Department of Forestry, Wildlife and Environmental Sciences
Guru Ghasidas Vishwavidyalaya
Bilaspur (CG)-495001
Model Answer
Course: Environmental Studies
Section-A

Ans.Q.1. (a) i. The Air (prevention and pollution control) Act was enacted in the year

a. 1982 b. 1981 c. 1983 d. 1986

Ans. b. 1981

ii. Minamata disease caused due to

a. Pb b. Cd c. Hg d. None of the above

Ans. c. Hg

iii. Percentage of CFC in green house gases

a. 40% b. 3 % c. 2 % d. None of these

Ans. c. 2 %

iv. The Bhopal gas tragedy was in the year

a. 2nd December 1983 b. 3rd December 1983

c. 2 nd December 1984 d.3rd December 1984

Ans. d. 3rd December 1984

v. Leaves rustle is

a. 0 dB b. 5 dB c. 6 dB d. 10 dB

Ans. d. 10 dB

(b) Write true or false

vi. High biological oxygen demand is indicator of good quality of water. (True/False)

Ans. False

vii. Eutrophication is due to excess application of fertilizer. (True/False)

Ans. True

(c) Fill in the blanks

viii. When a source of pollution can be readily identified because it has a definite source and place where it enters the water it is said to_____.

Ans. Point source pollution

ix. HIV_____.

Ans. Human Immunodeficiency Virus

x. Phytoremediation_____.

Ans. Phytoremediation is the process by which removal of toxic metals with help of plant.

Section B

Q.2. Define noise pollution? Write about their allowance limit in different zone and control measures?

Ans. Noise is defined as an unpleasant, unwanted and undesirable sound having complex mixture of a number of pure tones of various frequencies and amplitudes. Environmental noise, as from vehicles or machinery, that is annoying, distracting, or physically harmful. The physical effects can include hearing loss, tinnitus, stress, and sleeplessness. Noise pollution is usually considered in terms of its effects on human populations, though it is known to affect wildlife as well.

Unit: The unit of the expression of the noise pollution intensity is decibel.

Causes of Noise Pollution

1. Stationary Sources: Use of loudspeakers on various occasions like festivals, elections, worships in temples, mosques and during advertisements, mining operations, use of bulldozers, drillers and dynamites to break rocks, household gadgets like vacuum cleaner, TV, radio, stereo, grinder, mixer etc., common vegetable and fish markets.

2. Mobile Sources: Road traffic, railway traffic, air traffic, navigation etc the sources of noise can be classified in following categories:

(1) Transportation / Traffic noise

a. **Road Traffic:** The noise generated from highway traffic is one of the major sources of noise pollution. Highway noises are of two types, viz., noises generated by individual vehicles and noises generated by a continuous flow of vehicles of all types.

b. Aircraft Noise: Aircraft noise differs from road traffic noise in the sense that it is not continuous but intermittent. Noise is at a maximum during take-off and landing. Major cities around the world have banned or reduced flights at night and also prescribed noise limits.

c. Rail Traffic Noise: Noise from rail traffic is not a serious nuisance as compared to the road traffic and airport noise. The noise produced is generally, of lower frequency than that of road vehicles and further, most railway tracks run through rural areas. The impact of noise pollution by trains is felt maximum in buildings located beside railway tracks.

(2) Industrial noise: In industries, noise is the by-product of energy conversion. The compressors, generators, furnaces, looms, grinding mills, release valves and exhaust fans are the most offending noise sources.

(3) **Noise from construction work:** Noise from construction sites is generally far worse than the noise originating from factories. There are two reasons for this - one is that construction (of roads, bridges, buildings, dams etc.) may become necessary anywhere and the other reason is that construction equipments are inherently noisy

(4) **Neighborhood noise**: It includes a variety of noise sources which disturb and annoy general public. The most I prominent is the indiscriminate use of loudspeakers in public functions, entertainments, festivals, I elections etc. The other sources include vacuum cleaners, TV, radio sets and washing machines I etc. During the festivals especially Dipavali.

