Natural Resources (WATER, FORESTS, MINERALS AND FISHING) 2059 QUESTINONS

Compiled by: Mustafa Asif

a) Water

Candidates should be able to:

• identify on a map the Mangla, Tarbela and Warsak dams, and name two examples of barrages
• understand the importance of water as a resource; understand how supplies for agricultural, industrial
and domestic purposes are obtained, maintained and controlled as well as used; understand the reasons for, and consequences of, the Indus Water Treaty
• explain and evaluate the causes of and solutions to the problems of water supply (including pollution)
• understand the value of water as a resource for development
• explain and evaluate how water supply issues can lead to conflict.

b) Forests

Candidates should be able to:

• understand the different types of forest and identify, on a map, their main locations
• understand the physical factors that control the distribution of the different types of forest, and the human factors which have reduced their extent
• understand the reasons for:
– the development of plantations in the Indus Plain
– afforestation on mountain slopes and plateaux
• understand the value of forests as a resource for development, and the importance of their sustainability
• explain the effects of deforestation, such as soil erosion, silting and flooding
• evaluate possible solutions to the problems caused by deforestation.

c) Mineral resources

Candidates should be able to:

• identify the main locations of limestone, gypsum and rock salt extraction from a map, and understand
their uses
• identify the main metallic and non-metallic mineral resources of Pakistan, and in what quantities they:
– are extracted
– exist as reserves
• understand the extent to which these can be exploited
• describe the environmental problems caused by mineral extraction
• evaluate the benefits of developing mineral resources and understand the sustainability of extraction
• identify the main imported minerals, where they come from, and in what quantities.

d) Fish

Candidates should be able to:

• describe the fishing methods used in both marine and inland waters, including fish farms
• give examples of the fish caught in both marine and inland waters, and of the fish reared on fish farms
• give examples of the fishing ports on both the Balochistan and Sindh coasts
• describe the uses of the fish caught
• explain improvements in fishing methods and processing techniques
• understand the problems facing the fishing industry and evaluate the possibilities for its further development and sustainability

M/J18/P2/Q2(FOREST)

(a) (i) Study Fig. 2.1, a map showing forest types in Pakistan.

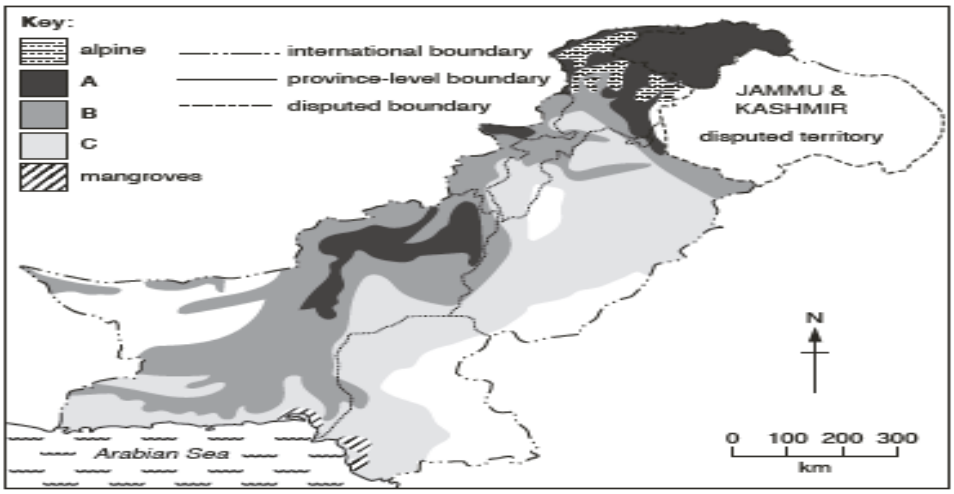

Fig. 2.1

Name the forest types shown at A, B and C:

A .....

B .....

C ..... [3]

(ii) Using Fig. 2.1, name two areas in Pakistan where mangroves grow.

1 .....

2 ..... [2]

(b) (i) Describe two natural characteristics of mangrove forests.

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(ii) Describe two functions of forests.

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(iii) Suggest three physical factors which determine the type and density of forests.

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(c) (i) Study Fig. 2.2, which shows a coniferous tree.

Fig. 2.2

Explain how this type of tree has adapted to the climatic conditions it grows in. You should develop your answer.

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(ii) State three causes of deforestation in Pakistan.

1 .....

2 .....

3 .....[3]

(d) Around 5 per cent of the land area of Pakistan is forested. To meet sustainable development targets the amount of land covered by forest needs to increase to 25 per cent by 2030. Read the following two views about possible uses of land in Pakistan:

A

Increased forest cover is an important use of land for the future development of Pakistan.

B

There are more important uses of land for the future development of Pakistan than increased forest cover.

Which view do you agree with more? Give reasons to support your answer and refer to examples you have studied. You should consider View A and View B in your answer.

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[TOTAL: 25]

O/N17/P2/Q3(a) -Fishing

(a) (i) A Name a species of fish reared on a fish farm.

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B Give **two** uses for the products of fish farms.

1 .....

2 .....[3]

(ii) Describe the methods used to rear fish on fish farms.

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O/N17/P2/Q4(c)-Forests

(c) (i) Name **one** type of tree grown on plantations in Pakistan.

.....[1]

(ii) Describe **three** physical factors which influence the distribution of forests.

1 .....

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2 .....

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3 .....

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M/J17/P2/Q4-Water

(a) (i) Study Fig. 5, which shows a diagram of the karez system of irrigation.

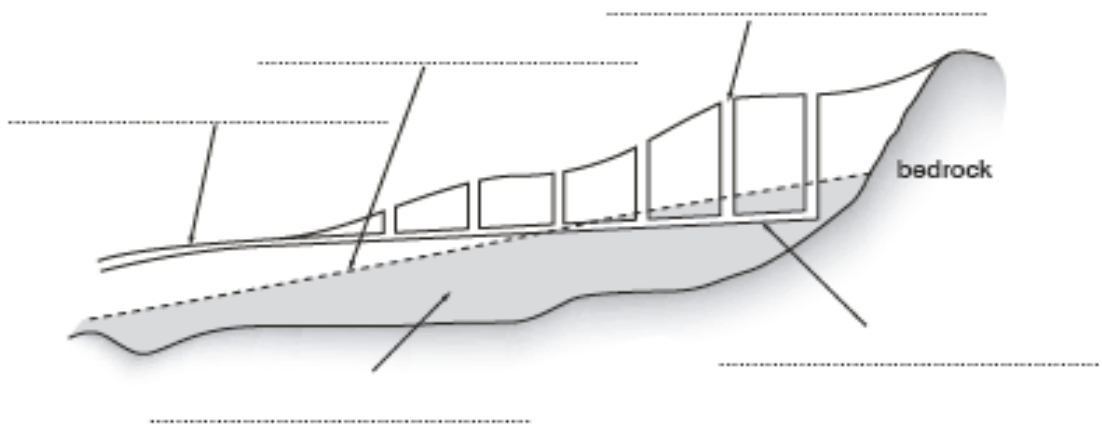

Fig. 5

Choose three terms from the list below and use them to label the diagram in three of the spaces provided.

maintenance shaft aquifer canal tunnel water table [3]

(ii) Give an example of a barrage in Pakistan and name the river it is on.

Barrage .....

River .....[2]

(iii) State why barrages are needed in Pakistan.

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.....[2]

(b) (i) Describe two ways in which the atmosphere in Pakistan can be polluted.

1 .....

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2 .....

.....[2]

(ii) Explain how the use of chemical fertilisers on farms damages the natural environment. You should develop your answer.

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(c) Study Fig. 6, which shows water use by sector in Pakistan in 2008.

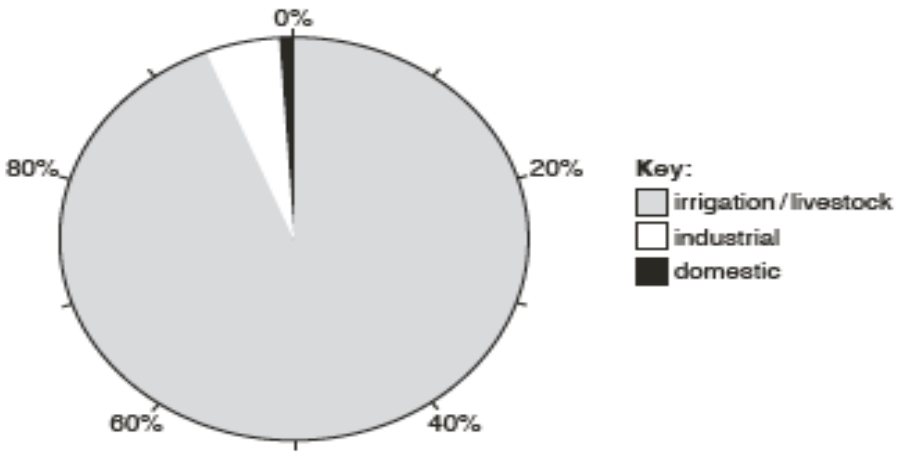

Fig. 6

(i) A Which sector used least water?

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B How much water was used by the irrigation/livestock sector?

.....[2]

(ii) Name a type of industry that uses large amounts of water.

.....[1]

(iii) About 60% of irrigation water is lost before it reaches crops. Give three reasons why irrigation water is lost in this way.

1 .....

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2 .....

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3 .....

.....[3]

(d) Read the following two views about water shortages in Pakistan:

A

The best way to prevent water shortages in Pakistan is to build more dams and other infrastructure projects. These will store or supply more water.

B

The best way to prevent water shortages in Pakistan is to educate people about different methods of saving water. These methods could be carried out in agriculture, industry, and in homes.

Which view do you agree with more? Give reasons to support your answer and refer to examples you have studied. You should consider **both** View A and View B in your answer.

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[TOTAL: 25]

O/N16/P2/Q1(c)-Forests

(c) Study Fig. 2 which is a map showing different forest types in Pakistan.

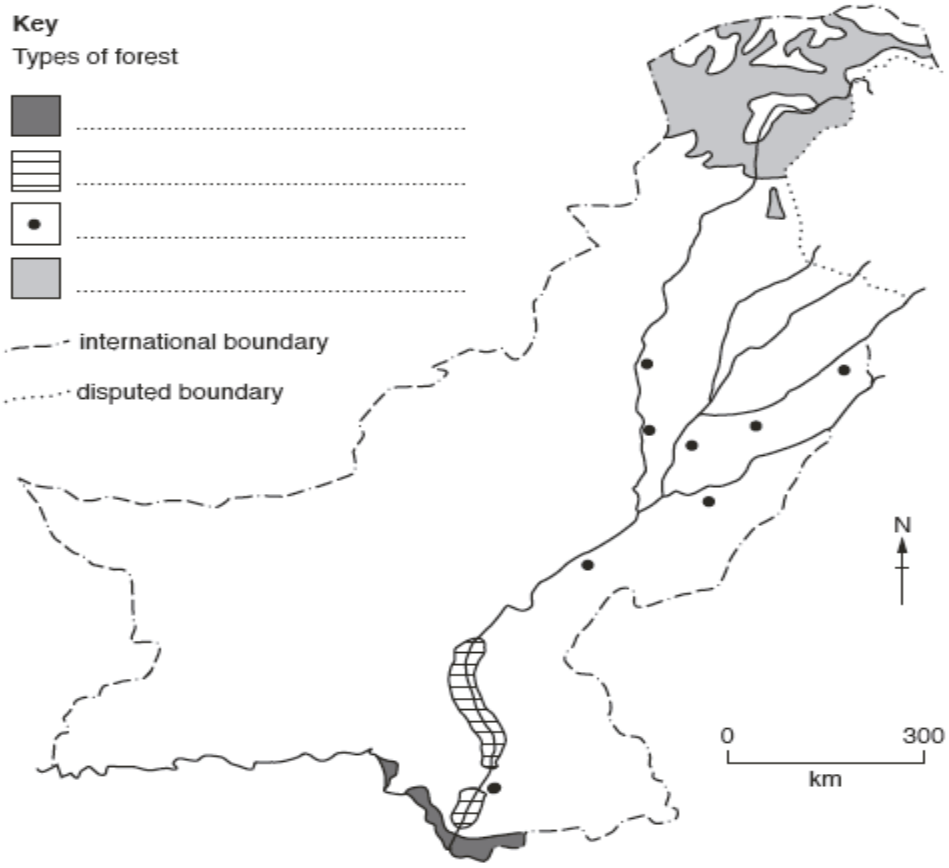

Fig. 2

(i) **In the key**, name the types of forest shown on the map. [2]

(ii) For **one** of the forest types you have named in **(i)**:
- Describe the features of the forest.
- Explain the uses or purpose of the trees that grow there.

