LEARNING OUTCOMES!

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.

FORESTS

✓ Forests include everything from grassland and small flowering plants to tall trees.

✓ Forests are extensive, continuous areas of land dominated by trees.

✓ The desired level of forest is 20 – 30% of the total area of a country.

✓ Over the period 2000 – 2007 the country's forests are decreased at a rate of 2.1% per year the ninth highest among the world's nation.

✓ There are two types of forests; Productive forests or natural forest and Protective forests or man-made plantation

PRODUCTIVE FORESTS	PROTECTIVE FORESTS
It includes all vegetation grown naturally like alpine, coniferous, etc.	It includes vegetation planted by man like riverain.
The vegetation grows in a haphazard manner.	They are linear plantations (grow in rows).
Tree density is high.	Tree density is moderate.
The canopy is close together.	The canopy is further apart.
They have a variety of different species.	They have a single fast growing specie.
The trees are of different age groups.	The trees are of the same age groups.
The trees are not equally spaced and they vary in a height.	The trees are equally spaced and they have the same height.
They have great commercial value.	They do not have much commercial value
They protect the environment by preventing soil erosion and by acting as carbon sinks it cleans the environment.	They protect the environment by preventing from soil erosion and by acting as carbon sinks it cleans the environment.
It provides wildlife habitat.	It provides wildlife habitat.
The trees lower the temperature of surrounding areas.	The trees lower the temperature of the surrounding areas.
It promotes tourism.	It promotes tourism
More diversity.	Less biodiversity

ALPINE FORESTS

- ✓ Natural forests
- ✓ Found at an altitude of 4000 – 4500 m.
- ✓ They cover the areas of Dir, Chitral, Kohistan (Gilgit – Baltistan).
- ✓ A variety of species are found here which includes Silver Fir, Junipur, Birch.
- ✓ The trees are mainly cushion shaped.
- ✓ These are dwarf forests due to severe climatic conditions like lack of liquid water and very short growing seasons in summers.
- ✓ They grow between rocks to shelter them from cold winds, which would freeze the sap in their thin stems
- ✓ They are evergreen
- ✓ They have stunted growth due to less sunlight which therefore decreases the amount of photosynthesis taking place.
- ✓ They have short growing season as the temperature mainly remains below freezing point.
- ✓ Less biodiversity
- ✓ Grow far apart for competition of nutrients.
- ✓ They are mainly used to obtain firewood for fuel.
- ✓ The roots of the tree grow lateral to have a good grip since the soil with sub soil frozen and the layer of bad rock upward. So, there roots grow sideways to obtain sunlight.

CONIFEROUS FORESTS

- ✓ They are natural forests.
- ✓ They grow at an altitude of 1000 – 4000 m.
- ✓ They are found in the northern areas, KPK, Rawalpindi, Islamabad, Quetta.
- ✓ The species include fir, spiruce, chir, oak, didar, kail, williow, walnut.
- ✓ The trees have the conical shape to the sloping branches of the trees prevent snow accumulation.
- ✓ They are evergreen forests and so they do not provide leaves for humus formation and also they store food in their leaves so they are not annually replaced like other deciduous trees.
- ✓ The thick trunk of a tree is covered by a thick bark is then protected by a resonance material to protect the trunk from cold winds.
- ✓ The leaves are needle shaped, small, thick and leathery which helps to reduce the amount of transpiration as transpiration can be quite rapid in warmer summers due to intense continental heating.
- ✓ It is an important source of timber for making furniture and boxes.
- ✓ It protects the environment by conserving soil and by help in checking floods.
- ✓ It is good breeding and conserving center for bird and wildlife, it attracts tourists and promotes tourism industries.
- ✓ It also adds to the scenic beauty.
- ✓ The tall straight, therefore, very little grip to the strong winds and also help them to obtain sunlight.
- ✓ Sloping Branches which prevent snow accumulation.

TROPICAL THORN FOREST

- ✓ They are natural forests.
- ✓ They are found in Punjab plains, Southern and Western Baluchistan, and Sindh Plains.
- ✓ Their main species are acacia. Tamarisk and Salvodra.
- ✓ They have a height of 6 – 10 m.
- ✓ They are forests dominated by thorny hardwood.
- ✓ They have long roots for search of water.
- ✓ The vegetation is scarce due to shortage of water.
- ✓ They are evergreen (to save the energy for drought conditions)
- ✓ It controls soil erosion
- ✓ They are also used as firewood. Also used for animal fodder and grazing grounds for animals.

SUB TROPICAL SCRUB FOREST

- ✓ They are natural forest
- ✓ They are found on the hills and foothills of Himalayas, Suleman, Kirthar ranges, Waziristan Mountains (Peshawar, Waziristan, Kohat, Mardan) and above the Makran Coast range.
- ✓ The main species of this forest are Juniper, Chestnut and Oak.

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✓ They have long spreading roots.

✓ They are round thorny bushes.

✓ They are leafless.

✓ They are stunted growth.

✓ They are sparse due to lack of water.

✓ It provides wood for furniture and tools.

✓ It supplies firewood. Also used as watershed protection and for grazing purposes.

DESERT VEGETATION

✓ Natural forests

✓ Found in derserts like Thal, Thar, Nara, Cholistan.

✓ Cactus and a variant of other species are found here.

✓ They are also known as halophytes as they survive in salty conditions.

✓ It has few or no leaves.

✓ Sparse

✓ Cushion Shaped

✓ Even height

✓ They are important for camel grazing.

✓ They also provide firewood.

✓ Long well-spaced roots to get moisture from deep underground.

✓ Shallow wide spreading roots to catch as soon as it falls before it evaporates.

✓ Halophytic because high evaporation leads to saline salts.

✓ Seeds dormant and germinate during rain.
✓ Fleshy stem to store moisture of cactus.
✓ Widely spaced together from large area after rain.

RIVERAIN/BELA FOREST

✓ Found on River Indus on active flood plain.
✓ Many species are babu and shisham.
✓ Linear plantation
✓ High yielding commercial hardwood species.
✓ Provides wood for making furniture, agriculture implements.
✓ Obtain water from the rivers due to high water table.
✓ They are evergreen.
✓ Stop soil erosion and also protects soil and settlements from flood water.
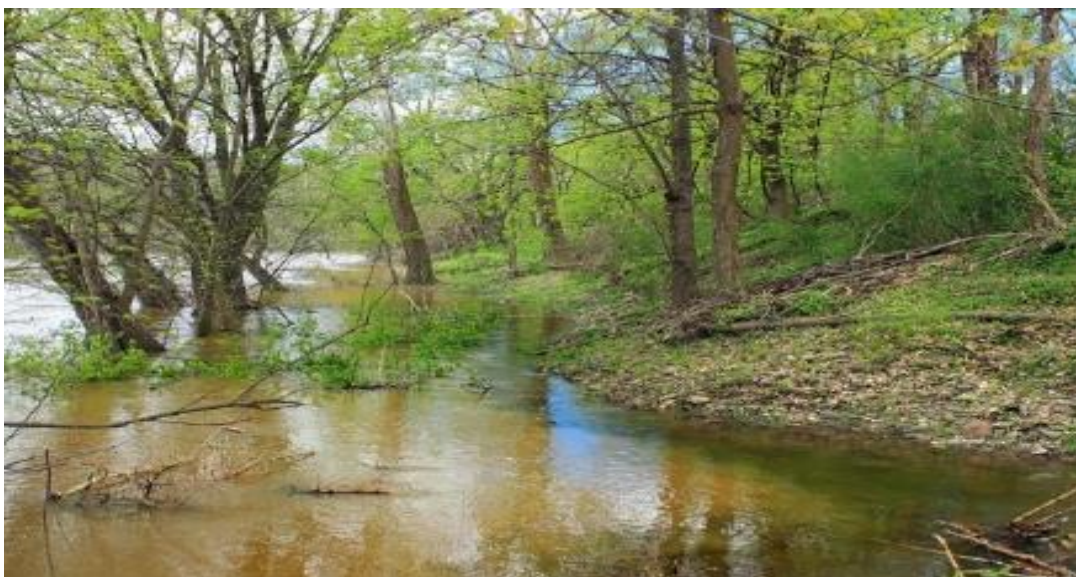
IRRIGATED PLANTATIONS

- ✓ Man-made trees are planted.
- ✓ Planted in rows and are linear.
- ✓ They are equally spaced.
- ✓ Single species
- ✓ Replanting after cutting
- ✓ Planted near rivers, canals
- ✓ Dependent upon water supplied by man through irrigation.
- ✓ Found in Changa Manga near Lahore, Wan Bachran in Thal Desert, Chichawatni in Sahiwal District and Ghulam Muhammad and Gudu Barrages.
- ✓ Economically important species are planted in large blocks of the same species, Babul, Shisham and Eucalyptus are normally preferred.
- ✓ Important sources of timber, firewood.
- ✓ When planted in linear form provides shade.

