d) **Read the extract below.**

*The farming land in barani areas such as the Potwar Plateau is subjected to soil erosion, overgrazing, and desertification due to poor farm management. This leads to low crop productivity, poor quality livestock and low farm incomes.*

- (i) **What reasons does the writer give for the low farm incomes in barani areas?**

soil erosion, over grazing, desertification

[3]

- (ii) **Explain these, and other causes of low farm incomes.**

Explanation of those reasons stated in (i). This may include those given in the last sentence of the extract.

E.g. Soil erosion means poor root growth and small crop output  
 Overgrazing means lack of food for animals and soil erosion / desertification  
 Desertification causes climatic change and a lack of water  
 Low crop productivity means low incomes leading to less money for better seed, fertiliser etc.  
 Poor quality livestock produces less milk, meat etc.  
 Little money to spend on better seed, fertiliser etc. because of low farm incomes

Also candidates may be given marks for explaining

Traditional farming methods give low yields  
 Small farms so little mechanisation  
 Oppressive landlords (Zamindari) so high rents, no chance of improvement  
 Poor climate so difficult to grow good crops  
 Storms and flooding / pest attacks (e.g. locusts, weevils) destroy crops  
 Illiteracy / lack of education so no improvements  
 Rural – urban migration so able-bodied men leave  
 Waterlogging and salinity reduces cultivable area / yield  
 Lack of government support / investment

[5]

[Total: 25]

Page 6	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

- 3 (a) (i) Name *three* ways by which coal is mined.  
Shaft, adit / drift, open cast
- (ii) Why is coal produced in Pakistan described as low quality?  
Lignite  
Low burning temperature / produces less energy  
Low carbon content / more impurities / more smoke  
High ash content  
High sulphur content [3]
- (b) Study Photograph A (Insert 1), which shows a brickworks near Kanai, Balochistan Plateau. Describe the main features of the brickworks shown in the photograph.  
Furnace / Kilns  
Chimney(s)  
Black smoke / pollution  
Air intakes below ground  
Hard /flat working area  
Piles of finished bricks  
Pattern of small hummocks  
Good / Pucca road / tarred road / highway  
Electricity pylon/ Telephone poles / lines  
Moulds  
Underground entrance [4]
- (c) Study Fig. 4, which shows the location of Pipri steelworks.
- (i) Name *three* raw materials used in production of steel.  
Coal/coke  
Iron ore / scrap iron  
Manganese  
Limestone,  
Oxygen / air  
Chromite [3]
- (ii) With reference to Fig. 4, explain why the steel mills were located here.  
coastal site/ Port (Bin) Qasim for imports  
berths by creek for unloading  
widened channel for effluent / shipping  
railway /road – for supply of limestone / workers  
– for distribution of finished products  
township / houses for workers  
large /open site for waste disposal, storage, building etc. [6]

Page 7	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

(d) Read the extract below.

*Imports of steel increased by 37% from 2004 to 2005 as a growing amount of machinery and industrial steel products flowed in. This is more than any government predictions.*

**Explain the advantages and disadvantages of increasing steel production in Pakistan.**

Advantages (res. 2)

Cheaper supplies (than imports)

Saves foreign currency / improves balance of payments / reduce imports

Can be used for development / industrialisation e.g. construction, machinery

(max 2 examples of use)

Larger GNP / GDP / national income

Independence from other countries

More work / employment

Disadvantages

Lack of raw materials/imported

High cost of imported iron / other raw materials

Burden on economy / less development

Cost / Lack of machinery / technology / set-up costs

Cost / Lack of infrastructure / power supplies / roads etc.

Lack of skilled labour

More waste / named pollution (max 2.)

May encourage rural-urban migration

Accept 'increases balance of payments' if opposite not given in advantages

[6]

**[Total: 25]**

Page 8	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

- 4 (a) Study Fig. 5, which shows the exports of Pakistan in 2007 by percentage.
- (i) What percentage of the exports was cotton?  
60 (%)
- (ii) Suggest reasons why cotton makes up a large percentage of Pakistan's exports.  
Produces a surplus of raw cotton / large production  
Large international demand / Cannot be grown in other countries/Europe  
Cheap labour/ competitive price  
Can be a variety of products  
Many textile mills / factories [3]
- (iii) From Fig. 5 state
- A one item that has increased in its percentage,  
rice
- B two items that have decreased in their percentage. [3]  
Leather, synthetic textiles, sports goods
- (b) Study Photograph B (Insert 1), showing Landhi Export Processing Zone, Karachi.
- (i) What features show that this is a modern, developed industrial estate?  
Good / pucca / metalled / wide  
Street lighting  
Electricity supply  
Trees/ greenery  
Modern / good quality buildings  
Planned / straight roads [4]
- (ii) Explain the importance of Export Processing Zones.  
Good quality goods / export quality / to International standards  
Can increase economy / income / exports / foreign exchange  
Better infrastructure / power / water supply / road etc. (max. 2)  
Good working conditions (max 2)  
Modern buildings  
Incentives e.g. tax breaks, cheap loans  
Attracts investors / entrepreneurs  
Aids growth of small-scale / cottage industries  
Employment / jobs  
Government helps with marketing events / trade fairs [4]