Forest type name .....

Description .....

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Explanation .....

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O/N16/P2/Q1(a)-Mining

(a) Study Fig. 3 which is a map showing the locations where three different non-metallic minerals are extracted in Pakistan.

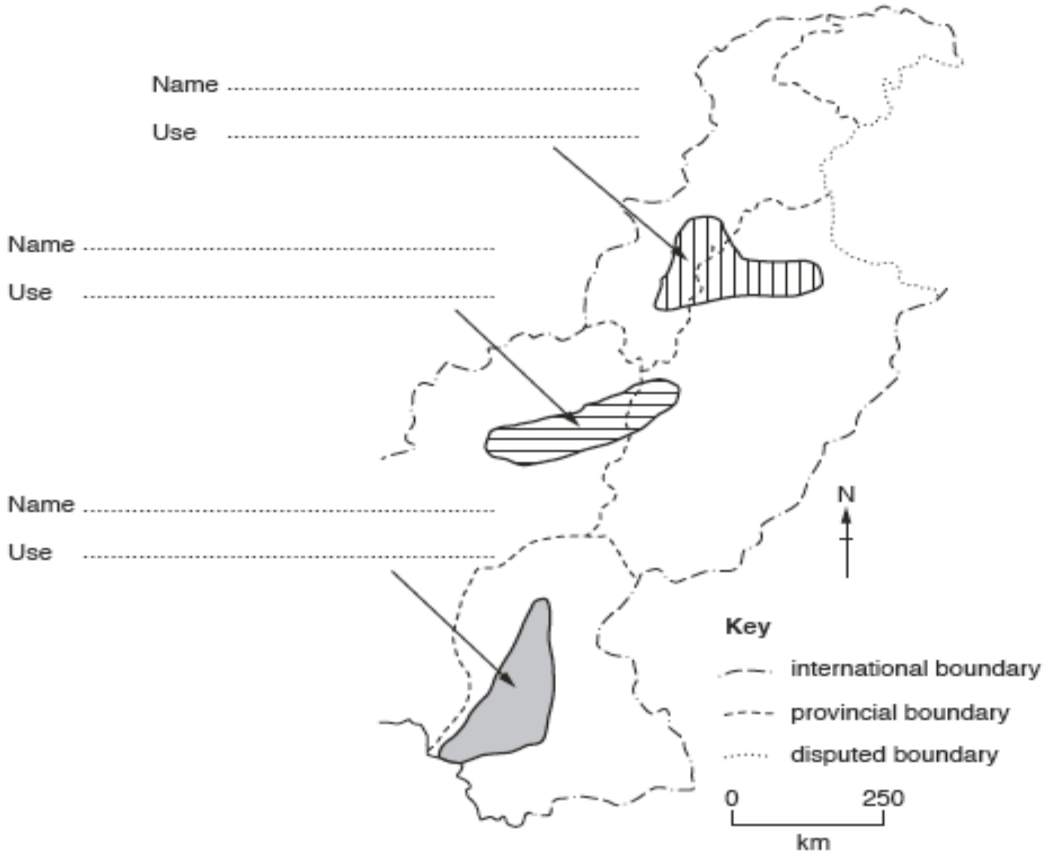

Fig. 3

(i) For any **two** locations, state the name of the mineral extracted and a use for this mineral. Write your answers in the spaces provided on Fig. 3. [4]

You should choose from the following list:

gypsum limestone rocksalt

(ii) Using Fig. 3 and your own knowledge, suggest difficulties there may be in getting minerals to export markets.

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.....[3]

O/N16/P2/Q5(c) –Fishing

(c) (i) Name a fishing port on the Sindh coast.

.....[1]

(ii) Describe activities that are involved in the secondary sector of the fishing industry.

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(d) To what extent is it possible to develop the fish processing industry further in Pakistan? Give reasons to support your answer and refer to places or examples you have studied.

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[TOTAL: 25]

M/J16/P2/Q4(Water, forests and fishing)

(a) (i) Study Fig. 7 which is a diagram of an HEP (Hydel) power station.

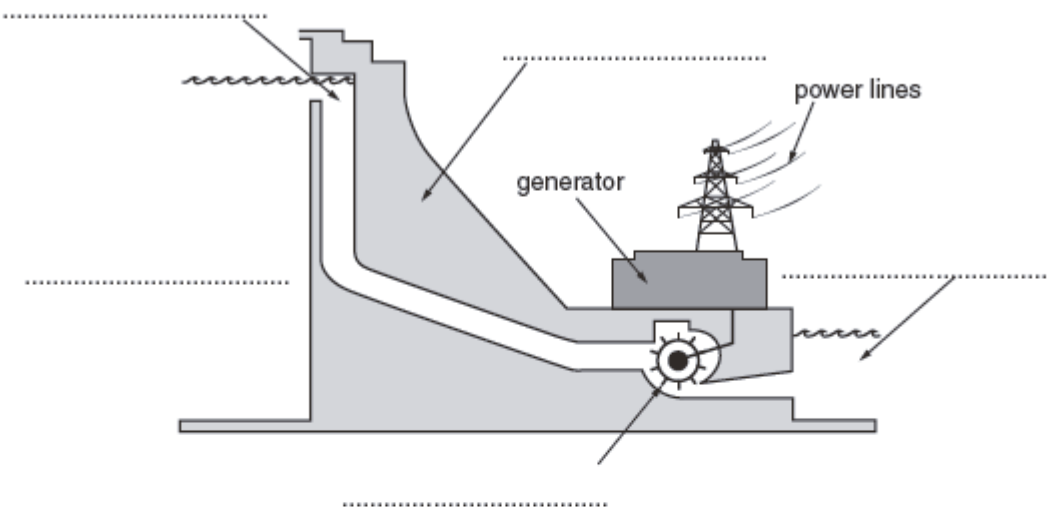

Fig. 7

A. **On the diagram** place an arrow or arrows to indicate the direction of movement of water through the power station.

B. Choose **two** terms from the list below and use them to label the diagram in **two** of the spaces provided.

outflow turbine reservoir dam [3]

(ii) Name **one** multi-purpose dam in Pakistan.

.....[1]

(iii) Give **two** uses for a dam such as the one you named in **(ii)**.

1 .....

2 .....[2]

INSERT

(b) (i) Study Photograph A (Insert). Identify the type of forest vegetation shown in the photograph.

.....[1]

(ii) Study Fig. 8 which gives information about different types of forested area in Pakistan.

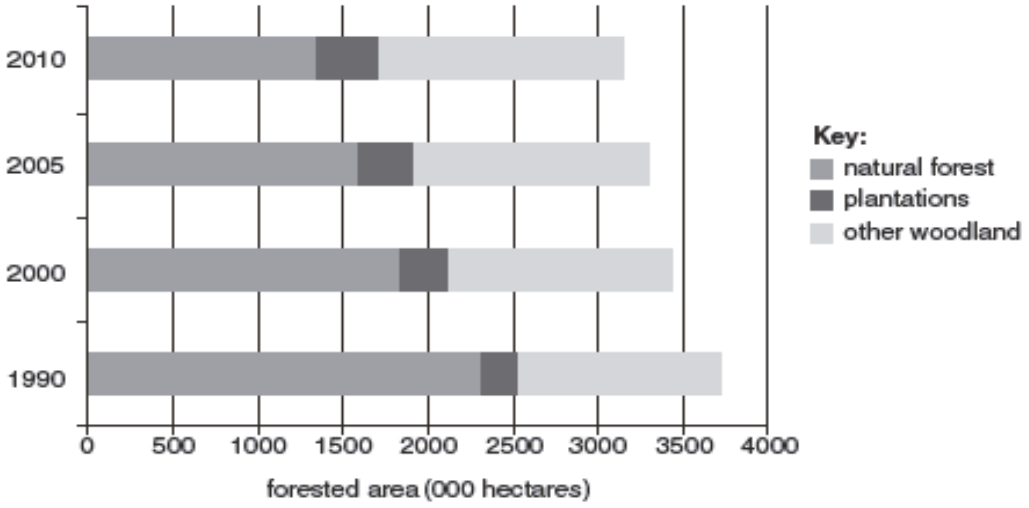

Fig. 8

Describe **one** main change in forested area over the period shown.

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.....[1]

(iii) State the main difference between natural forest and plantations.

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.....[1]

(iv) In 2014 about 4.2% of the land area of Pakistan was covered in forest. Explain why more forests need to be planted in the Indus Plain.

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(c) (i) Name **two** fishing ports on the Makran Coast.

1 .....

2 .....[2]

(ii) Describe the methods used in commercial marine fishing.

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(d) To what extent is it possible for marine fishing to be developed sustainably in Pakistan? Give reasons to support your answer.

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[TOTAL: 25]

O/N15/P2/Q1(Water and Forests)

(a) (i) Describe two ways in which water supplies can be polluted.

1 .....

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2 .....

.....[2]

(ii) For one of these ways explain how the problem caused by pollution can be solved.

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(b) Study Fig. 1, a map showing the major rivers of Pakistan.

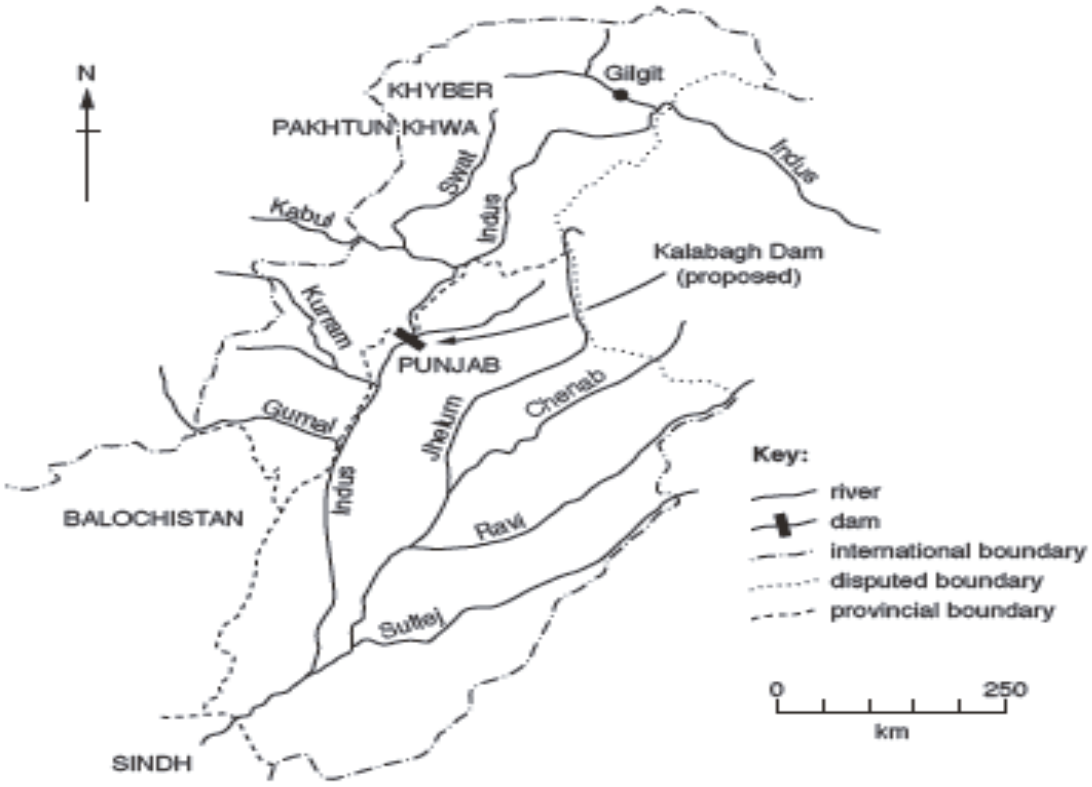

Fig. 1

(I) Locate the following two dams **on the map**:

- Warsak (W);
- Diamir Bhasha (under construction) (D). This dam is 150 km downstream of Gilgit.

Mark their positions using the appropriate symbol from the key and label each with the correct letter. [2]

(II) What are the advantages of building a dam at the Diamir Bhasha site?

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(III) Read the following article about the proposal to build a new dam, the Kalabagh, on the River Indus at the point indicated on the map, Fig. 1.

> Kalabagh Dam – A Controversial Issue
>
> Punjab wants the Kalabagh Dam to be built, but there is opposition to the project from a section of the population in Sindh, Khyber Pakhtunkhwa and Balochistan.
>
> Those who are opposed to the dam argue that it might be beneficial for Punjab and harmful for the other provinces.
>
> The Kalabagh Dam issue is difficult to resolve at this stage.