MANGROVE FORESTS

- ✓ Natural forests
- ✓ Found along the coastal areas in the Indus and Hub delta near Karachi.
- ✓ The species which are common are timar [Avicennia Officanilis] Chauri or Kirani [ceriops] and Kinni [rhizophorous], Bgayara.
- ✓ They are evergreen
- ✓ They have broad leaves which are waxy and leathery to reduce transpiration.
- ✓ In well water conditions it grows to height of 6 – 8 m otherwise they grow till 3 m.

- ✓ We can only find limited species because of water pollution and due to lack of fresh water availability.
- ✓ The trunk is 3 ft. above the ground.
- ✓ Mangroves provide breeding ground for fish and shrimps because the roots of the mangroves trap the fish nutrients brought down the River Indus and they protect the young ones from predators, mudiflats are ideal for crabs and shallow water for lobsters.
- ✓ They act as a barrier from huge waves produced by tropical cyclone and tsunami.
- ✓ They also protect the erosion of coastal areas.
- ✓ They are important for migrating birds.
- ✓ It provides wood for the locals for firewood and for construction.
- ✓ It provides fodder for livestock.

DISTRIBUTION OF FORESTS

Forest Cover Map of Pakistan
Source : Forest Sector Master Plan, 1992.

N

1:8000000

200   0   200   400   Kilometers

Gilgit

Peshawar

Islamabad

Lahore

Quetta

Karachi

Legend
- Coniferous Forest
- Scrub and Other Non-Coniferous
- Riverine Forest
- Mangrove Forest
- Plantation
- Degraded Rangeland
- Non Degraded Rangeland
- Alpine Grassland
- No Data

ESRI   WWF

ALPINE   CONIFEROUS

CONIFEROUS

IRRIGATED
PLANTATION

Riverain/Bela

MANGROVES
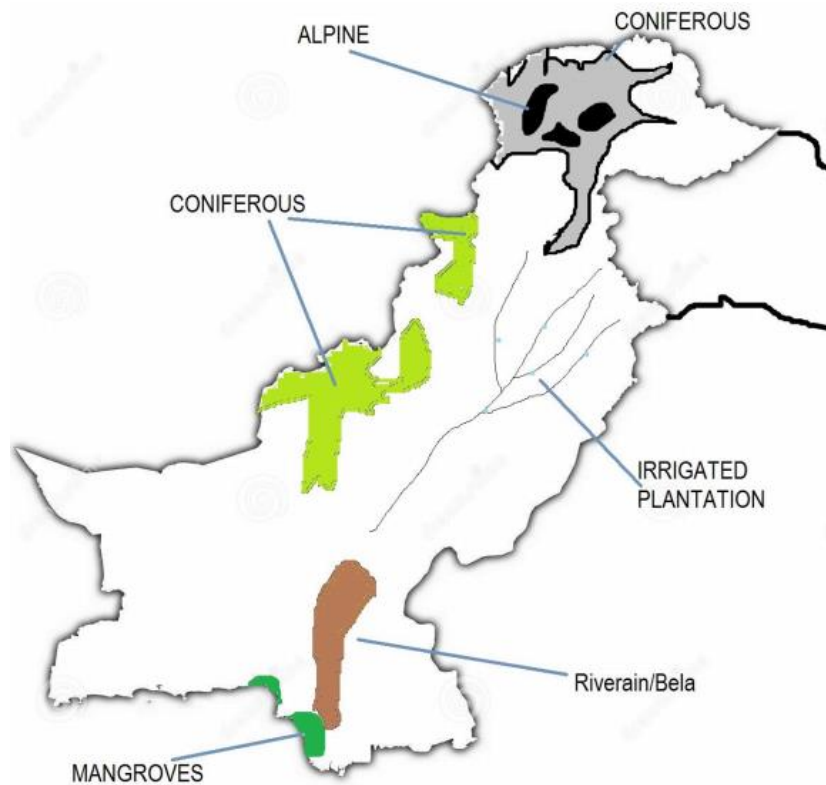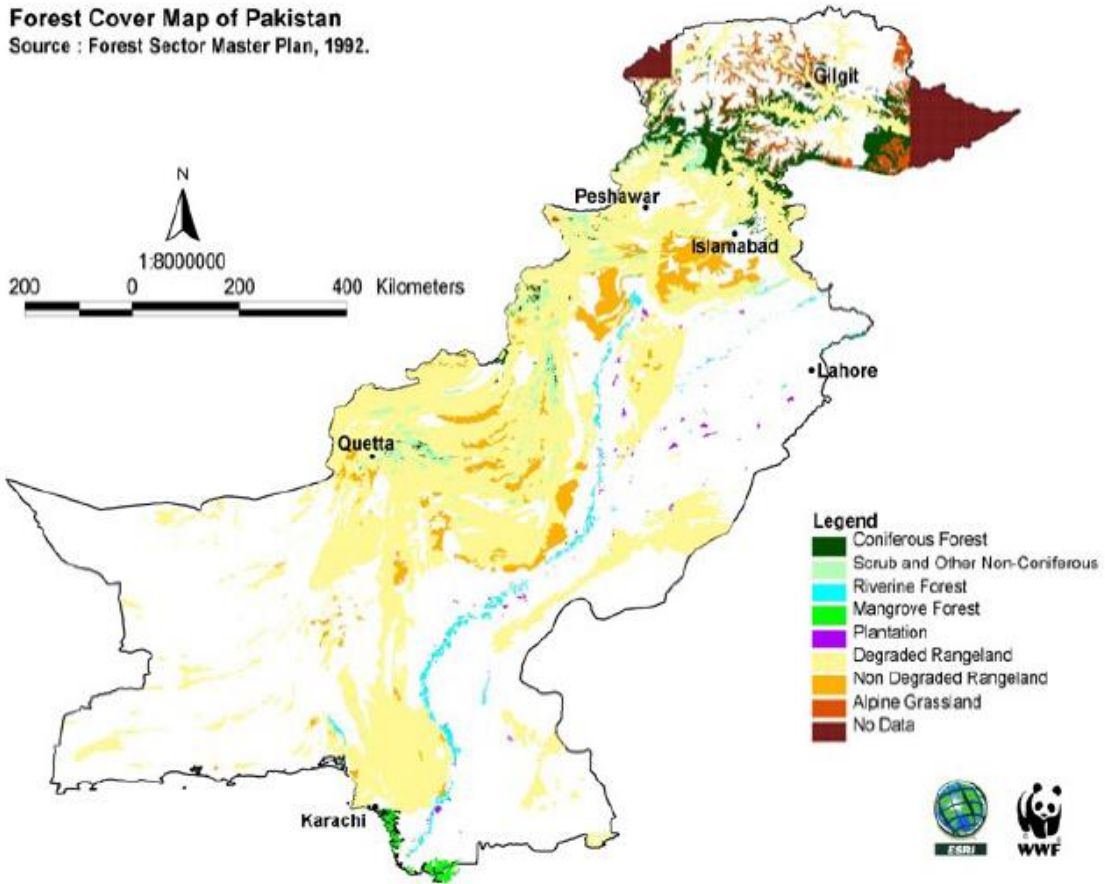
PRACTICE QUESTIONS 1.1

Question 1   N2017/P2/Q4/C

(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 ....

