UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2011 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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UNIVERSITY of CAMBRIDGE
International Examinations

1 (a) Study Photograph A of a Persian Wheel.

(i) With reference to the photograph, explain how this machine is used for water supply. [3]

Worked by animal or man power
Using wooden shaft / pole / log
Turns horizontal wheel / a wheel rotates
Which is attached to vertical wheel
With buckets / cups to raise water
Water goes into trough / pipe / channel

(ii) What are the advantages and disadvantages of replacing this Persian Wheel with a tubewell. [4]

Advantages of tubewell (res. 1)
More efficient / faster / does not need to rest
For larger area / more water / goes deeper
Regular supply / can be used at any time of year / continuous
Less labour required
Cleaner water
Reduces waterlogging and salinity

Disadvantages of tubewell (res.1)
Expensive / cannot be used by poor farmers
Needs fuel /electricity / diesel etc.
Reduces groundwater / lowers water table (as a disadvantage)

Also accept the opposite response e.g. Persian Wheel is cheaper.

(b) Study Fig. 1 which shows canal water supply in Pakistan.

(i) In which year was the water supply highest? [1]

1999

(ii) How much higher was this than the supply in 2002? [1]

31 (million acre feet)

(c) Why is there not enough water supply from canals to meet the needs of all users? [4]

Shortage of rainfall
Evaporation
Less river water / restrictions by India / more dams on rivers
Problem of tail-enders / canal system does not reach all those who need it
Siltation in reservoirs / canals
Seepage / leakage from canals
Wastage by users / some use more than they need
Water pollution
High demand / variety of uses
Theft of water
Population increase
Lack of investment

(d) Explain why waterlogging and salinity of soils causes problems to farmers. [6]

Reduces cultivable area / makes land un-usable
Reduces yield / damages crops
Reduces income / profit
Expensive to reclaim land / treat soil

Reasons why this occurs
Water table rises / water collects on the surface / water on roots
Evaporation (caused by hot climate)
Fertilisers add to salts in water
Salts left behind / form a hard crust on surface
Soil becomes infertile / toxic
Farmers use too much water / poor farming methods
Perennial water supply / available all year

(e) Water pollution is a major problem in urban areas.
With reference to examples, explain some of the causes of this pollution, and why it is a major problem to the people who rely on this water supply. [6]

Causes (res. 1)

Explanation of	Human waste	e.g. because no sanitation / untreated sewage
	Industrial waste	e.g. dumping in rivers
	Litter / plastic/paper	e.g. because no organised collection
	Oil spills	e.g. from washing of tanks / ship breaking
	Agricultural runoff	e.g. because of use of chemicals / fertilisers and insecticides

Problems (res. 1)
Not for drinking / poisonous / contaminates groundwater
Cost of treatment
Causes disease
– risk of cholera, typhoid, diarrhoea , hepatitis, dysentery etc.
Not for food processing (e.g. fish canning)
Smells
Reduces fish catch / kills fish
Can damage machinery
Blocks ditches / canals / causes flooding
– risk of malaria from stagnant water

[Total: 25]

2 (a) MAIZE PULSES MILLET OILSEEDS TOBACCO

(i) Name <u>two</u> crops on the list that are used mainly for animal feed. [2]

maize, millet, oil seeds

(ii) Name <u>one</u> crop on the list that is <u>not</u> a food crop. [1]

Tobacco

(iii) Name <u>one</u> crop that is rich in protein. [1]

Pulses

(iv) Name <u>one</u> type of oil seed. [1]

Rape, mustard, groundnut, sesame, sunflower, safflower, soya bean

(b) (i) What is meant by a barani crop? [1]

Grown without irrigation
Grown in rainy season

(ii) Name <u>one</u> area of Pakistan where most wheat is grown by the barani method. [1]

Potwar Plateau, Northern Punjab, Piedmont plains
See atlas for a named district in these areas
e.g. Sheikhupera, Sialkot, Gujrat, Jehlum, Rawalpindi, Attock and more

(iii) Study Fig. 2, which shows the months when wheat is grown by the barani method. How much rain fell in the wettest month? [1]

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(iv) Describe the barani method of wheat cultivation with reference to the temperatures and rainfall shown on Fig. 2. [5]

Sown at beginning of winter / Oct–Dec
As rainfall increases (16–41 mms)
When temperatures are mild (4–19 °C)

Grain swells in March–April
With higher rainfall (88–107 mms)

Crop ripens / is harvested in spring / April–May
When temperatures warmer (12–23 °C)

<u>NB Credit any figure within these ranges but must state °C</u>

(c) (i) Explain why crop yields may be low when subsistence farming methods are used. [6]