Describe the disputes over water availability and use which can arise from proposals to build dams at sites such as this.

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INSERT

Photograph A for Question 1

Photograph B for Question 1

(c) Study Photographs A and B (Insert), which show typical scenes of deforestation.

(I) State **one** use of timber from forests that have been cut down.

.....[1]

(II) Using the photographs and your own knowledge, describe the effects of deforestation on the natural environment.

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(d)

Pakistan is rapidly losing its trees. Over the period 2000–2007 the country's forests decreased at a rate of 2.2% per year, the ninth highest rate among the world's nations.

What actions can be taken to reduce deforestation? To what extent are these actions possible in Pakistan?

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[Total: 25]

M/J15/P2/Q2(a and b)-mining

2 **(a)** Study Figs 3 and 4 which give information about the extraction of three metallic minerals in Pakistan in 2010–11.

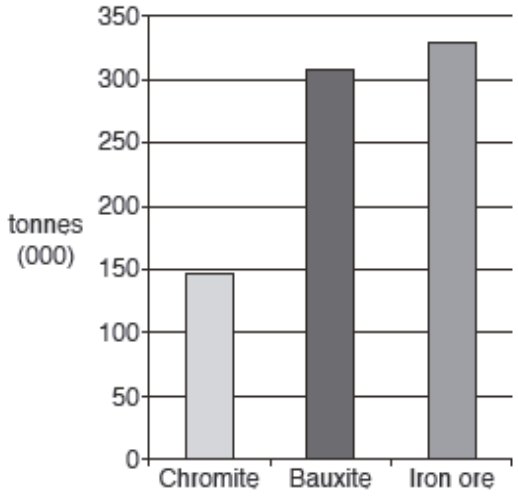

Fig. 3

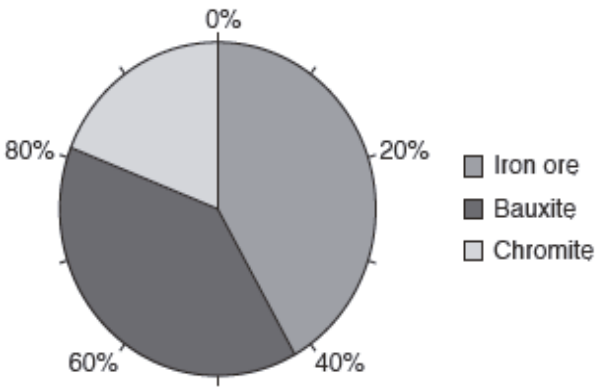

Fig. 4

(i) How much iron ore was extracted in 2010–11?

.....[1]

(ii) State the difference between the type of information being provided in Fig. 3 compared to that in Fig. 4.

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.....[1]

(b) **(i)** Give **one** use for the mineral chromite and name **one** area where it is extracted in Pakistan.

Use .....

Area .....[2]

(ii) What are the benefits of extracting mineral resources for local people and the national economy?

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(iii) Explain the effects of mineral extraction on the natural environment.

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O/N14/P2/Q1-Water and Forests

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

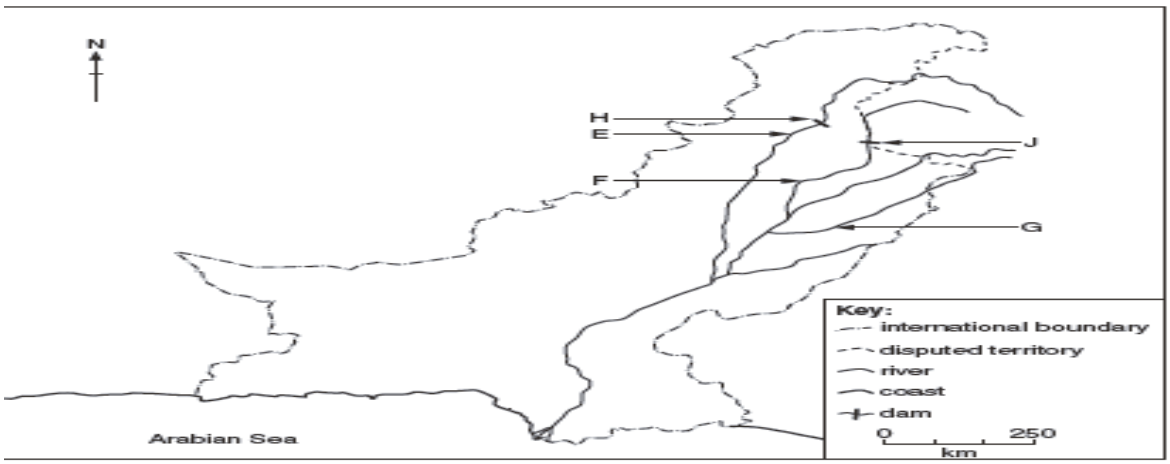

Fig. 1

Name:

(i) The rivers

E .....

F .....

G ..... [3]

(ii) One of the dams

H .....

or

J ..... [1]

(b) What is meant by

A a link canal .....

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B a perennial canal .....

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C an inundation canal? .....

.....[3]

(c) Explain the importance of the Indus Water Treaty to Pakistan.

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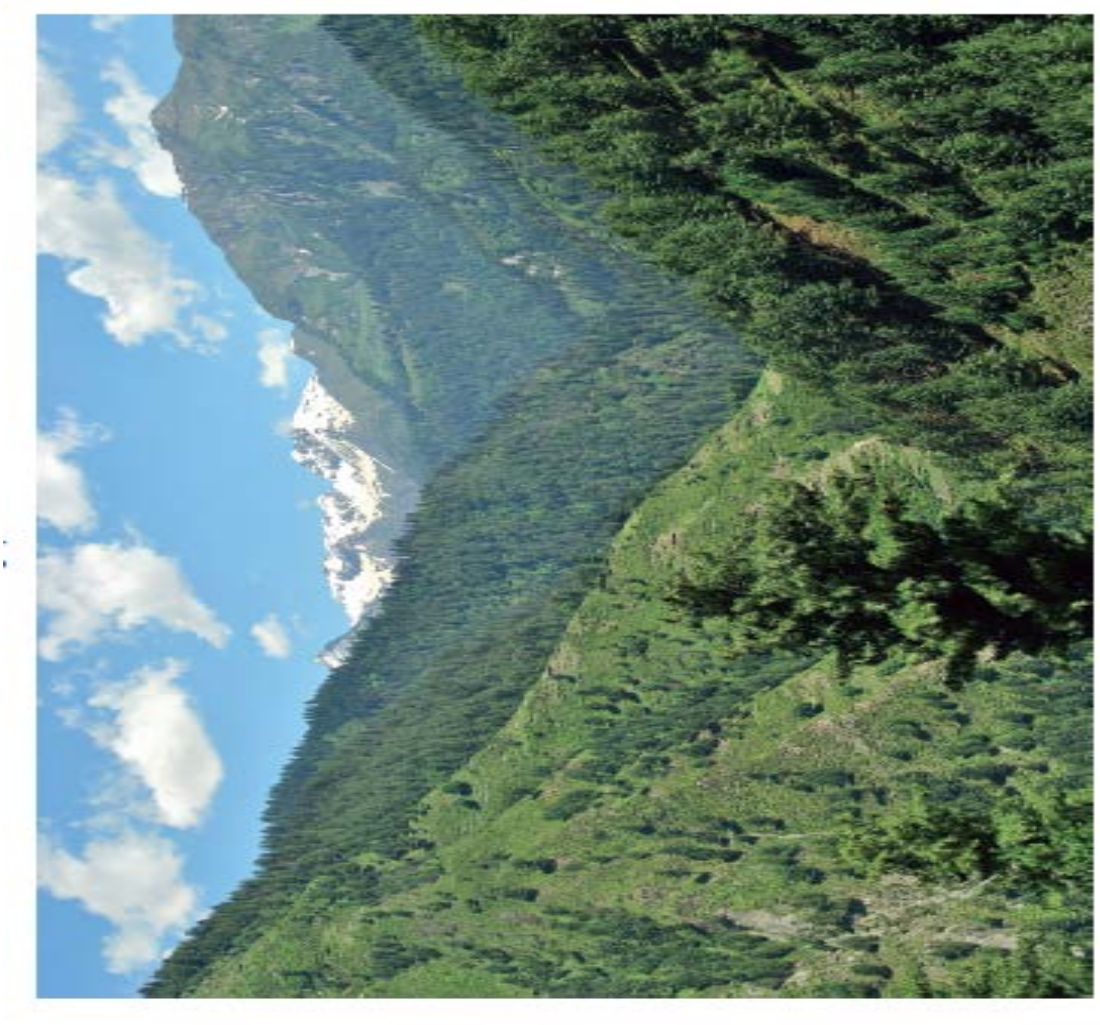

(d) Study Photograph A.

(I) Name the type of forest shown.

..... [1]

(II) Suggest **three** reasons why these forests are being cut down.

1 .....

2 .....

3 .....[3]

(III) Explain the effects of this deforestation.

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(e) To what extent is it possible to save and even increase the area of forests in Pakistan? Explain your answer.

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[Total: 25]

M/J14/P2/Q4(a,b,c and d)-Forests

(a) Study Fig. 7, a map of deforestation in Pakistan.

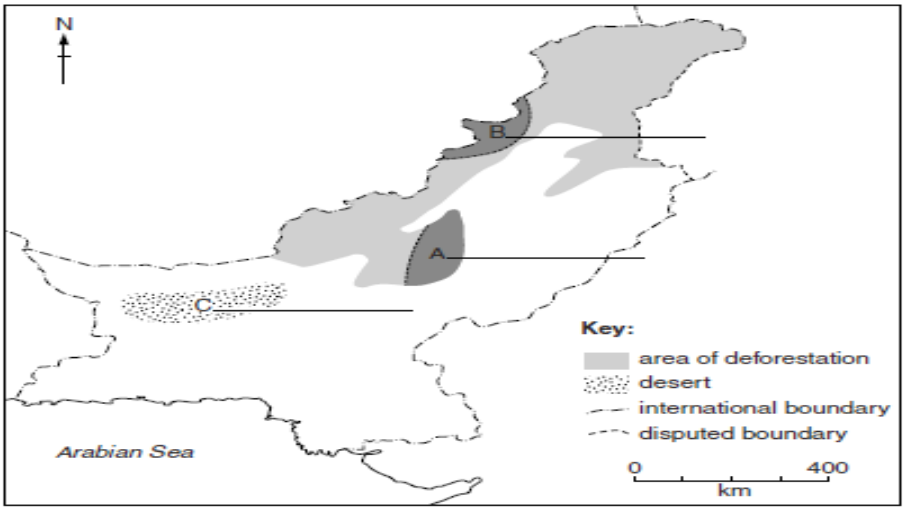

Fig. 7

(i) Name the areas of deforestation A and B. [2]

(ii) Name the desert C. [1]

(iii) State **three** reasons why deforestation occurs in one of the areas shown on Fig. 7.

1 .....

2 .....

3 .....[3]

(b) Study the article below from 'Dawn', November 4th, 2011.

> Pakistan has the highest annual deforestation rate in Asia.
> The forests only cover 2.5% of the country's land. At the time of independence they covered 33%. If deforestation is not more strictly controlled, the country will not be able to meet its commitment under the UN Development Goal. This goal is to increase its forest cover to 6% by 2015.

(I) By how much has forest cover decreased since independence?

.....[1]

(II) By how much should it increase by 2015 to meet its commitment under the UN Development Goal?

.....[1]

(c) State and explain **three** effects of deforestation in mountainous areas.

Effect .....

Explanation .....

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Effect .....

Explanation .....

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Effect .....

Explanation .....

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[6]

(d) Explain how forests can become a source of income for the people of rural areas.

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.....[4]

O/N13/P2/Q1(a)-Forests

Photograph A for Question 1

(a) Study Photograph A (Insert).

Name the irrigation system shown in the photograph and explain briefly how it works.

Name.....

How it works .....

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..... [4]

O/N13/P2/Q4(b)

(b) Study Fig. 6, a map of Pakistan.