....

2 ....

....

3 ....

....[3]

Question 2   N2016/P2/Q1/C

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

Key

Types of forest

....

....

....

....

- - - - international boundary

.... disputed boundary

N

0   300
km
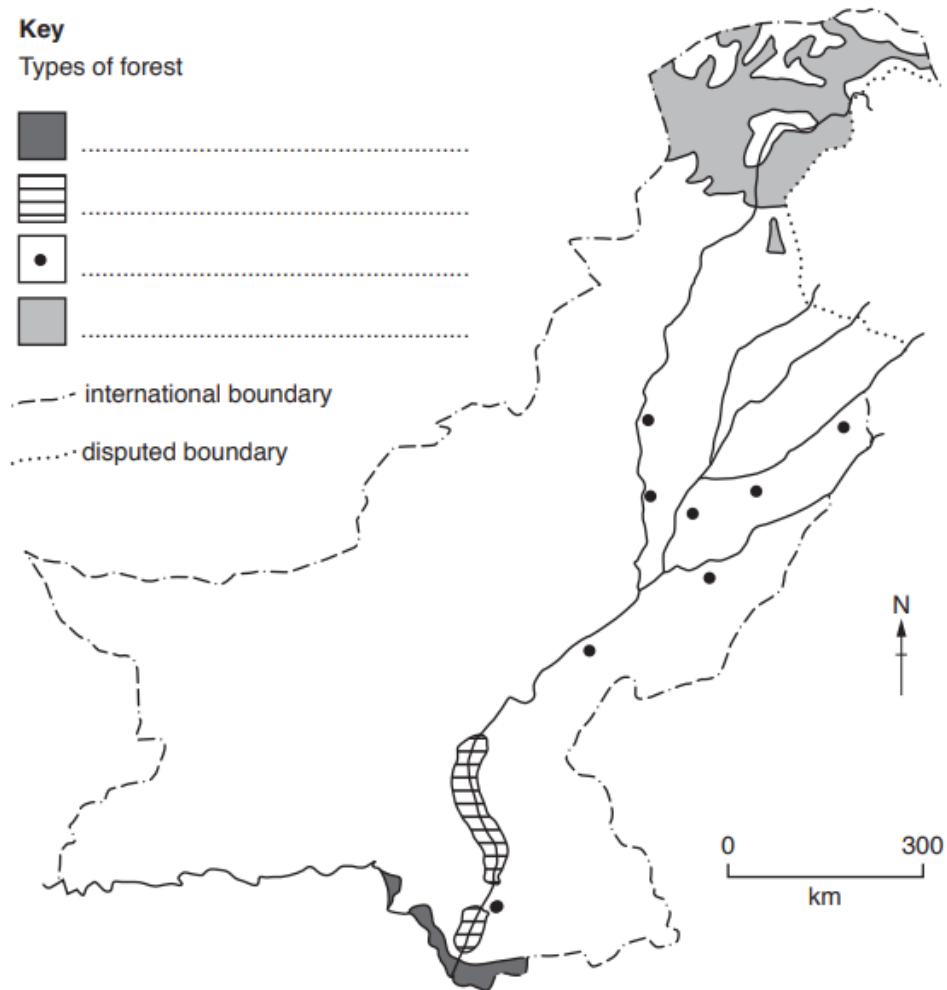
(i) **In the key**, name the types of forest shown on the map.   [2]

(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 ....

....

....

....

Explanation ....

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....[4]

Question 3   **N2014/P2/Q1/D(i)**

(d) Study Photograph A.

(i) Name the type of forest shown.

....   [1]

Question 4   J2012/P2/Q1/A

(a) Study Photographs A, B and C (Insert).

Photograph A for Question 1 Content removed - copyright restrictions.

Photograph B for Question 1 Content removed - copyright restrictions.

(i) Name the forest types A, B and C and locate each type of forest by writing the correct letter in each area shown on the map below (Fig. 1).

A...

B...

C...

[4]

N

Area.........

Area.........

Area.........

ARABIAN SEA
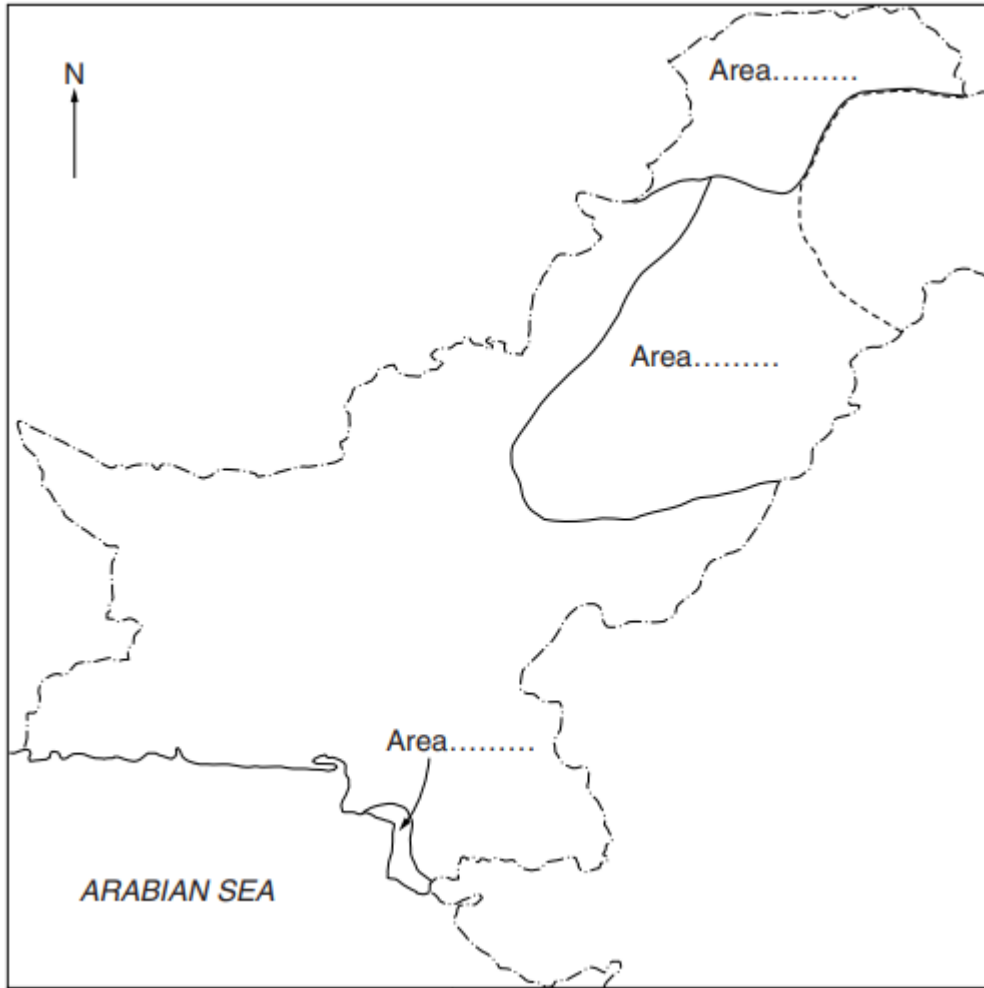
(ii) Describe the appearance of the forest shown in Photograph C.

....