Uneducated / lack of knowledge of modern methods / use of traditional methods
Animals / draft power
Primitive irrigation system
No mechanisation / tractors
Family / unskilled labour
Poor seed / seeds from last harvest / no HYVs
No fertilisers / pesticides
Dung for manure

(ii) To what extent can training and land reform be successful in increasing agricultural production? [6]

Training (res. 1)
Better management / efficiency e.g. knowledge of weather, understanding of soils
Better methods of cultivation,
Knowledge of disease
Better seeds / use of HYVs
Proper use of fertilisers and pesticides
Use of machinery / technology
Better money management / can get loans
Better marketing

Land reform (res. 1)
More efficient use of land
Fields for mechanisation,
Less time wasted,
Lower transport costs
More independence / free from control of landlords

BUT (i.e. To what extent) (res. 1)
Reference to:
Illiteracy
Poverty
Power of landlords (Zamidari)
Floods
Etc.

[Total: 25]

3 (a) (i) Name the two <u>main</u> raw materials quarried in Pakistan that are used to make cement. [2]

Limestone and gypsum

(ii) Name three <u>other</u> inputs used by a cement factory. [3]

Labour,
Land / area
Buildings
Machinery
Money / capital / investment
Power / electricity / gas / coal / oil
Water

Limestone } if not in **(i)**
Gypsum }

(b) QUARRYING CRUSHING PACKING DRIVER SALESMAN OFFICE WORKER

(i) From the list above, state <u>one</u> example of: [3]

A Primary employment

Quarrying / crushing

B Secondary employment

Packing, crushing

C Tertiary employment

Driver, salesman, office worker

(ii) Explain why a salesman should have a good education. [4]

Good communicator
Polite manners / etiquette
Knowledge of what he is selling
Knowledge of other cultures / can deal with foreign customers
Use of computers / modern technology
Can write letters etc. / read instructions
Speaking English / other languages
Use of figures / mathematics / calculations
Open to new ideas

(c) Study Photograph B (Insert), of Karachi.

(i) State <u>three</u> uses of concrete shown on the photograph. [3]

Roads / pavement
Bridges
Multi-storey buildings
Housing / flats
Factories
Offices
Shops
Street furniture e.g. lamp or electricity poles, bollards

(ii) Using your answer to (c)(i), explain the importance of concrete to the development of Karachi. [4]

Developing / increasing population, industrialisation, offices, housing, ports, roads, example of infrastructure etc. (allow any 2)
Better roads for transport
Better bridges for access
Stronger building materials
Long-lasting / more durable / less chance of damage
More modern appearance
Improving slums / squatters / Kacha Abadi

(iii) What are the advantages and disadvantages of building large industrial developments such as cement works, close to major cities? [6]

<u>Allow advantages and disadvantages to industries and / or city / citizens but do not double mark.</u>

<u>Advantages (res. 2)</u>
<u>To city and citizens</u>
Cheaper transport costs to work
Readily available / quicker supply
Employment

<u>To cement company</u>
Supply of labour
Good infrastructure e.g. port, roads, electricity, water (up to 2)
Market / near demand
Cheaper delivery costs

<u>Disadvantages (res. 2)</u>
Air pollution / dust / smoke }
Noise }
Visual pollution / quarries } pollution (max 2)
Water pollution }
Dumping of waste }
Traffic congestion
Loss of farmland
Loss of other land uses e.g. housing, roads, industry (max. 1)
Population growth / rural-urban migration
Squatters / Kacha Abadi / slums
May be distance from raw materials

NB. Answers may refer to <u>industrial estates (EPZ)</u> or other industries.

[Total: 25]

4 (a) Study Fig. 3, which shows the levels of literacy in urban and rural areas.

(i) State the percentage of literate people in urban areas. [1]

62/63

(ii) How much greater is this than the percentage of literate people in rural areas? [1]

24–26
(Allow correct answer if working shows error carried forward from **(i)**.)

(iii) Give <u>two</u> reasons why the percentage of literate people is larger in urban than in rural areas. [2]

Jobs for literate / young people
Better schools / colleges /education
More educated women
Traditional farming does not require education
Can afford education

Accept the opposite – why lower % in rural areas.

(iv) Using examples, explain why there are many jobs for illiterate and poorly educated people in urban areas. [3]

Examples (max 1)(res. 1)
Cleaners, servants, street sellers, etc.