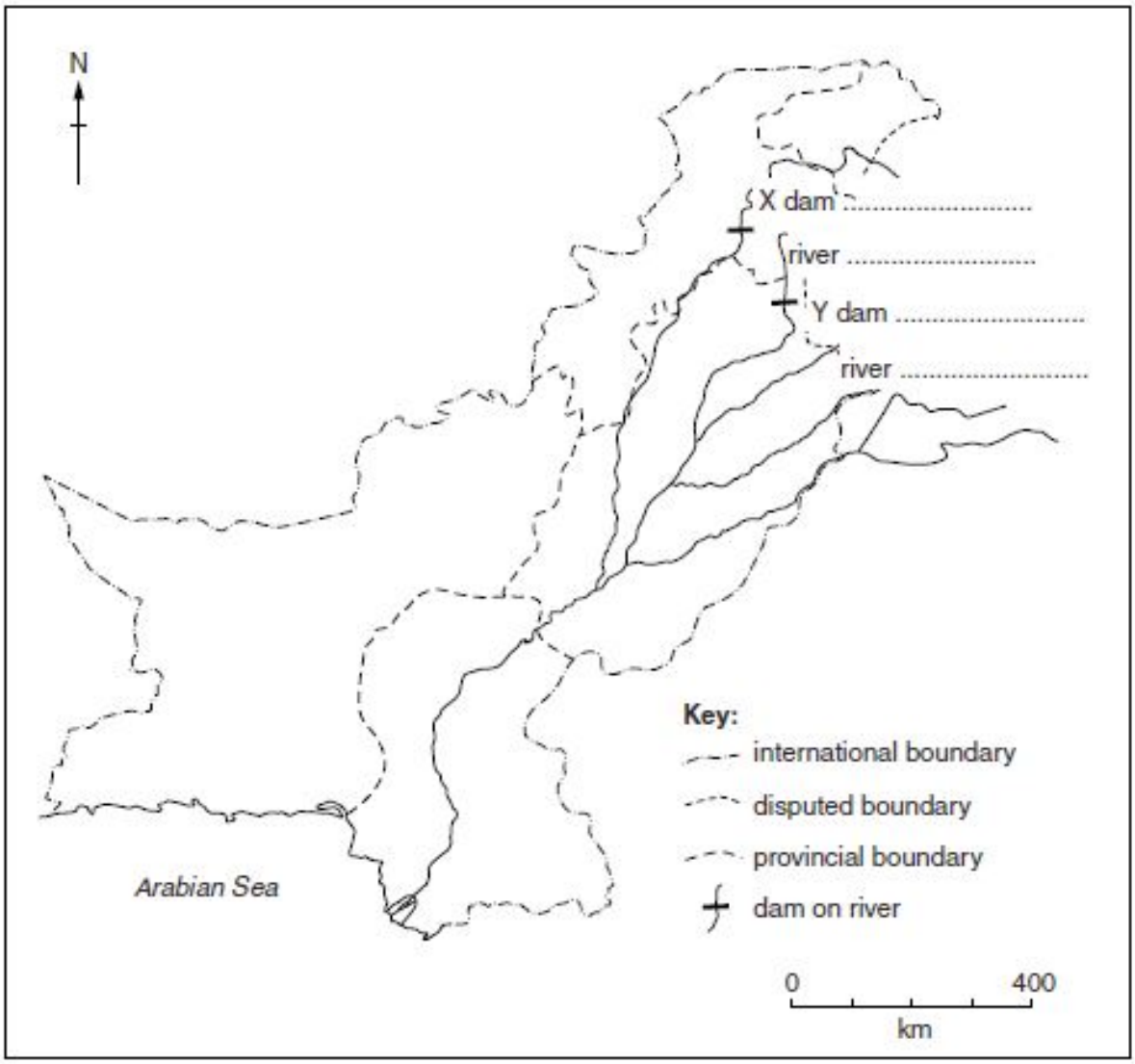

Fig. 6

On the map name the **two** dams shown, and the rivers on which they are situated. [4]

M/J13/P2/Q2-Water

(a) Study Fig. 2, which shows the perennial canal system in Pakistan.

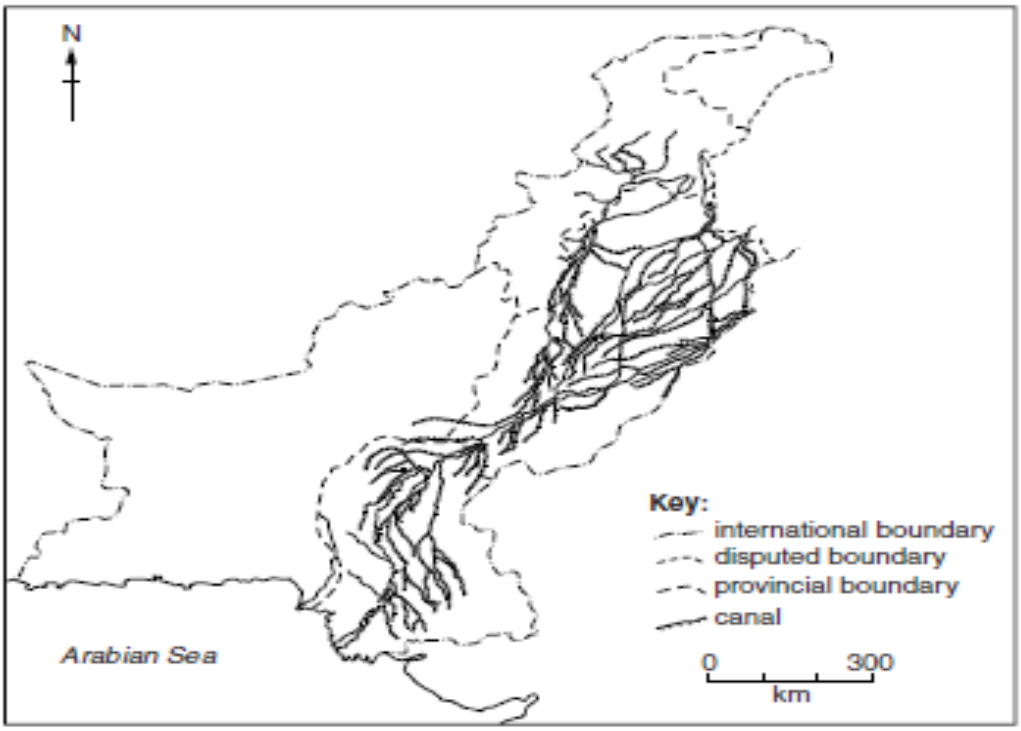

Fig. 2

Describe the distribution of the perennial canals.

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(b) Name **three** types of irrigation, other than perennial canals, used in Pakistan. Explain briefly how each type works.

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(c) Explain how a perennial supply of water can damage farmland.

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(d) Study Fig. 3, which shows the main users of water in the Punjab.

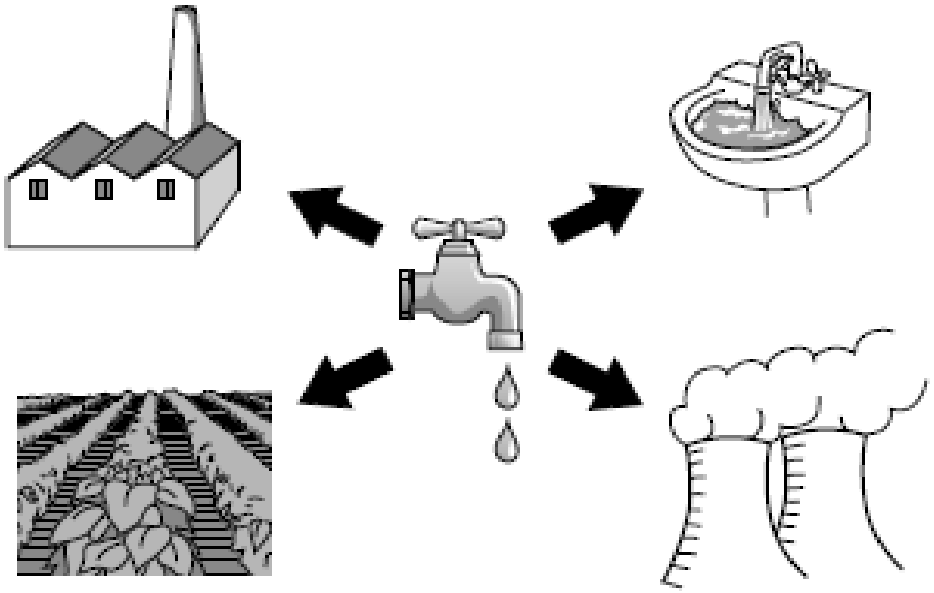

Fig. 3

Name **two** conflicting users of water supplies in the Punjab shown on Fig. 3. Explain briefly why each user thinks that they should have more water.

users 1 ..... 2 .....

reason for user 1 needing more water

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reason for user 2 needing more water

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(e) To what extent is it possible to increase water supply in Pakistan?

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[Total: 25]

M/J13/42/Q1(b) - Water

(b) Explain how underdevelopment and disease can be made worse by water shortages.

Underdevelopment .....

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Disease .....

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[6]

M/J13/42/Q2-Fishing

Study Fig. 2, which shows a map of the coast of Pakistan.

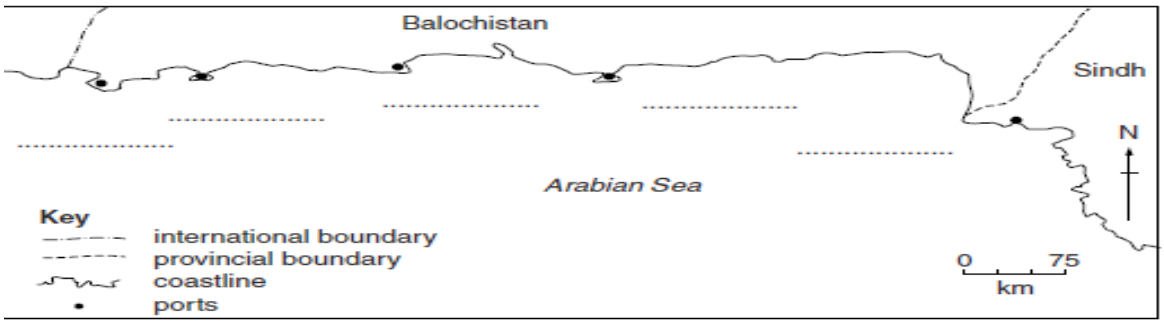

Fig. 2

(a) (i) Name **on the map, two** of the ports shown. [2]

(ii) Name **two** types of fish caught in the sea near Pakistan.

1 ..... 2 .....[2]

(b) Study Fig. 3, which shows the contribution to Gross National Product (GNP) of the fishing industry in Pakistan.

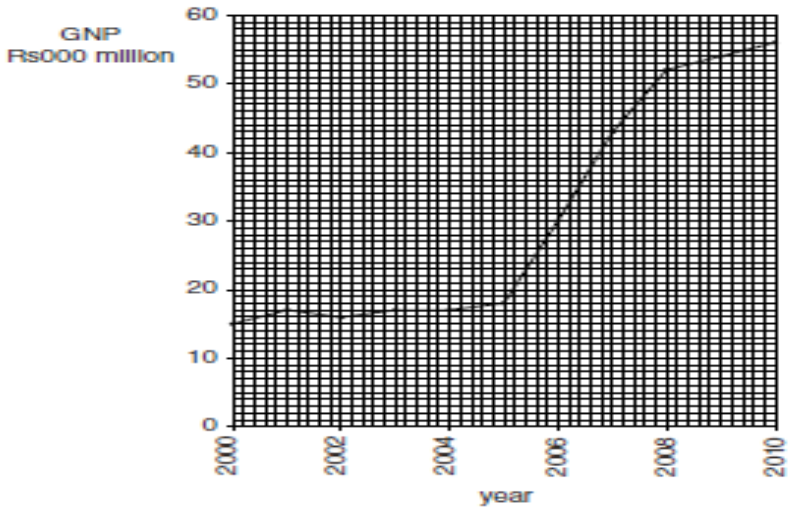

Fig. 3

(I) What was the contribution to GNP of the fishing industry in 2010?

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(II) By how much has this figure increased since 2006?

.....[1]

(III) What is meant by 'over-fishing'? Why does it occur?

Over-fishing .....

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Why it occurs .....

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.....[3]

(c) Study Fig. 4, which shows the main districts for fish farming in Pakistan.