Page 9	Mark Scheme: Teachers' version	Syllabus	er
	IGCSE – May/June 2010	0448	

(c) Study Fig. 6.

(i) Give two advantages of transporting goods by

**A Bullock Cart**

- Cheap / economic
- No fuel cost
- Available / used in other farm work

**B Lorry**

- Quick / fast
  - Carries bigger / heavier load
  - Can go further / does not need to rest
- (2 marks each)

[4]

(ii) To what extent would the building of more motorways such as that between Lahore and Islamabad help the development of industry in Pakistan?

Advantages/ Potential (res. 2)

- Better movement of finished products FROM industry to ports and other towns
- Better movement of raw materials / machinery TO industry
- Stimulates industrial development near motorway / opens up undeveloped areas
- Helps development of dry ports
- Better movement of businessmen / tourists / experts
- Faster travel
- Better road surface / wider for large vehicles / lorries / well-maintained
- Shorter / by-passes towns and villages / short cut
- Relieves other roads / relieves congestion

Disadvantages / Problems (res. 2)

- Expensive
- Takes long time to build
- Needs maintenance
- Cost to economy / increase debt
- Only connects large centres
- Will not go to many small towns / rural areas / anywhere
- Not only motorways help development / other factors influence industrial development [6]

[Total: 25]

Page 10	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

5 (a) Study Fig. 7. The desert climate of Nok Kundi.

- (i) With reference to Fig. 7 describe the yearly distribution of temperature and rainfall in a desert climate.

Res. 1 mark each for temperature and rainfall

Temperature

Hot summers and cool / mild winters

Rises to max. in June / July

Falls to min. in December / January

Rainfall

Wetter in winter than summer / reverse

Decreases Jan – May

Variable May – November

Increases in December

Figures

Allow up to 2 marks for correct figure or range of figures with month(s) from graph [5]

- (ii) Explain how the climate of desert areas affects agricultural and industrial development.

Agriculture (res. 1)

Lack of rain – poor growth / low yields / crops die

Winds – cause soil erosion / crop damage

Water supply – need for storage and / irrigation, wells, canals, Karez

Hot – evaporation of water / high evapotranspiration

Sunny – need for shade e.g. date palms

Storms / heavy showers - cause crop damage

Industry (res.1)

People do not want to live there / lack of people to work

Lack of water for production processes

Lack of agricultural raw materials

Areas are usually un- or under-developed / cracked, sandy roads

Unpleasant working conditions [6]

(b) Study Fig. 8, showing a population pyramid for 2006.

- (i) What percentage of the population is 4 years and under? [1]  
12%
- (ii) Which age group is the largest percentage? [1]  
10–14 years
- (iii) What is the percentage of people over 60 years old? [1]  
7 / 6.5–7.5 %
- (iv) Which age groups are called 'the dependent population'? [2]  
under 15  
over 60 years old (accept other old ages e.g. 65)

Page 11	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0448

(c) Study Fig. 8 again.

- (i) **How is the shape of the population pyramid likely to change from 2006 to 2026?**  
 Narrow base / shorter bars / fewer children under 15 years / young dependants / few young children  
 Wider middle / longer bars / more 15–59 years / more working population / more independents  
 Wider top / longer bars / more over 60s / more old dependants / more old people [3]

- (ii) **The changing shape of the population pyramid affects Pakistan's workforce both now, and for the future. Explain the advantages and disadvantages of the changes.**

Advantages (res.2)

fewer children to look after / more money for development  
 more workers for developing the country / less burden on the economy  
 more young workers / more energetic / innovative  
 young more likely to be educated / more room in schools  
 more old to give advice to young

Disadvantages (res. 2)

more old to look after  
 more unemployment due to larger workforce  
 loss of educated / skilled workers through emigration  
 more taxes needed to support older people  
 examples of needs of old e.g. health care, pensions, care homes [6]

**[Total: 25]**