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....[3]

(iii) Explain the importance of the forest in Photograph B to fishermen and fishing villages.

....

....

....

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....

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....[3]

(iv) Why does the forest in Photograph A appear to be in an area of afforestation?

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....[3]

Question 5   J2010/P2/Q1/A

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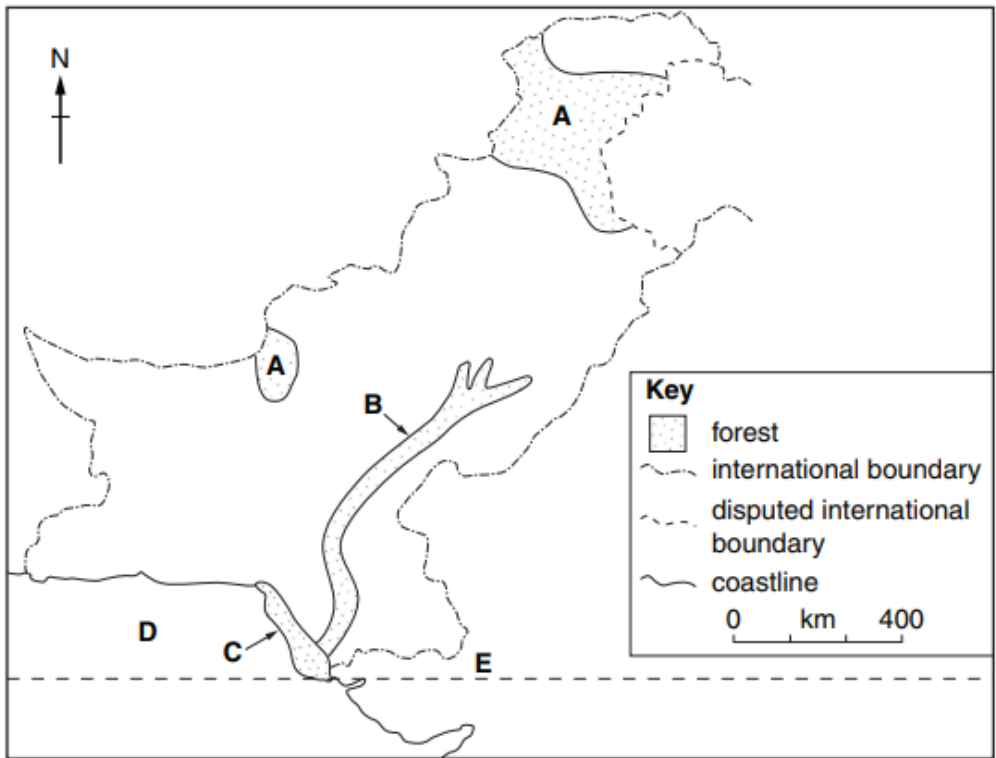
Fig. 1

(i) Name the forest types found in each of the areas **A**, **B** and **C**.   [3]

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(ii) Name the sea **D** and the line of latitude **E**.   [2]

(iii) Explain why the forest type **A** grows naturally in cool, hilly areas.   [3]

(iv) Why is it important that forests by the coast are protected?   [4]

Question 6   **J2006/P2/Q2/A**

Study Photograph A of an area in the Shangla District of NWFP.

(a) **(i)** Describe *in not more than two words* the topography (relief) shown in the photograph. [1]

(ii) What type of trees are shown in the photograph?   [1]

(iii) At what altitude do these trees grow in NWFP ?   [1]

(iv) How is this type of tree adapted to the climate of this area?   [3]

PRACTICE QUESTIONS 1.2

Question 1   J2010/P2/Q1/C

(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?   [2]

     (ii) Explain the advantages and disadvantages of developing more irrigated plantations of trees in lowland areas of Punjab and Sindh.   [6]

Question 2   J2006/P2/Q2/C

(c) Why are there irrigated plantations of trees in the Indus Plain?   [4]

IMPORTANCE OF FORESTS

- ✓ Natural habitat for wild life.
- ✓ Ensure food supply by protecting soil fertility.
- ✓ Regular water supply to rivers to reduce flooding. It controls floods by binding the soil together and preventing the river beds to be raised.
- ✓ Timber for construction.
- ✓ Plants are used for medical purposes in pharmaceutical industries.
- ✓ Supply of fruit
- ✓ Employment for people in forest based industries.
- ✓ Regulate water supply to reservoirs.
- ✓ Controls air pollution as the trees acts as carbon sink i.e. they absorb carbon dioxide and gives oxygen.
- ✓ They prevent soil erosion as the roots of trees binds the soil particles together.
- ✓ The stems and the leaves provide shelter from rain and prevent larger splash.
- ✓ Deciduous trees shed their leaves forming humus so adds soil fertility and prevents excessive leaching of nutrients (Leaching is when the nutrients to dissolve in water which goes in the sub surface and therefore less nutrients are available for the roots to absorb).
- ✓ Raw material for wood based industries. Provides wood for making agricultural implements like wooden plough, fences.
- ✓ Roots of the trees help recharge ground water.
- ✓ Trees attract rainfall through transpiration.
- ✓ Wood can be used to obtain pulp which can be further processed into paper.
- ✓ Encourages tourism and helps earn income for the locals.

FOREST AS A SOURCE OF INCOME

- ✓ Fire wood, Charcoal
- ✓ Provides raw material, timber ephedra, fruits nuts
- ✓ Cottage, Small scale industries, pharmaceutical industries
- ✓ Furniture, toys, souvenir sold to tourists
- ✓ Forest attract tourism
- ✓ Creates employment examples: forest guides, rangers.

MINOR FOREST PRODUCTS

✓ Resin: is a fluid in the tissue of a plant chir that becomes solid on exposure to the air. It is used for making vanishes, chir pine forest occur in Punjab, Azad Kashmir and KPK.

✓ Mazri: used for making mats, baskets and for packing purposes, mazri shurbs is a hardy fiber plant belonging to a group of palms which grow in low, arid, mountainous areas of Suleiman Ranges, Waziristan.

✓ Ephedra: is a medicinal shrub used by pharmaceutical factories for treatment of asthma, hay fever and common cold and they are found in Baluchistan.

DOMESTIC USES OF WOOD

✓ Firewood for heating
✓ Cooking
✓ Home building
✓ Furniture
✓ Fencing

USES OF WOOD IN INDUSTRY AND TRANSPORT

✓ Construction of buildings and bridges.
✓ Transport railway sleepers, bridges, carts
✓ Chemical such as resin, mazri and ephedra
✓ Farms such as fences, gates, implements
✓ Paper production

SUSTAINABLE FORESTRY

✓ Means that we should manage the resources in such a way as to ensure that we will be able to obtain the things that we want from the forests on a regular basis while conserving the natural environment.

✓ The use of forests and forests lands in such a way and at a rate that maintain their biodiversity productivity, regeneration capacity and their potential to fulfill now and in the future relevant ecological, economic and

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social functions, at local, national and global levels and that does not cause damage to other ecosystems.

HOW TO SUSTAIN FORESTS?

Community Forestry

✓ Planting trees to fill, replace gaps in forests especially in vulnerable areas such as on slopes.
✓ Use dead branches for firewood rather than chopping trees down.
✓ Educate and train local people into sustainable ways of use.

Agro Forestry

✓ Plant fast growing agricultural trees crop like oil palms, eucalyptus.
✓ Maintain a complete forest cover to prevent soil damage.
✓ The tree crops can be used to shelter smaller food crops.
✓ Wood needed for other purposes such as fuel can be provided by planting patching of fast growing eucalyptus trees.

Harvesting of Hard Woods

✓ Selective logging of trees of greatest commercial value.
✓ Taking out only mature trees and leaving the rest to grow to full size.
✓ Keep forest clearances small so that rapid generation is possible.
✓ Do a preliminary survey to find the most suitable logging areas.
✓ Check cutting of timber and ensure along gap before next cutting.

