**1. How forests are classified from a point of view of exploitation as a resource? What are the kinds of economic benefits we receive from forest?**

Ans: **•Primary forests (or old-growth forest)**

**•Forests of native tree species (uncut) where human activities have not made an impact and the ecological balance remains undisturbed.**

**•Secondary forests (or second-growth forest)**

**•Secondary forests emerge when primary forests are removed by human action or natural causes and are then regenerated. They will be different from the primary forests in vegetation, species, diversity, etc. The ecosystem will also not be as stable as it was before.**

**•Forest plantations**

**•Plantations are forested areas grown by planting or seeding. Most often the objective is to get timber and other goods for commercial purposes. They contain usually equally spaced trees of the same species of the same age.**

**The economic benefits we attach to forests can be divided as use values and non-use values.**

•Use values:

•**Direct use values include economic benefits obtained from direct use of forest and they can be extractive or non-extractive.**

•**Extractive direct uses include timber, fuel wood, edible and medicinal plants, hunting for food or sport, minerals, minor forest produce such as honey and fibre, etc.**

•**Non-extractive direct uses include tourism and recreation.**

•**Indirect use values refers to environmental services provided by forests that are of indiectvale, such as carbon and water absorption, the provision of habitat to protect biodiversity or various ecosystem protection services such as the ability to reduce soil erosion, and siltation of rivers, maintaining a gene bank etc.**

•**Option value refersto the value people may place on maintaining the option to enjoy the direct or indirect use values at some time in future, including preservation of natural gene bank.**

•**Non-use values include:**

•Our desire to leave forests as a heritage for future generations.

•**Our satisfaction or happiness in knowing that forests (say in the Amazon) are being conserved for the sake of the planet.**

2.**What do you mean by Deforestation? Suggest some measures for the conservation of forests.**

**Ans: Deforestationmeans destruction (cutting, burning & damaging) of forests.**

•**Sustainable Forest Management (SFM) SFM is the use of the world’s forests in such a way that they continue to provide resources in the present, without depriving future generations of their use.**

•**Forest Certification: Be responsible consumers. Buy wood only from companies that follow sustainable practices.**

•**Involve Local Communities in Joint Forest Management (JFM): As local communities want to continue to get the benefitsthey previously enjoyed, they provide labourand help in conserving biodiversity. The Government should provide them extractive reserves. These are protected forests in which local communities are allowed to harvest fruits, nuts, medicines, fibres, rubber, etc., in ways that do not harm the forest.**

•**Improve Governance and Accountability: The Government must take bold political decisions and develop new civil society institutions to improve governance and accountability regarding forest use. Stop harmful subsidies to timber companies.**

•**Accelerate Education, Research and Training: This is to ensure that SFM and JFM can quickly become a reality.**

**3. What is land degradation? Explain factors responsible and controlling measures of land degradation**

**Ans: Land degradation is temporary or permanent lowering of productivity through deterioration of the land's physical, chemical, and biological conditions.**

**The main causes of degradation of land resources are:**

•**Deforestation,**

•**Fuelwood consumption,**

•**Overgrazing,**

•**Agricultural mismanagement-**

•**planting unsuitable crops,**

•**poor crop rotation,**

•**poor soil and water management,**

•**excessive input of chemicals,**

•**frequent use of heavy machinery like tractors, etc.**

•**Establishment of industries**

•**Urbanization**

**Among the practical measures undertaken to prevent and restore degraded land are:**

•**Prevention of soil erosion**

•**Improved early warning system**

•**Water resource management**

•**Sustainable pasture, forest, and livestock management**

•Aero-seeding over shifting sand dunes

**Narrow strip planting, windbreaks, and shelterbelts of live plants**

•Agroforestry ecosystems

•Afforestation and reforestation

•**Introduction of new species and varieties with a capacity to tolerate salinity and/or aridity**

•**Environmentally sound human settlements**

**4. What are the reasons for the worsening water situation in many countries? What is likely to happen in another 40 years?**

Ans:**Indispensability of water and its unequal distribution has often led to inter-state or international disputes.**

•**Around the world more than 200 water bodies are shared by two or more countries.**

•**Issues related to sharing of river water have been largely affecting our farmers and also shaking our governments.**

•**Many countries are engaged in bitter rivalries over this precious resource.**

•**If at all a Third World War –for Water !**

**INCREASING POPULATION –INCREASING DEMAND**

•**Stress and Conflicts –National level, State level and even local level for water**

**5. Where the World’s food does comes from?**

**Ans: Food comes almost entirely from agriculture, animal husbandry and fishing.**

**From crop lands –76% -mostly food grains: Agriculture cropsconstitutes an important food resource. About 300 crops are grown for food & commercial products.**

**From range lands –17% -meat from grazing livestock: Domestic animals is also an important food source. For eg: milk by sheep, goat, camel etc.**

**From fisheries –7% -marine and fresh water: Aquacultureproduction of food by aquatic habitats for eg: fish & seafood.**

**6. What is meant by Green Revolution and what has been its impact?**

**Ans:The Green Revolution refers to the rapid increase in world food production, especially in the developing countries, during the second half of the twentieth century, primarily through the use of lab-engineered High-Yielding Varieties (HYVs) of seeds.**

•It came as a p**ackageof HYVs along with high inputs of chemical fertilizer, pesticide, water, and agricultural machinery.**

**It was hailed as a success story of agricultural science and technology.**

**India achieves food self-sufficiency due to green revolution.**

•The Impacts:

•**It was an energy-intensive method, dependence on foreign technology**

•**Apart from the energy that went into the making of the inputs, energy was again needed to run the machinery and to pump water.**

•Farmer has to buy seeds every time

•Traditional varieties of crops disappear

•**Soil depleted, water tables lowered**

•**On the whole, the Green Revolution has benefited large landowners and not the small farmers.**

•Small farmer **broke, in debt.**

**7. Explain Renewable and Non-renewable energy resources with examples? Give a brief account of renewable energy resources and their significance.**

Ans;**The primary sources of energy are of two types—renewable and non-renewable.**

•**Non-renewable sources are limited in supply and get depleted by use. Oil, coal, and natural gas are examples. Nuclear energy is again non-renewable since it requires material like uranium, which is limited in supply.**

•**Renewables are replenished by natural processes at the same rate as their rate of consumption by humans. Solar energy, wind power, and wave energy are examples.**

•**The sun and the wind are special sources of renewable and inexhaustible energy**

**A renewable resource is one that nature replenishes again and again over time through own processes.**

•**One example is fresh water, which we get as rain every season, thanks to the global water cycle. Clean air, fresh topsoil, forests, and fish are other examples of renewal resources**

**8. State the need for public awareness for solving environmental problems.**

**Ans:**