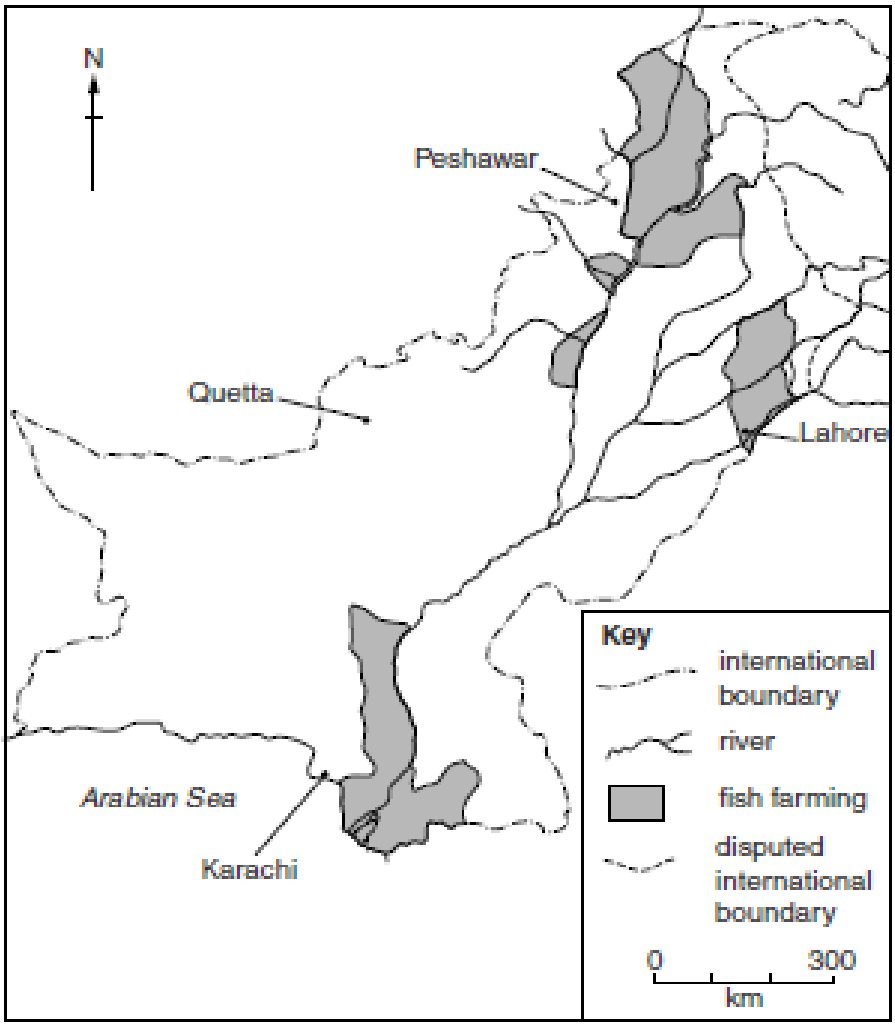

Fig. 4

(i) Describe the distribution of fish farming in Pakistan.

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..... [3]

(II) Describe how fish are reared on a fish farm.

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(d) Give an example of primary, secondary and tertiary employment in the fishing industry.

Primary .....

Secondary .....

Tertiary .....

[3]

(e) What are the benefits and problems of developing **either** marine fishing **or** inland fish farming in Pakistan?

Choice .....

Benefits .....

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Problems .....

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[Total: 25]

O/N12/P2/Q1-Mining

(a) Study Fig. 1 which shows mineral extraction in 2008 in Pakistan.

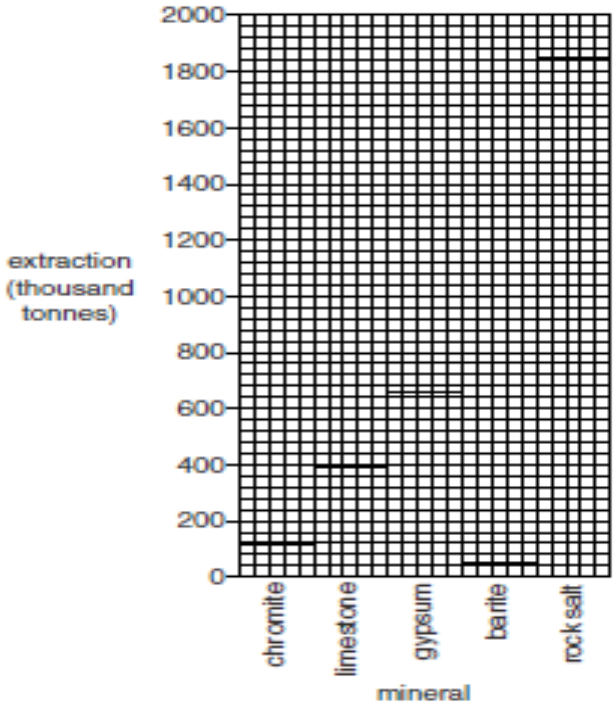

Fig. 1

(I) Name **two** minerals shown on Fig. 1 that are used to make cement.

1 .....

2 .....[2]

(II) State **two** uses of rock salt.

1 .....

2 .....[2]

(III) State the amount of gypsum extracted.

.....[1]

(b) Study Fig. 2 which shows chromite extraction in Pakistan.

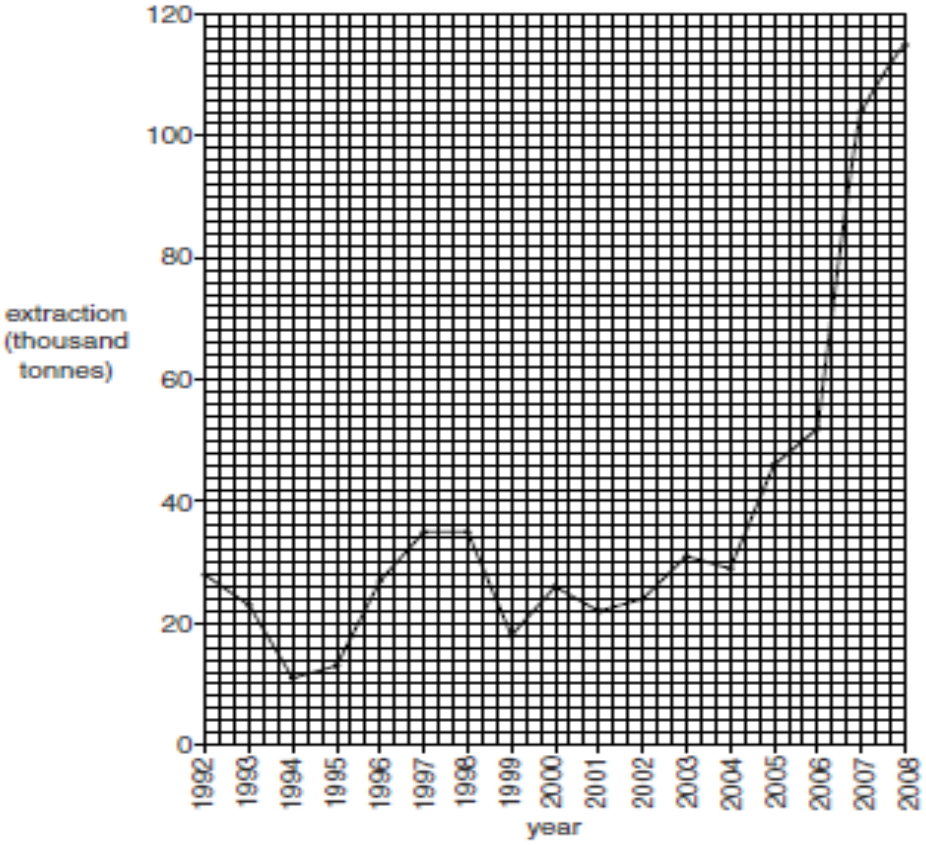

Fig. 2

(i) Describe the changes in extraction from 1992 to 2008.

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.....[3]

(ii) Suggest why the extraction of minerals, such as chromite, varies from year to year.

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.....[3]

(c) Study Photograph A (Insert) which shows a quarry in Pakistan.

(i) Use the photograph and your own knowledge to describe the environmental problems that can be caused by mineral extraction.

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.....[4]

(II) How can these problems be reduced?

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(d) To what extent can more extraction of mineral resources help to increase development in Pakistan?

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.....[6]

[Total: 25]

O/N13/P2/Q3(a)- Water

3 (a) Study Fig. 4 which shows an irrigation system.

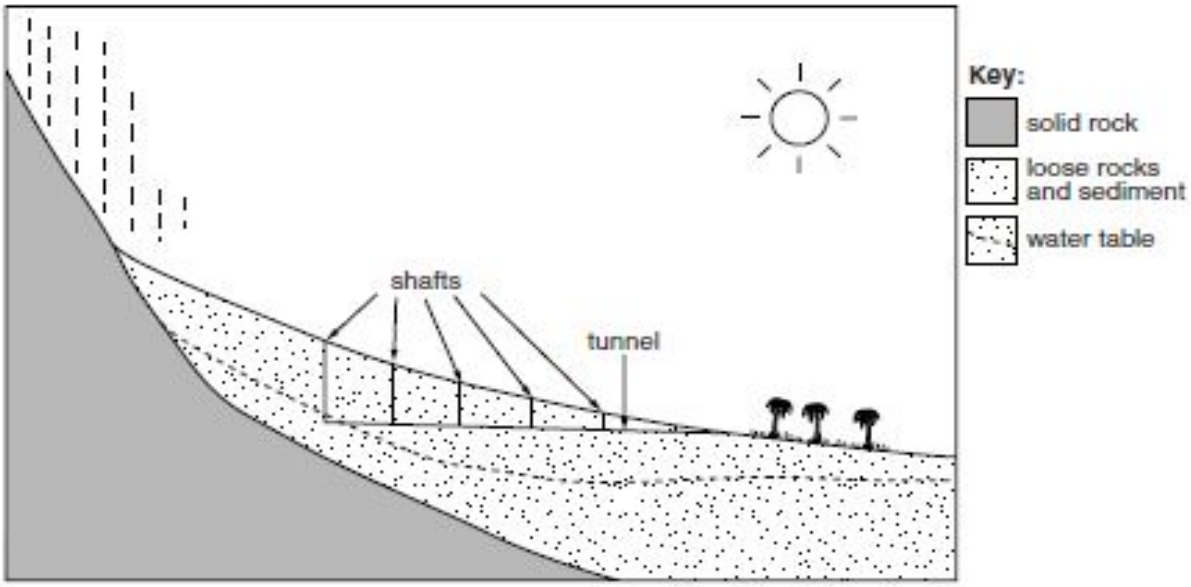

Fig. 4

(I) Name the irrigation system shown in Fig. 4.

.....[1]

(II) Name an area of Pakistan where it is used.

.....[1]

(III) Explain how this system provides water for agriculture in this area.

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.....[4]

(IV) Name a fruit crop grown in this area.

.....[1]

ANSWER KEY (MARK SCHEME)

2(a)(i)	☐ Forest type A – Coniferous; ☐ Forest type B – Subtropical scrub / subtropical dry / subtropical thorn / dry thorn scrub; ☐ Forest type C – Tropical thorn / rakh. 3 @ 1 mark	3
2(a)(ii)	☐ Coastal areas of Sindh / Indus Delta; ☐ Coastal areas of Balochistan / Sonmiani Bay; ☐ Along the coastline of / near the Arabian Sea. 2 @ 1 mark	2
2(b)(i)	☐ Broad / big leaves / leaves have drip tips; ☐ Leaves are leathery / have reduced number of stomata; ☐ Low trees and shrubs; ☐ Height 3–8 m; ☐ Can survive in salty water; ☐ Roots filter salt / have aerial roots / have prop roots / roots stick up out of water; ☐ Prefer clean / unpolluted water. 2 @ 1 mark	2
2(b)(ii)	☐ Protect soil from erosion / being blown away; ☐ Lower the temperature / provide shade / create a more pleasant environment; ☐ Provide humus to fertilise the soil; ☐ Provide raw materials / named example, e.g. timber (for industry) / furniture / medicines / firewood; ☐ Many jobs depend on forests / examples of jobs; ☐ Recreational value / promote tourism / provide scenic beauty; ☐ Prevent floods; ☐ Take in CO_2 / release O_2; ☐ Provide habitat for wildlife; ☐ Increase / encourage rainfall / create transpiration; ☐ Help with desalination (Eucalyptus trees). 2 @ 1 mark	2
2(b)(iii)	☐ Altitude, e.g. high altitude = fir / spruce / alpine; ☐ Precipitation, e.g. dry areas = thorny bushes / scrub; ☐ Precipitation, e.g. high precipitation = coniferous / evergreen forests; ☐ Soil type / edaphic factors, e.g. salty areas = mangroves / fertile soil = high density; ☐ Temperature, e.g. low / cold = alpine; ☐ Temperature, e.g. high / hot / warm = tropical scrub; ☐ Presence of rivers = riverain / bela; ☐ Presence of oases = individual trees / palms. 3 @ 1 mark	3