Other Measures

✓ Trees should not be cut without proper planning.
✓ Trees shall not be cut if there are not enough funds to regenerate the cut over areas.
✓ Fines.
✓ Punishment.
✓ Awareness.

PRACTICE QUESTIONS 1.3

Question 1   J2014/P2/Q4/D

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

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....[4]

Question 2   J2012/P2/Q1/C

(c)   CRAFTS   TOURISM   CLIMATE   SOILS

With reference to **two** of the above, explain how trees can be a valuable resource for the people who live in mountain areas.

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....[6]

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Question 3   J2007/P2/Q3/B-D

(b) (i)   State **two** domestic uses of wood.   [2]

(ii)   Explain how wood is used in industry and transport.   [4]

(c) (i)   What is *sustainable forestry*?   [3]

(ii)   Why does Pakistan need to increase the area of irrigated plantations?   [3]

(d) (i)   Why is afforestation called 'a long-term investment'?   [2]

(ii)   What are the advantages and disadvantages of developing a forest area for tourism? [4]

DEFORESTATION

✓ Deforestation is the cutting down of trees by human use for any purpose.

CAUSES OF DEFORESTATION

✓ Fuel wood: Most of the people living in the rural areas depends on wood for heating and cooking which results in excessive cutting of forests.

✓ Road construction: Due to industrialization and urbanization more demand for better transport facilities are required so network is getting larger and denser so forests have been cut down to make roads.

✓ Residential purpose because of the increasing population. Growth of large cities has converted forest areas into settlements.

✓ Urbanization i.e. for building industries and airports.

✓ For mining of coal: Forest are cut down to grow crops to meet the food requirement of growing population and to carry out mining activities.

✓ For construction of dams and barrages: In order to this, millions of hectares of land were cleared to provide irrigational facilities.

✓ To obtain raw material for paper, railway sleepers, industries for furniture's and making boats.

✓ Large domestic and foreign market for wood based product. Wood is used in industries little sports goods. Chip board, hard board, veneer plywood and safety matches. Wood is also required for construction industry. Bus bodies, boats and railway coaches use wood as a result forests are cut down to meet the demand of industry.

✓ Overgrazing of land by cattle, goats and sheep's has also converted sub-tropical scrub forest and tropical forest areas in desert.

✓ Lack of enforcement of forest rules and regulations.

✓ Forest Fires.

EFFECTS OF DEFORESTATION

✓ No roots to hold the soil together, no interception.

✓ Loss of wood for fuel may have to travel much further to find fuel.

✓ Shortages of firewood for heating, domestic use.

✓ Lack of leaf fall. Lack of decomposition. Lack of humus Loss of fertility, soil lost only rocks left

✓ Less infilteration more run off

✓ More exposure to sun and wind.

✓ Soil become unfit for agriculture if deposited soils is fertile it improves agriculture eg. Piedmont plains and on active and old flood plains.

✓ Siltation in reservoirs because soil exposed and washed into rivers.

- ✓ Landslides, avalanches nor held by trees.
- ✓ Blocks roads, building destroyed.
- ✓ Loss of scenery, beauty, shade, leads to decrease in tourism so people lose their jobs.
- ✓ Loss of habitat, species lost, extinction, animals more away, less biodiversity.
- ✓ Less rain, less transpiration
- ✓ Less trees to take carbon dioxide so global warming.
- ✓ Ravines, gullies forming bad land.
- ✓ Bridges washed away railway tracks damaged
- ✓ Loss of timber for furniture, construction.
- ✓ Telephone poles grounded.
- ✓ Rivers levels lower
- ✓ Muddy water undrinkable.
- ✓ Air pollution from burning.

MEASURES TO CONTROL DEFORESTATION

- ✓ Supplying irrigation to the deforested areas.
- ✓ Commercial species of trees grow rapidly.
- ✓ Reserving land for fuel wood to save valuable species.
- ✓ Creating awareness by the government organization and NGO's about the importance of forests.
- ✓ Supplying natural gas to areas so that people will not depend on wood for fuel.
- ✓ Use selective cutting methods.
- ✓ Restricting the use of bulldozers and heavy destructive machinery in forests.
- ✓ Enforcement of village forestry program.
- ✓ Village and Urban forestry program by planting trees along road sides, park and open spaces.
- ✓ National parks.
- ✓ Awareness
- ✓ Enforcement of forest rules.
- ✓ Educate people about disadvantages of deforestation.

PRACTICE QUESTIONS 1.4

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

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(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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....[4]

(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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....[6]

Question 2   N2014/P2/Q1/D(ii-iii)

(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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....[4]

(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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....[6]

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Question 3   **J2014/P2/Q4/A-C**

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

Fig. 7

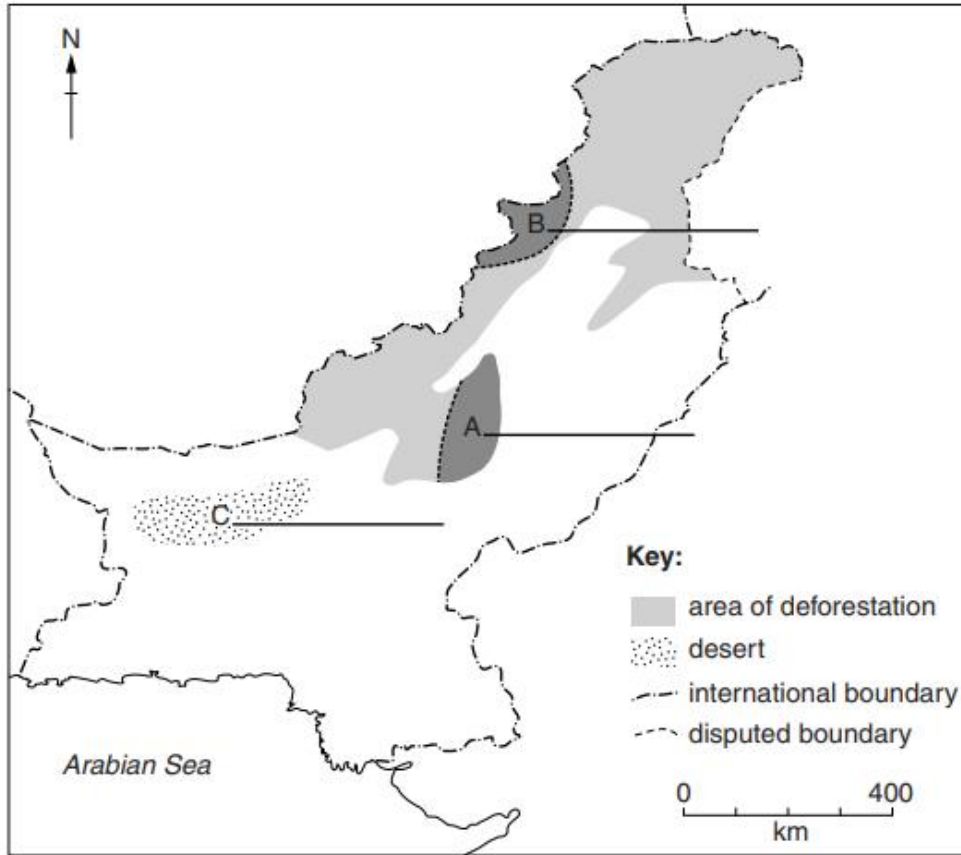(i)   Name the areas of deforestation A and B.   [2]

(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 ....

....

Effect ....

Explanation ....

....

Effect ....

Explanation ....

....

[6]

Question 4	J2012/P2/Q1/B

(b) **(i)** State **two** effects of deforestation in mountain areas.

1 ....

....

2 ....

....[2]

(ii) Explain how **one** of these could be controlled.

....

....

....

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....

....

....

....