Allowance limit in different zone

Zone	Night-Day time (dB)
Silence zone	**40 - 50**
Residential zone	**45 - 55**
Commercial zone	**55 - 65**
Industrial zone	**70 - 70**

Follow the below given steps for controlling and preventing noise pollution:

- Control of Noise pollution at Source
- Noise producing industries, railway stations, aerodrome, etc. should be located far away from the residential areas.

- We should play various music systems such as stereos, television, etc. at low volume.
- We should not use loud speakers during night. Even during time they should be used at low volumes.
- Various machines should be well maintained so that they produce less sound.
- It is observed that certain persons blow horns of their vehicles unnecessarily, or remove silencers of the exhaust pipes of vehicles. Such practices produce lot of noise and should be avoided.
- Laws should be framed so that the persons producing unnecessary noise are punished.
- Create buffer zone (green belt)

Control of Noise Pollution by obstructing the path of Noise

By constructing soundproof buildings, the menace of sound pollution can be minimized.

Plants also help in controlling noise pollution because they absorb high frequency sound waves. Thus, planting trees along the roads help in controlling noise pollution.

Q.3. Difference among the following

Ans. a. Primary and Secondary pollutants

Primary pollutants	**Secondary pollutants**
A primary pollutant is an air pollutant emitted directly from a source	A secondary pollutant is not directly emitted as such, but forms when other pollutants (primary pollutants) react in the atmosphere
Typical urban air pollutants from man-made activities include nitrogen oxides, carbon monoxide, sulphur dioxide, hydrocarbons and particulate matter. All these pollutants are called primary pollutants because they are emitted directly into the atmosphere. Common sources of these primary pollutants include power station and industrial plants (sulphur dioxide), and road transport (carbon monoxide, particulate matter and nitrogen oxides)	Examples of a secondary pollutant include ozone, which is formed when hydrocarbons (HC) and nitrogen oxides (NOx) combine in the presence of sunlight; NO_2, which is formed as NO combines with oxygen in the air; and acid rain, which is formed when sulfur dioxide or nitrogen oxides react with water. Eg. HNO_3, H_2SO_4, O_3, smog

b. Surface water and ground water

Surface water	**Ground water**
Surface water can be found over the land surface in streams, ponds, marshes, lakes or other fresh sources , and oceans (surface water)	Underground water that is held in the soil and in pervious rocks or water percolates inside the soil profile and stored in impervious rocks
Water moves much faster than ground water	water moves much slower than surface water
Surface-water can be affected by numerous physical variables such as topography, land cover, soil conditions, mineralogy, and ground-water conditions, all of which may be	It affected by the soil texture and soil profile

affected by geologic conditions	
Surface water is also more easily contaminated than ground water. Filtration through the soil helps clean ground water	Less affected by the contaminants

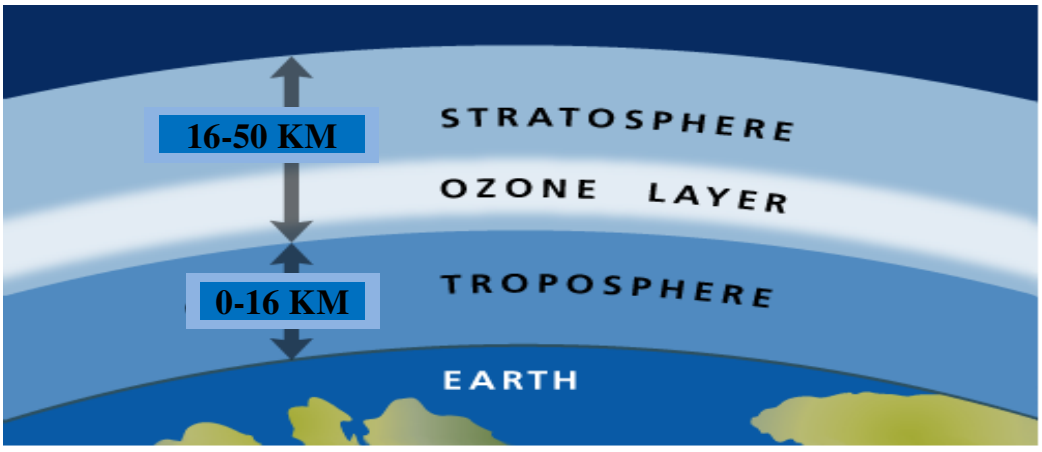
c. Global warming and green house effect

