

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

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

2059 PAKISTAN STUDIES

2059/02

Paper 2 (Environment of Pakistan), maximum raw mark 75

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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 / 23½ °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]

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(c) There has been development of forests in lowland areas of Punjab and Sindh using 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 CO₂

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]

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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]

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- (c) **Waste products from food crops such as straw from cereals and bagasse from sugar cane 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]

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- 3 (a) (i) Name *three* ways by which coal is mined.**
 Shaft, adit / drift, open cast [3]
- (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]

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(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]

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4 (a) Study Fig. 5, which shows the exports of Pakistan in 2007 by percentage.

(i) What percentage of the exports was cotton?

60 (%)

[1]

(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.

Leather, synthetic textiles, sports goods

[3]

(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]

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(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]

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

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(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 / fewer 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]