....[4]

Question 5 **J2010/P2/Q1/B**

(b) Study Fig. 2.

Before deforestation

- leaves and branches intercept the rainfall
- leaves fall, decompose and mix with the soil
- seeds grow into young trees
- water flows on the surface and through the soil
- roots grow down through the soil and into the rocks below
- water moves through the ground

After deforestation

- tree stump
- tree stump
- more water flows on the surface
- tree stump
- less water moves through the ground
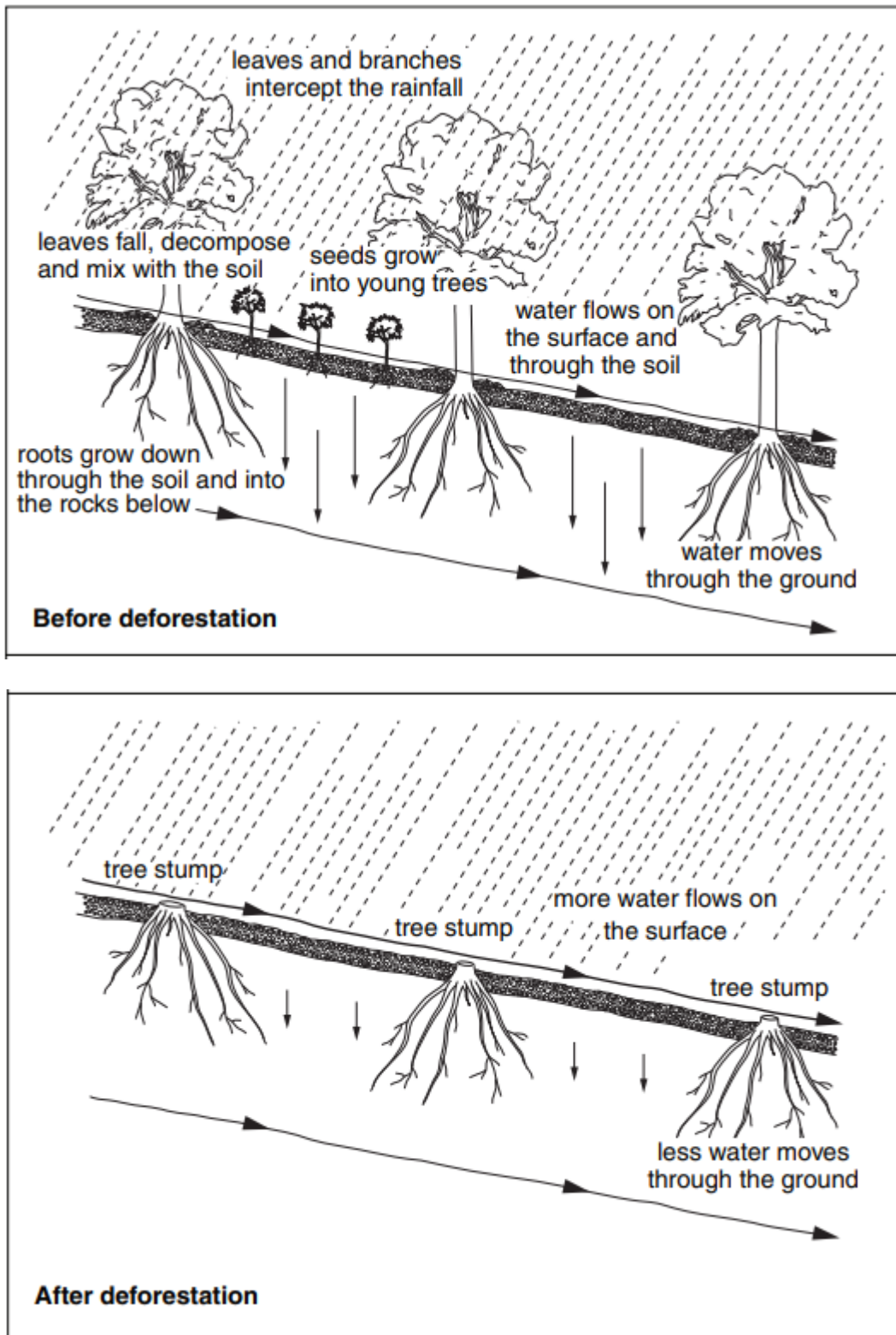
With reference to Fig. 2, explain how deforestation can cause soil erosion. [5]

Question 6   **N2008/P2/Q2/A-B**

(a) Study Fig. 3, a map of environmental damage in Pakistan.

N

0   400
km

Key

— · · — international boundary

· · · · · · disputed international boundary

Areas affected by:

▨ deforestation

⬚ unsafe drinking water

⬚ marine pollution

Arabian Sea
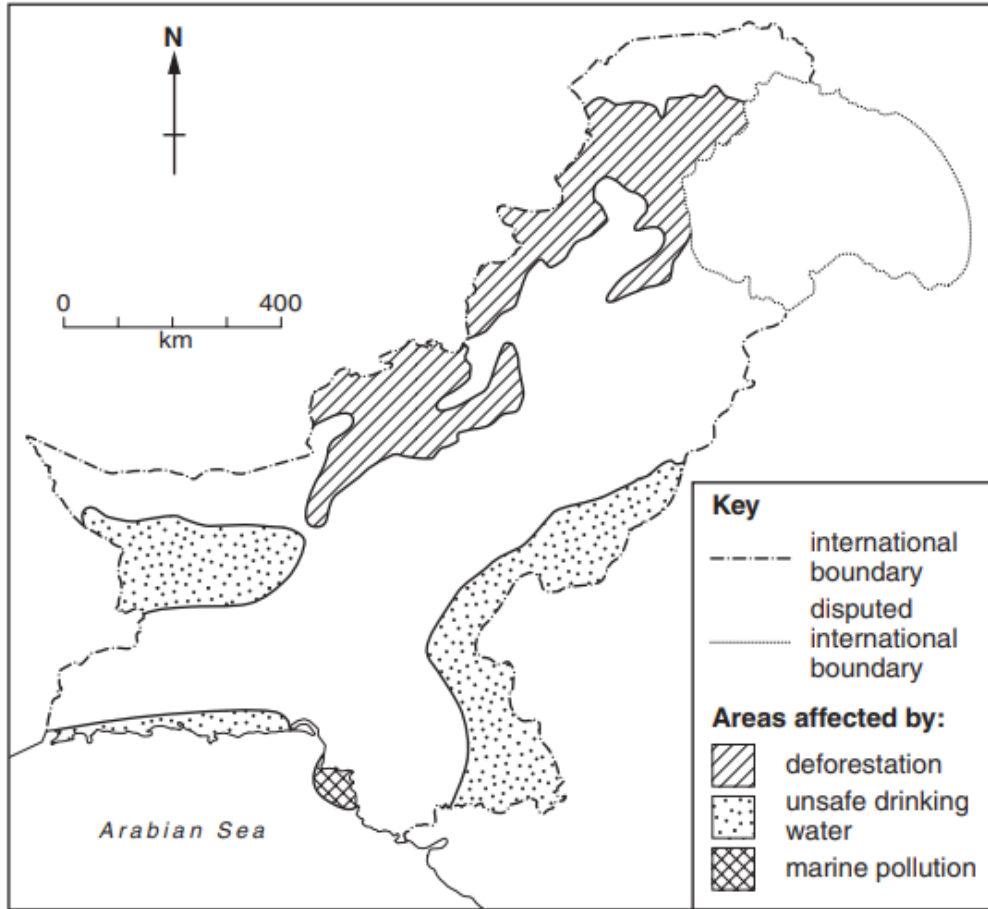
Fig. 3

   (i) Locate the areas most affected by deforestation.   [2]

   (ii) State **three** causes of deforestation in these areas.   [3]

(b) Study Photograph A (Insert).