Green house effect	Global warming
Greenhouse effect is the retention of the heat by the greenhouses gases on the surface of the Earth, allowing the planet's temperature to rise.	Global warming is when the average temperature of the Earth's atmosphere and the oceans rise
Major gases that are responsible for the greenhouse effect are water vapor, carbon dioxide and methane	It is due to increases concentration of GHG due to combustion of fossil fuels, pollution, mining, deforestation, population
It helps to retain temperature on the earth surface	Rising sea levels, melting of ice glaciers, extinction of species, oxygen depletion, volcanoes, earthquakes, acidification, depleted food supply

Q.4. Write about the significance of Ozone layer in climate? What are the causes of Ozone layer depletion? What is your responsibility to control it?

Ans. Q.4. Significance of Ozone layer in climate

Ozone is a gas that occurs naturally in our atmosphere. Most of it is concentrated in the ozone layer, a region located in the stratosphere several miles above the surface of the Earth. Although ozone represents only a small fraction of the gas present in the atmosphere, it plays a vital role by shielding humans and other life from harmful ultraviolet light from the Sun.



Ozone is a gas in the atmosphere that protects everything living on the earth from harmful ultraviolet (UV) rays from the Sun. Without the layer of ozone in the atmosphere, it would be very difficult for anything to survive on the surface. (Think of a very bad sunburn, only much worse!) Plants cannot live and grow in heavy ultraviolet radiation, nor can the plankton that serve as food for most of the ocean life. The ozone layer acts as a shield to absorb the UV rays, and keep them from doing damage at the Earth's surface. It helps to regulate earth

temperature as well as other climatic factor. It play important to retain temperature on the earth surface. Ozone layer is deleting frequently from last 3 decade. That is observed with the help of the thickness of ozone layer which measured with the help of Dobson unit.

Following substances causes of ozone layer depletion

1. **Chlorofluorocarbons (CFCs)**
   - The most widely used ODS, accounting for over 80% of total stratospheric ozone depletion.
   - Used as coolants in refrigerators, freezers and air conditioners in buildings and cars manufactured before 1995.
   - Found in industrial solvents, dry-cleaning agents and hospital sterilants.
   - Also used in foam products — such as soft-foam padding (e.g. cushions and mattresses) and rigid foam (e.g. home insulation).
2. **Halons**
   - Used in some fire extinguishers, in cases where materials and equipment would be destroyed by water or other fire extinguisher chemicals. In B.C., halons cause greater damage to the ozone layer than do CFCs from automobile air conditioners.
3. **Methyl Chloroform**
   - Used mainly in industry for vapour degreasing, some aerosols, cold cleaning, adhesives and chemical processing.
4. **Carbon Tetrachloride**
   - Used in solvents and some fire extinguishers.
5. **Hydrofluorocarbons (HCFCs)**
   - HCFCs have become major, "transitional" substitutes for CFCs. They are much less harmful to stratospheric ozone than CFCs are. But HCFCs they still cause some ozone destruction and are potent greenhouse gases.