2(c)(i)	Ideas showing how the tree has adapted to the climate such as: ☐ Evergreen – no need to renew leaves / short growing season; ☐ Compact conical shape – stabilises the tree in windy conditions / releases snow / prevents snow accumulation; ☐ Needles instead of leaves – reduces moisture loss; ☐ Tall / straight trunk – in order to grow straight towards sunlight; ☐ Cones – protect seeds during cold months; ☐ Downward pointing branches – allows snow to easily fall off; ☐ Shallow root system – as soils are thin / subsoil is frozen for most of the year; ☐ Long / wide spreading roots – helps to anchor the tree against strong winds; ☐ Thick bark – protects from cold winds. Etc. **Note:** One mark for identification of appropriate idea and a further mark for development (in parentheses). **Note:** Max. 2 marks if no development. 2 @ 2 marks	4
2(c)(ii)	☐ For farming / agriculture / growing crops / irrigation; ☐ Urbanisation / growth of settlements; ☐ Construction of roads / railways; ☐ Industrialisation / growth / spread of industries; ☐ Use of wood in industry / to sell / examples of use of wood, e.g. timber / furniture; ☐ Mining / extraction of raw materials; ☐ For fuelwood / cooking / heating; ☐ Overgrazing causes more trees to be cleared for cattle; ☐ Fire; ☐ Flooding; ☐ Reservoirs for dams. 3 @ 1 mark	3

2(d)	**Levels marking** No valid response 0 **Level 1** 1–2 Simple point addressing any view (1) Simple points addressing any view (2) **Level 2** 3–4 Developed point(s) explaining one view (3) Developed point(s) explaining both views (4) No evaluation **Level 3** 5–6 Developed points explaining both views Evaluation giving clear support to one view or appropriate example (5) Evaluation giving clear support to one view and appropriate example (6) **Content Guide** Answers are likely to refer to: <u>Importance of forests</u> Protect against soil erosion important for the future of agriculture; Protect areas against flooding important for settlements and industry; A valuable resource for industry; Without forests other industries / example(s) of industries will not succeed; Help to regulate the climate / carbon sink; Mangroves protect against tropical cyclones / without mangroves industry and housing can be lost; Development of tourism / ecotourism / sustainable tourism. <u>Importance of other uses of land</u> Needs to be used for developing industry / land too valuable for growing trees; Land is limited; Growing population needs new settlements / construction of settlements; More food needs to be grown for growing population and for export; Trees take a long time to grow so have to wait for a capital return on them; For named infrastructure development, e.g. roads / electricity grid. Etc.	**6**

O/N17/P2/Q3(a) -Fishing

3(a)(i)	A ☐ Trout: brown / rainbow / Palla / Thalla / Catfish; ☐ Carp: Mahseer (Mahasher) / rahu / grass / silver / catla / mrigal. 1 @ 1 mark B ☐ Animal / poultry feed; ☐ Local consumption / sold in local markets / fulfil requirements / food supply; ☐ Source of protein; ☐ Fish oil extracted / used in medicine; ☐ Fish fertiliser / manure; ☐ Export; ☐ Breeding / saving species from extinction. 2 @ 1 mark	3
3(a)(ii)	☐ Rectangular / man-made ponds; ☐ Lined / concrete base / cemented endings; ☐ Fill pond with water; ☐ Add fish or stock / nursery/ different fry, juveniles, etc.; ☐ Selective breeding programme; ☐ Trees planted on farms [to prevent losses from evaporation / for shade]; ☐ Water enriched with nutrients / fertilised with manure / from poultry droppings [for growth of plankton]; ☐ Feed added to water / food provided; ☐ Water filtered / changed / refilled / health and hygiene checked or maintained / chemicals or medicine to prevent disease. 3 @ 1 mark	3

O/N17/P2/Q4(c)- Forests

4(c)(i)	One of: babul, shisham, acacia, coniferous / spruce / fir, eucalyptus, jhand, tamarisk, fruit trees. 1 @ 1 mark	1

4(c)(ii)	□ Rainfall – in sufficient quantity / distributed throughout the year / arid areas only thorn or scrub / wetter areas for evergreen / broad-leafed; □ Temperature – mild / warm for non-coniferous / cool / cold for coniferous; □ Extent of water supply other than rainfall – oases / aquifer at surface, river banks, sea / estuary / delta for mangroves / tolerates salt; □ Soil – alluvium for mangrove / riverain / soil type influences density of forest; □ Altitude – types of forest vary with altitude / only up to treeline at 4000 m / coniferous 1000–4000 m / thorn / scrub / riverain below 1000 m. 3 @ 1 mark	3

M/J17/P2/Q4-Water

4(a)(i)	Any three of (L to R): canal, aquifer, water table, maintenance shaft, tunnel 3 @ 1 mark	3
4(a)(ii)	<table><tr><td>Barrage</td><td>River</td></tr><tr><td>Marala/Khanki/Qadirabad</td><td>Chenab</td></tr><tr><td>Jinnah/Chashma/Taunsa/Guddu/Sukkur/Kotri</td><td>Indus</td></tr><tr><td>Rasul/Trimmu</td><td>Jhelum</td></tr><tr><td>Panjnad</td><td>Panjnad</td></tr><tr><td>Balloki/Sidhnai</td><td>Ravi</td></tr><tr><td>Islam/Sulaimanke</td><td>Sutlej</td></tr><tr><td>Munda</td><td>Swat</td></tr></table> **Note:** Named dams not allowed 2 @ 1 mark	2
4(a)(iii)	□ Irrigation/release water for irrigation; □ Provide water supply to perennial canals/link canals; □ Flood control; □ Flow of water controlled; □ To stimulate economic development/industry/settlement. 2 @ 1 mark	2
4(b)(i)	□ Smoke/fumes/gases/named gases/harmful gases from factories/tanneries/industries/chimneys/power stations; □ Smoke/fumes/gases/named gases from vehicle exhausts; □ Burning fossil fuels; □ Clearing forests by burning; □ Release of gases/methane from livestock/rice/paddy fields/landfill; □ Burning domestic rubbish/incineration; □ Air pollution/dust from mineral extraction/mining/ quarrying. 2 @ 1 mark	2

4(b)(ii)	□ Cause pollution of rivers/watercourses (runoff from farmland containing chemicals washes into them); □ Pollution of groundwater (from infiltration eventually entering rivers, polluting them); □ Eutrophication in rivers (nitrates/phosphates cause algal blooms which increase CO_2/reduce O_2)/(killing fish/aquatic animals/destroy aquatic life); □ Causes ecosystem to be unbalanced (through loss/ extinction of species) (through disruption to food chains/ food webs); □ Overuse of fertilisers (damages soil/makes soil infertile/ poisons/damages natural vegetation). ETC. **Note:** One mark for identification of appropriate idea and a further mark for development (in parentheses). **Note:** Max 2 marks if no development. 2 @ 2 marks	**4**
4(c)(i)	A Domestic B 94% (allow 93–95%) 2 @ 1 mark	**2**
4(c)(ii)	One of: Beverages/soft drinks/juice industry/dyeing/tanning/printing/ iron/steel/nuclear/textiles/chemical/pharmaceutical/hydel/ HEP/paper/tourism/leisure/inland fish farms. 1 @ 1 mark	**1**
4(c)(iii)	□ Seepage from beds of canals/absorbed into the soil/land/no canal lining; □ Evaporation/evapotranspiration from surface of canals/tanks/flooded land; □ Excessive runoff of water immediately into streams/rivers; □ Theft of water/theft from canals; □ Water drawn up by vegetation on side of canal; □ Mismanagement. 3 @ 1 mark	**3**

4(d)	Levels marking Level 1 (1–2 marks) Simple point addressing any view (1). Simple points addressing any view (2). Level 2 (3–4 marks) Developed point(s) explaining one view (3). Developed point(s) explaining views (4). No evaluation. Level 3 (5–6 marks) Developed points explaining both views. Evaluation giving clear support to one view or a named example (5). Developed points explaining both views. Evaluation giving clear support to one view and a named example (6). Content Guide: Answers are likely to refer to: For infrastructure • Prevents loss of water downstream into sea • Collects rainfall/snowmelt • Reservoirs feed perennial canals • Can store large amounts of water Against infrastructure • Source of conflict between countries and provinces • Social issues • Loss of fresh water at Indus Delta • Water intrusion into Sindh • High initial investment • Little use in Balochistan where rivers dry up • Mismanagement by provincial/national government • Siltation occurs For water saving • Planting trees • Lining canals • Careful monitoring/regulation of amount of water used • Better forms of water storage in homes • Water meters in homes/industries Against water saving • Long time scale required to educate sufficient number of people • Resistance to education • Water a valuable raw material in industry • Growing population with increasing demand for drinking water • Development goal to increase availability of water ETC.	6

O/N16/P2/Q1(c)-Forests

(c) Study Fig. 2 which is a map showing different forest types in Pakistan.
(i) In the key, name the types of forest shown on the map. [2]
(Top to bottom) Mangrove, Riverain / Bela, Irrigated, Coniferous / Alpine
(Mark as one or two correct 1 mark; three or four correct 2 marks)
(ii) For one of the forest types you have named in (i):
- **Describe the features of the forest –** *2 marks*
- **Explain the uses or purpose of the trees that grow there –** *2 marks* **[4]**

Description: 2 Marks	Uses / Purpose: 2 Marks	General points: max 1 Mark
MANGROVE • Leaves – broad / drip tips / leathery / pointed • Low / 3–8 m / do not grow tall / general height 3 m • Grow on mudflats • Survive in sea water / salt tolerant • Roots bend into water • Roots filter salt from water	• Firewood • Breeding ground for fish / shrimps • Leaves food / nutrition for fish • Fodder for camels / livestock • Protects from coastal erosion • Furniture • Thatching material • Barrier against floods, tsunami, storms / intensity of earthquakes	• Reduce surface run-off • Prevent floods • Prevent soil erosion • Protect against air pollution / purify air • Protect soil (conserve soil) • Humus to increase soil fertility • Increase rainfall • Timber • Habitats / breeding and conserving areas for birds and wildlife
RIVERAIN / BELA • Shishum / • babul / willow / dhak • Commercial hardwoods	• For furniture / agricultural instruments / construction • Firewood	
IRRIGATED • Blocks of same species shishum / babul / eucalyptus / jhand • Dense / compact	• Firewood • Shade • For construction / fencing	
CONIFEROUS / ALPINE • 30 m • Spruce / fir / deodar / kail / chir • Evergreen • Conical shape / downward	• For furniture / boxes / crates • For paper and pulp • Protection from landslides • Tourism	

O/N16/P2/Q1(a)-Mining

(a) Study Fig. 3 which is a map showing the locations where three different non-metallic
minerals are extracted in Pakistan.
(i) For any two locations, state the name of the mineral extracted and a use for this mineral. Write your answers in the spaces provided on Fig. 3. [4]
You should choose from the following list: gypsum limestone rocksalt
Location
NW – rocksalt / limestone / gypsum
Central – limestone / gypsum
S – limestone
Mark any two correct
Uses
Rocksalt: cooking / preservation / soda (used in laundries / textiles / tanning) flavouring food
Gypsum: paints / fertilisers / boards / cement / to treat saline soil / plaster of paris
Limestone: for building / cement / bleach / glass / soap / paints / to treat saline soil / bleaching powder / paper
(ii) Using Fig. 3 and your own knowledge, suggest difficulties there may be in getting minerals to export markets. [3]
Heavy / bulky commodities
Expensive to transport
Roads and railways from mining areas poorly developed / or not connected
Mostly extracted far inland / away from ports / Karachi / distance from markets / takes a long time / remoteness
Mountainous / rugged terrain
Theft
Inappropriate / inadequate vehicles to transport minerals

O/N16/P2/Q5(c) –Fishing

(c) (i) Name a fishing port on the Sindh coast. [1]
Karachi / Korangi
(ii) Describe activities that are involved in the secondary sector of the fishing industry. [4]
Gutting / washing / cleaning (initial preparation of fish for other processes / ensure hygiene)
Freezing (preserve (freshness) / for export)
Canning (preserve / for export)
Converting to fishmeal (for domestic poultry feed)
Salting (so that the fish is preserved)
Curing (dehydrates the fish so it can last longer / preserve)
Smoking (preserves the fish and gives it a unique taste)
Storage (of fish in refrigerators allows maximum storage time) / refrigerating (keeps the fish in its original state for eating)
Packaging (preparing for transport / preparation for sale / protects the fish from contamination / prevents spoilage)

Boat making / making nets / repairing boats / repairing nets (preparing for the process of catching fish)
Maximum of 2 + 2 (mark + development mark)

(d) To what extent is it possible to develop the fish processing industry further in Pakistan? Give reasons to support your answer and refer to places or examples you have studied. [6]

Indicative content (development of points or examples in parentheses)
Possible
Long undeveloped coastline (1050 km / Makran Coast 750 km)
Gwadar being developed as a new port / fish harbour with modern facilities / EPZ (providing base for linkage to central Asian states)
Potential at Pasni / Jiwani / Sur Bandar / Ormara (allowing more fish to be refrigerated / preserved for transport to Karachi)
Government support (provides essential facilities for a fishing port to allow sustainability)
Compliance with EU / international quality standards (to remove import bans / embargoes)
Increase local ice factories / refrigerated storage / packing / canning facilities (to reduce need
to transport to Karachi)
Training / education (could provide employment of local educated youth)
Value added products made for export (make more foreign exchange)
Not possible
Limited private sector and/or government investment / expensive to expand / contributes little
to exports / focus on other industries (meaning technology and skills are not upgraded)
Many processing plants under capacity / out of operation (showing that the future development is uncertain)
Few skilled workers
Coastline remote / poor transport links (e.g. no railway / small airports / delayed new road links)
Canning factories have been unhygienic and a cause for import bans (to EU / Saudi Arabia)
Unreliable export market (about 30% worldwide)
Low profits (6% of foreign exchange)
Foreign competition
Urban centres prefer fresh fish (so processed fish only to a few large department stores)
Per capita consumption is low (1.6 kg p.a.)