(i) Describe the scene. [4]

(ii) Explain why scenes such as this are caused by deforestation. [4]

Question 7   J2006/P2/Q2/B

(b) (i) Trees have been cut down in area X. What effects may this have on the soil there? [3]

(ii) How can deforestation affect water supplies? [4]

(iii) State and explain **one** way in which the effects of deforestation can be reduced. [3]

SELECTIVE CUTTING

- ✓ Harvesting of selected singles and group of trees.
- ✓ Cutting out trees that are mature or defective or of inferior kinds to encourage the growth of remaining trees in a forest.

TERRACING

- ✓ Steps are cut into steep hill sides and the front of each flat terrace is edged with mud or stone walls known as bunds.
- ✓ The bunds hold back water and soil.

CONTOUR PLOUGHING

- ✓ It is farming practice of ploughing or planting across a slope following its elevation contour lines.

STRIP FARMING

- ✓ It is when two or more crops are grown in the same field sometime one crop may grow under the shelter of a taller crop for the sake of protection.

AFFORESTATION

- ✓ Plantation of trees in a non-forest area, planting tree in a new area.

REFORESTATION

- ✓ Plantation of trees against deforestation in a forest area.

MUHAMMAD YOUSUF MEMON

RECENT PAST PAPER QUESTIONS

Question 1   **J2018/P2/Q2**

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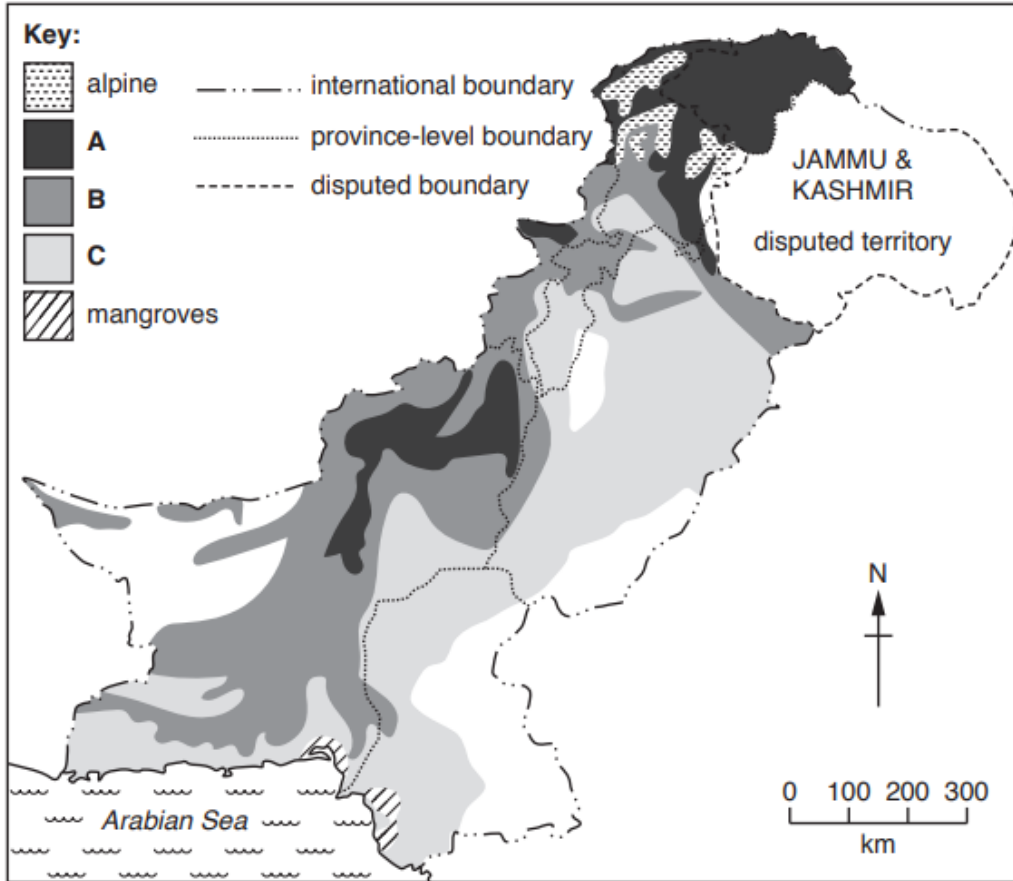
Fig. 2.1

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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....[2]

(ii) Describe **two** functions of forests.

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....
....[2]

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

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....
....[3]

(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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....[4]

(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	**B**
Increased forest cover is an important use of land for the future development of Pakistan.	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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....[6]

ANSWER KEY

Practice Questions 1.1

Question 1	N2017/P2/Q4/C

One of: babul, shisham, acacia, coniferous / spruce / fir, eucalyptus, jhand, tamarisk, fruit trees.

1 @ 1 mark

- 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

Question 2	N2016/P2/Q1/C

(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	
RIVERAIN / BELA • Shishum / • babul / willow / dhak • Commercial hardwoods	• For furniture / agricultural instruments / construction • Firewood	• 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
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	
sloping branches • Leaves small / narrow / needle-shaped / leathery • Roots wide-spreading / shallow • Survive in low temps	• For scenic beauty • For construction • Firewood	

Question 3　　N2014/P2/Q1/D(i)

(d) **Study Photograph A.**

   (i) **Name the type of forest shown.**　　[1]

     Coniferous / alpine / montane

Question 4　　J2012/P2/Q1/A

(a) **Study Photographs A, B and C (Insert)**

   (i) **Name the forest types A, B and C and write the correct letter for each area shown on Fig. 1**　　[4]
     A　Coniferous / alpine
     B　Mangrove

C   Tropical thorn / Rakh / Irrigated / Riveraine / Bela
(3 for names, 1 for all areas correct)

(ii) Describe the appearance of the forest shown in Photograph C.   [3]
green / healthy
dense / close together
plantation / planned / in lines
varied height
form a canopy / canopy open / crowns meet / provides shade
no undergrowth / bare floor
same species
shisham / babul

(iii) Explain the importance of the forest in Photograph B to fishermen and fishing villages.   [3]
breeding area / many fish there (max 1 mark for ref. to fish)
source of income
protection to villages (against storms, floods, tidal waves etc.)
firewood
fodder / food
timber / wood for boats, houses etc.

(iv) Why does the forest in Photograph A appear to be in an area of afforestation?   [3]
regular pattern / evenly distributed / in blocks
straight lines
blocks of same height / age / young trees
blocks of same species
evidence of deforestation / cutting

Question 5   J2010/P2/Q1/A

(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]

Question 6   J2006/P2/Q2/A

(a) (i) Describe in not more than **two** words, the topography(relief) shown in the photograph.

mountainous / wooded / coniferous(trees)/ steep slopes/deep valleys   **[1]**

(ii) What type of trees are shown in this photograph?

coniferous / spruce / fir / deodar/kail/chir   **[1]**

(iii) At what altitude do these trees grow in NWFP?

1000-4000 metres   **[1]**

(iv) How is this type of tree adapted to the climate in this area?

Conical shape to shed snow

Small leaves   }

Thick, leathery leaves   } *to reduce transpiration*

Evergreen to take advantage of short growing season   **[3]**

Practice Questions 1.2

Question 1   J2010/P2/Q1/C

(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 CO_2
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]**

Question 2 — J2006/P2/Q2/C

(c) Why are there irrigated plantations in the Indus Plain?