Explanation (max 2)
It is a developed area so factories, building work etc.
Rich people can afford this
Their labour is cheap
Unskilled work available
Low standards of living
Plenty of informal employment opportunities / lack of formal, regular waged employment

(b) Study Photograph C (Insert).
With reference to the photograph and using your own knowledge, explain why many people become ill in homes like these. [6]

Pool of water encourages mosquitos
– risk of malaria }
Water pollution / lack of clean water
Lack of sanitation / unhygienic
– risk of typhoid, cholera, diarrhea etc. } named illness without explanation (max 1)
Dust / air pollution
– risk of asthma / breathing difficulties, }
Waste dumped / lack of disposal of waste / dirty environment
Congested / high density / live close together
Kacha Abadi / Flimsy buildings / leaky roofs / slums
– risk of flu, bronchitis, pneumonia etc. }
Spread of disease
Malnutrition / poor food supply
No resistance to disease
Poverty / no jobs
Illiteracy

(c) Why do people in villages think that their quality of life will improve if they move to a city? [6]

Better housing
More chances of employment / jobs with higher incomes, regular income etc.
Easier work / better working conditions (than farming)
Electricity / gas
Telecommunication / telephone / internet
Sanitation / sewage disposal / more hygienic / cleaner
Water – more / clean water
Access to entertainment / bright lights / clubs / parks
Media encourages perception of a better life
Good shops / major chains / markets
More food / better food
Public transport
Education
Health care / hospitals
Security / police

(d) The government can introduce self-help schemes to improve the living conditions of people in shanty developments and tent cities.
Explain the advantages and disadvantages of self-help schemes. [6]

<u>Advantages (res 2)s</u>
Reduces poverty
Healthier environment / less disease / lower death rates
Encourages people (to better themselves / work harder etc.) / improve skills / get jobs
Can build better housing / fewer slums
Better care of the area
Removes unwanted people
May reduce crime rates
Removes an eyesore / encourages tourism
Less labour required

<u>Disadvantages (res. 2)</u>
High cost / lack of finance available
Corruption (money goes elsewhere)
Takes time to achieve
High risk of failure in Pakistan
Lack of resources to do this
Where do people go / moves the problem elsewhere
May attract more people / more rural-urban migration
Need for education

[Total: 25]

5 (a) Describe the route of the main monsoon across Pakistan. [3]

East to west / from NE / from East
From Bay of Bengal / Northern India
Across Punjab / upper Indus Plain
Towards the Northern Areas / mountains / interior Asia

(b) Study Fig. 4, which shows the rainfall of Peshawar and Lahore.

(i) Using figures from Fig. 4 in your answer, compare the distribution of rainfall from June to September at Lahore and Peshawar. [4]

Comparative figures (res. 1)
Max 68 mms in Peshawar, 202 mms in Lahore
Totals June – September
Figures for any one month with comparative word

Comparisons
Less in Peshawar
Maximum later in Peshawar
Max in Aug in Peshawar, July in Lahore
Annual minimum in June in Peshawar but not Lahore

NB candidates must write about distribution of rain over the period.

(ii) Explain why there are differences in amounts of rainfall caused by the monsoon in different areas of Pakistan. [4]

Depends on moisture content / humidity
Loses moisture / drier as it crosses the land / Pakistan is at the tail end
More rain as it rises over hills
Condensation / clouds caused by cooling of rising air
Rain shadow effect on lee slopes
Climate change with reason e.g. global warming, ozone layer (max 1)

(c) Study Figs 5A and 5B, which show rainfall distribution in Pakistan.

(i) What is the main cause of rainfall from: [2]

A December to March?

Western depressions

B April to June?

Convection currents / thunderstorms

(ii) Name one area which receives high rainfall in both seasons A and B. [1]

N Punjab / central NWFP / Peshawar
See atlas for a named district in these areas

(iii) Which area receives the highest rainfall from December to March? [1]

More than in summer – Western borders / Quetta
More than rest of Pakistan – N Punjab / central NWFP / Peshawar
See atlas for a named district in these areas

(iv) What are the advantages and disadvantages of winter rainfall in Northern Pakistan? [6]

Advantages (res. 2)
Fills reservoirs / rivers / more storage
Water for irrigation
Water for HEP
Water for barani crops
Water for kharif / winter crops / fruit trees
Water when everything else is frozen
Lighter form of rain – can soak in
Snow for tourism

Disadvantages (res. 2)
May fall as snow }
Rivers / lakes frozen } so of little use
Temperatures too cold for growth }
Damage to environment – landslides, mudslides, floods etc. (allow avalanches) (max 1)
Damage to roads – blockage, slippery etc.
Silt collects in reservoirs / dams
Difficulties meaning farmers must do transhumance/ nomadism

(d) Explain the importance of the arrival of the monsoon to people who live and work in urban areas. [4]

Benefits
Cooler – better working and living conditions / pleasant climate
Fresher – less dust, pollution, cleaner air
Water supply – for drinking, factories, market gardens, buffalo (not rural farming)

Problems
Flooding (up to 2 marks)
People cannot get to work
Loss of production

NB. Urban areas only
Max 2 marks for any line

[Total: 25]