M/J16/P2/Q4(Water, forests and fishing)

4 (a) (i) Study Fig. 7 which is a diagram of an HEP (Hydel) power station.
A: On the diagram place an arrow or arrows to indicate the direction of movement of water through the power station.
B: Choose two terms from the list below and use them to label the diagram in two of the spaces provided. [3]
A: Arrow(s) drawn downwards through channel
B: From L to R: reservoir dam turbine outflow
NB: 'water intake' top left space not used
(ii) Name one multi-purpose dam in Pakistan. [1]
Tarbela/Mangla/Warsak
(iii) Give two uses for a dam such as the one you named in (ii). [2]
HEP/electricity [generation]
Irrigation
Water supply / stores water [for industrial/domestic use]
Controlling floods
Recreation/named recreational use/tourist attraction
Fishing
(b) (i) Study Photograph A (Insert). Identify the type of forest vegetation shown in the photograph. [1]

Subtropical dry / subtropical scrub / dry thorn scrub /subtropical thorn
(ii) Study Fig. 8 which gives information about different types of forested area in Pakistan. Describe one main change in forested area over the period shown. [1]
Overall decreased
Natural forest decreased
Plantations increased
Other woodland increased
(iii) State the main difference between natural forest and plantations. [1]
Natural forests are not planted by man: plantations are planted by man/man-made
Natural forests have greater variety of species/greater biodiversity
(iv) In 2014 about 4.2% of the land area of Pakistan was covered in forest. Explain why more forests need to be planted in the Indus Plain. [5]
Pakistan has one of the lowest proportions of its total area under forest in the world
To meet a target for % total area covered in forest (20–25%)
To replace trees cut down / to meet the needs of future generations from forests
For firewood (thereby conserving natural forest)
For commercial use/timber/wood-based industries (using timber as a raw material e.g. furniture making) /fruit trees/medicines

To prevent siltation in rivers/canals, to decrease surface runoff, to prevent soil erosion/landslides (preserves top layer of fertile soil for agriculture) /landslides, to increase rainfall
To create habitat (to conserve animals / wildlife) / to create scenic beauty (to boost tourism)/to create shade/cooler temperatures
To purify air/produce O2 / to absorb CO2 (which will help prevent global warming)
To prevent / control flooding
(c) (i) Name two fishing ports on the Makran Coast. [2]
Any two of Jiwani, Gwadar, Pasni, Ormara, Sonmiani
(ii) Describe the methods used in commercial marine fishing. [3]
Trawl / gill nets
Mechanised boats / trawlers / gill-netters
Satellite navigation/use of radio for weather conditions/sonar/'fish finders'
Storage/refrigeration facilities on boat
Up to 60km from the coast
Remain at sea 5–15 days/'weeks'
Throughout the year/10 months or more per year
(d) To what extent is it possible for marine fishing to be developed sustainably in Pakistan? Give reasons to support your answer. [6]

Indicative content (developed points in parentheses)
Possible
By avoiding overfishing
By having quotas/government licences
Secure fishing grounds from foreign fishing boats/fines/policing
Limit number of months in year able to fish (to allow breeding)
Only catch adult fish (by using nets with larger mesh)
Laws to protect of mangrove forests
Laws/fines to prevent marine pollution/oil spills
Education in sustainable methods
Not possible
Mangrove forests are being cleared (reducing breeding/feeding areas for fish/shrimps)
Sea pollution (oil from ships/industrial/domestic waste from Karachi)(poisoning fish and spreading into food chain)
Not enough capital/investment
Lack of skills/training in sustainable methods

Lack of political interest/will (fishing only makes up about 0.5% of GDP)

O/N15/P2/Q1(Water and Forests)

1 (a) (i) Describe two ways in which water supplies can be polluted. [2]
Sewage discharged into rivers
Domestic waste thrown in rivers
Pesticides/fertilisers runoff from agricultural fields in groundwater/rivers/eutrophication
Industrial waste/chemicals/toxic waste/metals/ waste from ships discharged into rivers
Leakage of oil from ships
'Sea'/'ocean' = 0
(ii) For one of these ways explain how the problem caused by pollution can be solved. [2]
Investment in sewerage systems/ infrastructure/treatment of sewage
Improve sanitation facilities in poor quality housing/slums/squatter settlements /katchi abadis
Improve/more regular domestic refuse collection
Treatment of/improving disposal of industrial waste
Open up roads into squatter settlements to allow refuse lorries
Alternatives to chemical fertilisers/pesticides 'Reduce' = 0
Organic farming
Fines for industrial polluters
More investment by industries to prevent pollution incidents
Maintenance of ship/checking for leaks in ship
If not clearly linked to candidate answer/different answer to (i) then max 1
(b) Study Fig. 1, a map showing the major rivers of Pakistan.
(i) Locate the following two dams on the map:
• Warsak (W);
• Diamir Bhasha (under construction) (D). This dam is 150 km downstream of Gilgit.
Mark their positions using the appropriate symbol from the key and label each with the correct letter. [2]

W On R. Kabul between confluence with R.Swat and Afghan border RED OVERLAY SHOWS TOLERANCE
D On R. Indus GREEN OVERLAY SHOWS TOLERANCE
Credit any indication of correct location on map within tolerated regions
1 + 1 mark

(ii) What are the advantages of building a dam at the Diamir Bhasha site? [4]
HEP
Electrification of/supplies electricity to the region/for local industries
Only floods agriculturally barren land/small amount agricultural land flooded
Will extend life of Tarbela Dam
Controls/reduces/prevents flooding [downstream]
For irrigation
Drinking water/water supply for industries
New transport infrastructure/development in region
Possibility of tourism/watersports
Possibility of freshwater fishing
Provides employment in named sector /for local people
Location factor e.g. narrow/steep-sided valley/high speed of water/high precipitation/large amount of meltwater from glaciers 'Flow' = 0
(iii) Describe the disputes over water availability and use which can arise from proposals to build dams at sites such as this. [4]
One province receives greater share of water/unequal division of water
Dam in Punjab/one province but much of flooded area in Khyber Pakhtunkhwa/another province
Loss of water supply downstream/to Sindh for agriculture
Risk of flooding downstream by release of water/opening dam
Less silt deposited on floodplains of lower course/lower Indus
Evaporation of lower course/lower Indus
[Indus] delta/coastal area [of Sindh] less fresh water/water more saline
Disturbance to ecosystem/mangrove forests/fishing
NB: not limited to Kalabagh case study
'Loss of land'/'evacuation' = 0
(c) Study Photographs A and B (Insert), which show typical scenes of deforestation.
(i) State one use of timber from forests that have been cut down. [1]
Construction/buildings
Furniture
Sports goods
Chipboard/hardboard/plywood
Paper
Boxes
Matches
Fuel/firewood/charcoal
Veneer
USE LIST RULE
(ii) Using the photographs and your own knowledge, describe the effects of deforestation on the natural environment. [4]
Soil washed into rivers
Siltation of rivers
Soil blown away
Increased surface run off / risk of flooding
Loss of forest habitat/mangroves/ecosystem
Loss of species/extinction
Air pollution from burning
Less take up of CO_2 / increase in global warming/climate change
Soil eroded / coarse layers of soil/bare rock/infertile soil left behind / gullying / landslides
Less transpiration/rainfall
Decrease in humus formation
Loss of scenic beauty/visual pollution

(d) Pakistan is rapidly losing its trees. Over the period 2000–2007 the country's forests
decreased at a rate of 2.2% per year, the ninth highest rate among the world's nations. What actions can be taken to reduce deforestation? To what extent are these actions possible in Pakistan? [6]

Indicative content (development of points in parentheses)
Actions
Government protection of forest areas/national parks/reserves
Sustainable forestry (selective cutting/helilogging/horse logging)
Planting trees/afforestation/reafforestation (of fast growing trees/replacement forests planted where areas cleared for housing/industry/roads)
Plantation (of commercial/irrigated forests/forests for firewood/planting on roadsides and open spaces/fruit/nut trees)
Improve distribution of alternative fuel sources to avoid need for fuelwood (e.g. natural gas/CNG to mountainous or remote areas)
Government action on illegal logging
Restrict logging (quotas/licences)
Education/awareness programmes
Possible/greater extent
Successful afforestation projects (of badlands in catchment areas) (Tarbela/Mangla Watershed Project) (Rachna Doab Afforestation Project) (Baltistan 1995 onwards afforestation programme by Agha Khan Rural Support Programme – 830 000 trees planted)
Named forest reserves/national parks/plantations
Awareness programmes about value of forests (run by NGOs)
Not possible/lesser extent
High cost
Projects difficult to manage (in remote/mountainous areas)
Security issues (in FATA/border areas)
Growing population/demand for timber/firewood/land (for housing, industry, agriculture, roads)
Government priorities
[Total: 25]

M/J15/P2/Q2(a and b)-MINING

2 (a) Study Figs 3 and 4 which give information about the extraction of three metallic minerals in Pakistan in 2010–11.
(i) How much iron ore was extracted in 2010–11? [1]
329 000 tonnes (accept 327 000 tonnes to 331 000 tonnes)
(ii) State the difference between the type of information being provided in Fig. 3 compared to that in Fig. 4. [1]
Fig. 3 shows quantities/amounts/tonnes whereas Fig. 4 shows proportions/share/percentages of the total amount (Bar v Pie alone = 0)
(b) (i) Give one use for the mineral chromite and name one area where it is extracted in
Pakistan. [2]
Used in steel/bridges/railway carriages/furnace linings/tools
Muslimbagh/Zhob (Valley)/Wad
(ii) What are the benefits of extracting mineral resources for local people and the national economy? [4]
Local people
Employment opportunities
Higher/more stable incomes
Higher living standards/settled lifestyle

Business opportunities for local/ancillary industries/services
Improvement to local infrastructure such as roads/electricity (infrastructure alone = 0)
Local use of raw materials with example (do not double mark raw material in national economy)
National economy
Raw material for named sectors of economy, e.g. energy, construction, agriculture, industry
Named raw material
Industrialisation / industry developed
Revenue/taxes for government
Export earnings/contributes to balance of payments/source of foreign exchange/ exports increase
Reduces national debt/deficit
Reducing imports

(iii) Explain the effects of mineral extraction on the natural environment. [4]
Deforestation to clear land
Destroys habitat/wildlife/plants
Land deformation/destruction/destroys land
E.g. holes/pits/depressions/tips/spoil heaps/flooding
Ash waste/ash ponds/toxic waste
Subsidence even after mining activity finished
Noise pollution from machinery/blasting/scares/disturbs wildlife
Air pollution from dust and smoke
Water pollution – seepage into ground water/rivers/seas