Construction	}
Firewood	}
Furniture	} uses max 2
Boxes	}
Agricultural implements	}

Irrigation available

Shade

Prevent erosion of banks

Reduces air pollution

For shade

Reduce timber imports

Etc.   [4]

Practice Questions 1.3

Question 1 — J2014/P2/Q4/D

(d) Explain how forests can become a <u>source of income</u> 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

Question 2 — J2012/P2/Q1/C

(c) CRAFTS   TOURISM   CLIMATE   SOILS

With reference to **two** of the above, explain how a trees can be a valuable resource for the people who live in mountain areas.   [6]

<u>Credit only once</u>
'for income / employment'
Improved standard of living / quality of life / better lifestyle

<u>Res. 2 for each choice</u>
CRAFTS – small scale / cottage industry, work for locals, income, furniture, toys etc. sale to tourists, local need, export, for raw material

TOURISM – scenic beauty (or similar) shade, picnics, nature study, photography, to buy crafts

CLIMATE – increases transpiration, increases humidity, more rain, shade, to lower temperature
reduce pollution / more oxygen / fresh air

SOILS – leaf fall creates humus, more fertility, can grow crops, pastures,
prevents erosion / landslides / soil erosion, prevents flooding,

Question 3   J2007/P2/Q3/B-D

(b) (i) State _two_ domestic uses of wood.
Firewood heating/cooking/house building/furniture/fencing (2 at 1 each)   [2]

(ii) Explain how wood is used in industry and transport.
construction of building, bridges, etc.
means of transport – railway sleepers (not fuel), bridges, lorry chassis/carts
chemical such as – resin, varnish, mazri (for mats), pharmaceuticals, medicine, etc.
farm/agricultural use such as fences, gates, implements
paper production from pulp
sports goods such as bats, rackets, etc.
crafts such as ornaments, beads, etc.
furniture such as chairs, tables, etc.

(For a mark the use must be given. The candidate needs more than just a named product)   [4]

(c) (i) What is _sustainable forestry_?
ensuring supplies are there for the future selective cutting
replanting trees that have been cut down/re-afforestation
maintaining/looking after forests
planting species that do not need irrigation   [3]

(ii) Why does Pakistan need to increase the area of irrigated plantations?
Too many trees have been cut down/too much deforestation
To provide more wood <u>for industry, increase in population etc.</u>
To relieve waterlogging/waterlogging and salinity
To prevent erosion <u>of banks/slopes</u>
To replace areas where forests cannot be replaced (e.g. due to soil erosion or urbanisation)
For tourism
To reduce imports   [3]

(d) (i) Why is afforestation called a 'long-term investment'?
trees take many years to grow
many years before financial return/start production/results are seen
high cost of planting
costs during growth   [2]

(ii) What are the advantages and disadvantages of developing a forest area for tourism?
<u>Advantage (res. 1)</u>
Employment opportunities
Source of income
Provision of named infrastructure/electricity, roads, water, sanitation (max 2)
Provision of other modern facilities, e.g. shops
Reduces the effects of deforestation/destruction of habitats/soil erosion (max 1)
Etc.

<u>Disadvantage (res. 1)</u>
High cost of development/money could be spent on other things
Effects on habitats/damage to trees
Litter/garbage
Resettlement of local people
Tourists may not come, problems of security, etc.
Loss of culture
Etc.

(res. 1 for each of adv. and disadv.)   [4]

Practice Questions 1.4

Question 1	N2015/P2/Q1/C-D

(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	Chipboard/hardboard/plywood	Matches
Furniture	Paper	Fuel/firewood/charcoal
Sports goods	Boxes	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? <u>To what extent</u> are these actions possible in Pakistan?   **[6]**

Levels marked
Level 3 (5–6 marks) Developed points explaining both views (possible and not possible). Evaluation giving clear support to one view, with developed points describing actions (5), and with at least one reference to an appropriate example (6)

Level 2 (3–4 marks) Developed point explaining one view or describing actions (3), developed points explaining both views (or either view) **or** explaining one view and describing actions **or** describing actions only (4). No evaluation.

Level 1 (1–2 marks) Simple point addressing one view or describing actions (1), simple points addressing both views **or** one view and describing actions **or** describing actions only (2).

Indicative content (development of points in parentheses)

<u>Actions</u>
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

Question 2	N2014/P2/Q1/D(ii-iii)

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

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

Question 3	J2014/P2/Q4/A-C

(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 <u>three</u> 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<u>%</u>

   (ii) By how much should it increase by 2015 to meet its commitment under the UN goal? [1]

      3.5<u>%</u>

(c) State and explain <u>three</u> 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]

Question 4   J2012/P2/Q1/B

(b) (i) State <u>two</u> effects of deforestation in mountain areas. [2]
Increased surface runoff
soil erosion / leaching / infertile
landslides / avalanches
floods
less rainfall   } climatic change
higher temperatures }
loss of habitat / rare species
shortage of firewood / food
siltation in reservoirs (dams)

(ii) Explain how <u>one</u> of these could be controlled. [4]

<u>Allow a 2nd mark for development of any line e.g. quick growing trees</u>

<u>(Soil erosion etc. controlled by)</u>
planting trees <u>to hold the soil</u>
planting trees <u>to protect the soil</u>
terracing
contour ploughing
selective cutting
education / awareness
<u>(Siltation controlled by)</u>
Silt traps
Dredging / removal of silt from reservoirs
<u>(Flooding controlled by)</u>
Embankments
Dams / barrages
<u>(Climatic change controlled by)</u>
Reduce burning of fossil fuels
Controls on emissions
Laws / treaties etc.
<u>(Loss of habitat controlled by)</u>
Establish reserves
Selective cutting
Rangers / laws
<u>(Shortage of firewood controlled by)</u>
Use of alternative fuels (other than firewood) eg. LPG / natural gas

Question 5   J2010/P2/Q1/B

(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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Question 6   N2008/P2/Q2/A-B

(a) Study Fig.3, a map of environmental damage in Pakistan.

   (i) **Locate the areas most affected by deforestation.**
      NW borders
      NWFP
      N Balochistan
      FATA   [2]

   (ii) **State *three* causes of deforestation in these areas.**
      firewood
      industry
      charcoal
      road building
      housing/construction
      mining
      dams
      farming   [3]

(b) **Study Photograph A (Insert).**

   (i) **Describe the scene.**
      bare ground/rocky/barren
      steep slopes
      gullies
      scattered/small amounts of vegetation
      red colour
      mountains/hills and valleys/dissected/ridged
      eroded landscape/badlands
      lake   [4]

   (ii) **Explain why scenes such as this are caused by deforestation.**
      no roots to hold soil together
      runoff erodes soil/soil erosion
      no interception
      less infiltration/more runoff
      loss of leaf fall
      lack of decomposition
      nutrient cycle broken
      loss of fertility
      leaching
      less rainfall
      more exposure to sun and wind   [4]

Question 7   J2006/P2/Q2/B

(b) (i) Trees have been cut down in Area X. What effects may this have on the soil there?

    leaching

    soil erosion

    gullying

    landslides/total soil loss/only rocks left   *credit effect + dev*   [3]

(ii) How can deforestation affect water supplies?

Too little:　*Muddy water undrinkable/polluted*

Reduced evapotranspiration so less rain

Silt in reservoirs reduces storage

Silt blocks irrigation channels

Irregular flow/ comes in bursts

Too much: *Flooding/faster runoff*　　　　　　　　　　　　　　　　[4]

(iii) State and explain **one** way in which the damage done by deforestation can be reduced

ways:　　　*regeneration programmes*

education / better management

forest reserves

legal controls on commercial cutting / selective cutting

restricting use of heavy machinery

supply of gas to Northern areas to reduce need for firewood

terracing

explanation:　*credit according to way stated in answer*

1 mark for way plus 2 for explanation　　　[3]

Recent Past Paper Questions

Question 1	J2018/P2/Q2

- 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

- Coastal areas of Sindh / Indus Delta;
- Coastal areas of Balochistan / Sonmiani Bay;
- Along the coastline of / near the Arabian Sea.

　　　　　　　　　　　　　　　　　　　　　　　2 @ 1 mark

- 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

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- 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

- 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

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

- 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

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:

Importance of forests
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.

Importance of other uses of land
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.