O/N14/P2/Q1-Water and Forests

1 (a) Study Fig. 1 which shows a map of Pakistan. Name:
(i) The rivers E, F, and G. [3]
E Indus
F Jhelum
G Ravi
(ii) One of the dams H or J. [1]
H Tarbela
J Mangla
(b) What is meant by
A: a link canal
Diverts / transfers / moves water from / links barrages / syphons to rivers / canals
Diverts / transfers / moves water from / links [western] rivers to other [eastern] rivers / canals
Diverts / transfers / moves water between / links rivers / river and canal
B: a perennial canal
Supplies water throughout the year
Supplied from dams / barrages
C: an inundation canal? [3]
Supplies water in the rainy season
Taken from rivers / when rivers high / flood
(c) Explain the importance of the Indus Water Treaty to Pakistan. [4]
Ensures that India does not restrict Pakistan's water supply / water supply in Pakistan is maintained
Ensures an effective / dependable irrigation system in the Indus Plain
Pakistan has exclusive rights to waters of the rivers Indus, Jhelum, and Chenab
Maintains agricultural production

Tarbela and Mangla dams built [to store water]
Barrages / syphons / link canals built [to distribute water]
Enabled construction cost of works to be shared with Western countries and India
(d) Study Photograph A.
(i) Name the type of forest shown. [1]
Coniferous / alpine / montane

(ii) Suggest three reasons why these forests are being cut down. [3]
Sale of timber
For fuel / heating
Cleared for: Farming
Mining / mineral exploration
Setting up industries / factories
Housing / urbanisation / resorts / hotels
Roads / other named infrastructure
(iii) Explain the effects of this deforestation. [4]
Soil erosion because no roots to hold soil / soil exposed / no interception
Soil becomes infertile / loses nutrients because of leaching / top layer of soil eroded / no humus formation from leaves
Soil becomes unfit for agriculture
Siltation in reservoirs because soil [exposed and] washed into rivers
Siltation in reservoirs leads to reduction in capacity of reservoirs / dams become silted up / reduces HEP production
Siltation in reservoirs leads to reduction in capacity of canals / irrigation / water supply
Flooding because increased surface runoff / less interception
Flooding leads to destruction of buildings / infrastructure / farmland
Landslides / avalanches because slopes / rocks / snow not held by trees
Landslides / avalanches lead to blocked roads / buildings destroyed
Loss of scenery / beauty / shade leads to decrease in tourism
Loss of habitat so species lost / extinctions / animals move away / disturbed
Air pollution from burning
Decrease in rainfall due to less transpiration
Fewer trees to take up of CO_2 and effect on global warming / climate change
(e) To what extent is it possible to save and even increase the area of forests in Pakistan?
Explain your answer. [6]
Possibilities
Legislation / action on illegal logging / fines / penalties
Government protection of forest areas / national parks / reserves
Restrict logging / quotas / licences / selective cutting
Education / public awareness campaigns
Use of alternative fuel / natural gas instead of burning wood
Planting trees / named afforestation / re-afforestation projects / irrigated / commercial plantations / plantations for firewood
Providing alternative grazing areas
Action against pollution [which affects mangroves]
Problems
Cost / lack of finance
Security issues
Lack of government will / government priorities
Demand for timber / firewood / wood for construction / named products
Land needed for housing / industry / agriculture / roads
Very long term project
[Total: 25]

M/J14/P2/Q4(a,b,c and d)-Forests

4 (a) Study Fig. 7, a map of deforestation.
(i) Name the areas of deforestation A and B. [2]
A – Sulaiman Range
B – Safed Koh / FATA
(ii) Name the desert C. [1]
Kharan desert
(iii) State three reasons why deforestation occurs in one of the areas shown on Fig. 7. [3]
Farming / growing food / fodder / cash crops,
For firewood
For timber
Mining
Roads
Overgrazing
Housing / urbanisation / residential
Industry
(b) Study the article below from 'Dawn', November 4th, 2011.
(i) By how much has forest cover decreased since independence? [1]
30.5%
(ii) By how much should it increase by 2015 to meet its commitment under the UN goal? [1]
3.5%

(c) State and explain three effects of deforestation in mountainous areas. [6]
Any three of the following
Soil erosion, no roots to hold the soil / less interception
Landslides / avalanches
Rocks / snow no longer held back by trees
Leaching, no roots to bring minerals to surface / minerals washed out of exposed soil / infertile soils
Silt blocks rivers
Water runs off slopes
Silt fills reservoirs / canals
Silt settles in still / slow moving water
Flooding
Runoff increased / less interception
Extinction / loss of species
Loss of habitat
Less rainfall / lower humidity
Less transpiration
Less shade
Loss of branches and leaves
Less tourism
Loss of scenic beauty
Shortage of firewood
No fuel for heating / domestic use [3 × 2 marks]
(d) Explain how forests can become a source of income for the people of rural areas. [4]
Firewood / charcoal
Named raw material e.g. timber / roots / leaves / ephedra / fruit / nuts
For cottage / small scale / craft / pharmaceutical industries
Named product e.g. furniture, toys, souvenirs
Forests attract tourism

Goods can be sold to tourists
Creates employment e.g. forest guides / rangers / forest department / forestry

O/N13/P2/Q1(a)-Forests

1 (a) Study Photograph A.
Name the irrigation system shown in the photograph and explain briefly how it works. [4]
Name Tubewell
How it works
Tube to groundwater/aquifer
Water pumped up
By tractor/(diesel) motor/generator
Water flows into pond/reservoir/tank
Distributed to fields by canals/pipes/sprinklers etc.

O/N13/P2/Q4(b)

(b) On the map name the two dams shown, and the rivers on which they are situated. [4]
X Tarbela, Indus
Y Mangla, Jhelum

M/J13/P2/Q2-Water

2 (a) Study Fig. 2 which shows the perennial canal system in Pakistan.
Describe the distribution of the perennial canals.
mainly on Plains/Indus Plain/by the rivers
most widespread in Punjab
only from Indus in Sindh
mostly NE to SW in Punjab and Upper Sindh
mostly NW to SE in Lower Sindh
south/east of highlands
no canals in SE area/Balochistan/north/west/mountains
some in KPK [4]
(b) Name three types of irrigation, other than perennial canals, used in Pakistan. Explain
briefly how each type works.
Allow one mark for a brief description and the second mark for more detail
inundation canals from rivers + details
tubewells from groundwater + details
Karez from foothills + details
others including ponds, tanks, charsa, shaduf and modern methods, e.g. sprinkler, tanker [6]
(c) Explain how a perennial supply of water can damage farmland.
too much water/waterlogging
watertable rises
evaporates
causes salinity/salts accumulate on surface/surface crust [4]
(d) Study Fig. 3 which shows the main users of water in the Punjab.
Name two conflicting users of water supplies in the Punjab shown on Fig. 3. Explain
briefly why each user thinks that they should have more water.
2 conflicting users (one mark), e.g. farmer, industrialist, home-owner, power industry
Reasons for wanting more water (two marks each)
e.g. farmer wants it for higher yields – more food for growing population, income for himself, irrigation, example of high usage, e.g. rice and sugarcane.

e.g. industrialist wants it for bigger/better output – increase trade, exports, income for himself, example of high usage, e.g. drinks, chemicals.
e.g. home owner wants it for domestic use – better hygiene, food preparation, healthy living, example of high usage, e.g. washing, drinking. [5]

(e) To what extent is it possible to increase water supply in Pakistan?
Possibilities (res. 2)
Indus river system + details
rainfall in mountains
melt water from mountains
groundwater
flat land for canals
cleaning dirty water/desalination
reduce losses, e.g. more storage, less leakage, ration usage (max. 2)
control misuse, e.g. by education
Problems (res. 2)
not enough river water
not enough rain
loss by leakage, siltation
Indus Water Treaty restricts water in reservoirs/rivers
evaporation in hot climate
pollution
demands always increasing
some places remote (e.g. Baluchistan)
lack of funds/government will [6]
[Total: 25]

M/J13/42/Q1(b)-Water

(b) underdevelopment (res 2)
effect on agriculture, livestock, industrial production,
disease (res. 2)
Lack of cleanliness, sanitation and other hygiene, risk of water-borne disease, malnutrition, [6]

M/J13/42/Q2-Fishing

2 Study Fig.2
(a) (i) Any 2 correctly located from
Jiwani, Gwadar, Pasni, Ormara, Karachi (or Port Qasim) – from west to east [2]
(ii) shark, croaker, skate, drum, cat fish, rays, sardine (must be marine fish) [2]
(b) (i) 56 million rupees [1]
(ii) 38.5 million rupees [1]
(iii) overfishing is when more fish are caught than replaced naturally
too many fish caught
small fish caught
too young to breed
caught in breeding season [4]
(c) (i) KPK(NWFP) by rivers from mountains / in foothills
Swat, Chitral, Dir, Malakand, Manshera, FATA
also Dera Ismael Khan, Kohat, Mardan, Swabi, Abbottabad
Punjab – in irrigated areas or where rainfall is sufficient
Sheikhpura, Gujranwala, Attock
Sindh – on the Indus foodplain
Thatta, Badin, Dadu [2]

(ii) clean water
fed
health care
separated according to size etc.
removed when big enough to sell [4]
(d) fisherman / worker on a fish farm
factory worker / canner / freezer
lorry driver / office worker [3]

(e) Candidates must choose either marine fishing or fish farming
Advantages
more food
more work
higher incomes
more infrastructure
more exports (named)
reasons for sustainability
Disadvantages
Old methods / lack of investment
Poor infrastructure
Lack of education / skills
Overfishing
Reasons for unsustainability
Named pollution
Danger of marine fishing [6]
[25]

O/N12/P2/Q1-Mining

1 (a) Study Fig. 1 which shows mineral extraction in 2008 in Pakistan.
(i) Name two minerals shown on Fig. 1 that are used to make cement. [2]
limestone
gypsum
(ii) State two uses of rock salt. [2]
Do not credit vague answers such as ‘food’ ‘chemicals’ ‘textiles’ ‘pharmaceuticals’ etc.
Two of the following (there may be others)
Food - Flavour, preserving, curing, table salt
Textiles - dyeing, bleaching, water softening,
Chemicals - Soda ash, sodium bicarbonate, artificial rubber,
Misc.- Tanning, household cleaner, fire extinguisher, artificial rubber, roads etc.
(iii) State the amount of gypsum extracted. [1]
640 - 680 thousand tonnes
(b) Study Fig. 2 showing chromite production.
(i) Describe the changes in production from 1992 to 2008. [3]
Increases overall
Variable overall / 1992-2008
comment on fall and rise from 1992-97/98
variable 1998 – 2004/5
Rises from 2004-2008 / sharp rise in 2007
Secondary peak 1996-1998 / rises then falls 1996-1999
Lowest 1994
Figures to illustrate one of the above (max 1) eg. 28,000-115,000 tonnes 1992-2008
(ii) Suggest why the production of minerals, such as chromite, varies from year to year. [3]
Investment / funding

Demand / orders
Bankruptcy / companies leave
Problems with machinery
Reserves reducing /new reserves exploited /geological problems
Terrorism

(c) Study Photograph A (Insert)
(i) With reference to the photograph and using your own knowledge, describe the environmental problems that can be caused by mineral extraction. [4]
From photograph - loss of vegetation / deforestation
Land deformation / piles of rocks /pits
Loss of soil
Dust
Own knowledge-smoke / gasses
Soil erosion
Loss of farmland / grazing / no cultivation
Holes / pits etc.
Noise / vibration
(reserve one mark for reference to photograph)
(ii) How can these problems be reduced? [4]
Laws / legislation+ details
Tree planting / screens + details
Land restoration + details
Personal health and safety – eg wearing masks against the dust, ear defenders, regular medical check ups, etc
(allow up to two marks for each line)
(d) To what extent can more extraction of mineral resources help to increase development in Pakistan? [6]
In favour (res. 2)
Increase trade / exports / reduce imports
Raise GDP/GNP/ increase the economy
Increase employment
Raise taxes/ government earnings
Foreign investment
Rural development
Industrialisation / more industry
Better infrastructure + example
Provides more fuel or raw material + example.
Education / skills
Against (res. 2)
Lack of funds
Lack of machinery / technology
Unattractive to investors
In remote areas
Lack of infrastructure (but do not double mark)
Competition from other countries / other countries safer
Environmental damage
Lack of skills / expertise
[Total: 25]

O/N13/P2/Q3(a)- Water

3 (a) Study Fig. 4.
(i) Name the irrigation system shown in Fig. 4 [1]
Karez
(ii) Name an area of Pakistan where it is used. [1]
Balochistan
Kech Valley / Turbat /Miri / Sharak
(iii) Explain how this system provides water for agriculture in this area. [4]
rain falls in mountains
drains to the foothills / sinks into ground / groundwater /
travels in tunnels / underground canals
reaches surface / oases
tunnels need maintenance
owned by groups of farmers
(iv) Name a fruit crop grown in this area. [1]
dates / apricot / apple / grapes / peaches / melons