     $CFCl_2 \xrightarrow{h\nu} CFCl + Cl$

     $Cl + O_3 \rightarrow ClO + O_2$: The chlorine atom changes an ozone molecule to ordinary oxygen

     $ClO + O_3 \rightarrow Cl + 2O_2$: The ClO from the previous reaction destroys a second ozone molecule and recreates the original chlorine atom, which can repeat the first reaction and continue to destroy ozone.
6. Nitrous oxide: It also causes another harmful depletion cause of ozone layer

   $N_2O \rightarrow N_2 + O$

   $N_2O + O \rightarrow 2NO$

   The nitric oxide (NO) produced from N_2O destroys ozone in a series of reactions

   $NO + O_3 \rightarrow NO_2 + O_2$

   $O_3 \rightarrow O + O_2$

   $NO_2 + O \rightarrow NO + O_2$

Ways to Protect the Ozone Layer:

- Minimize high altitude aircraft flights (oxygen reduction and water vapor deposition)
- Minimize rocket flights (water vapor deposition)
- Encourage growth of plants that produce oxygen, discourage deforestation
- Decrease / control releases of high temperature steam / moisture to the atmosphere
- Eliminate production and release of known ozone depleting chemicals (such as CFCs and HCFCs) where remotely possible. Subsidize production of safer alternatives where possible.

- Establish controls to assure that new compounds to be used in high volume, are surveyed for effect on ozone
- Alternate to use AC, refrigerator, Air freshener, perfumes.

Actions an Individual can take

- Ensure technicians repairing your refrigerator or air conditioner recover and recycle the old CFCs so they are not released into the atmosphere.
- Vehicle air conditioning units should regularly be checked for leaks.
- Ask about converting your car to a substitute refrigerant if the a/c system needs major repair
- Help start a refrigerant recovery and recycling program in your area if none already exists.
- Replace halon fire extinguishers with alternatives (e.g. carbon dioxide or foam).
- Suggest school activities to increase awareness of the problem and to initiate local action.

On an international scale, banning the use of CFC will slow down the destruction of ozone. This is being achieved through the Montreal Protocol, an international agreement to reduce the use of CFCs and eventually ban them completely. CFCs have now been banned in more economically developed countries. However, in some less economically developed countries CFCs are still being used due to the high cost of replacing it with a more ozone friendly substance.

Q.5. Short notes on (a) Value education (b) Population growth

Ans. (a) Value education: All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood." The word "Education" has been derived from the Latin term "Educatum" which means the act of teaching or training. A group of educationists say that it has come from another Latin word "Educare" which means "to bring up" or "to raise".

According to a few others, the word "Education" has originated from another Latin term "Educere" which means "to lead forth" or "to come out". All these meanings indicate that education seeks to nourish the good qualities in man and draw out the best in every individual. Education seeks to develop the innate inner capacities of man.

By educating an individual we attempt to give him some desirable knowledge, understanding, skills, interests, attitudes and critical 'thinking. That is, he acquires knowledge of history, geography, arithmetic, languages and sciences.

He develops some understanding about the deeper things in life, the complex human relations, and the cause and effect relationship and so on. He gets some skills in writing, speaking, calculating, drawing, operating some equipment etc. He develops some interests in and attitudes towards social work, democratic living, co-operative management and so on.

As an individual in the society, he has to think critically about various issues in life and take decisions about them being free from bias and prejudices, superstitions and blind beliefs. Thus, he has to learn all these qualities of head, hand and heart through the process of education.

The Concepts of Education as given by prominent Indian educationists are as follows:

Value education the contemporary society is causing great concern to all those concerned with education. Right from the time of India independence various commissions and committees, such as the university education commission (1948), Sri Prakash committee (1959-60). The Indian Education Commission (1964-66), National Policy of Education (1986).

NCERT (National Council of Educational Research and Training) which is an autonomous organization working in the field of School Education under the ministry of Human Resource Development, has been identified as Natural Resource Centre for value education. NRCVE (National Resource for Centre for Value Education) is the set up in Department of Educational Psychology and Foundation of Education (DEPEE) with the objective of developing program and strategies to renew emphasis on value education.

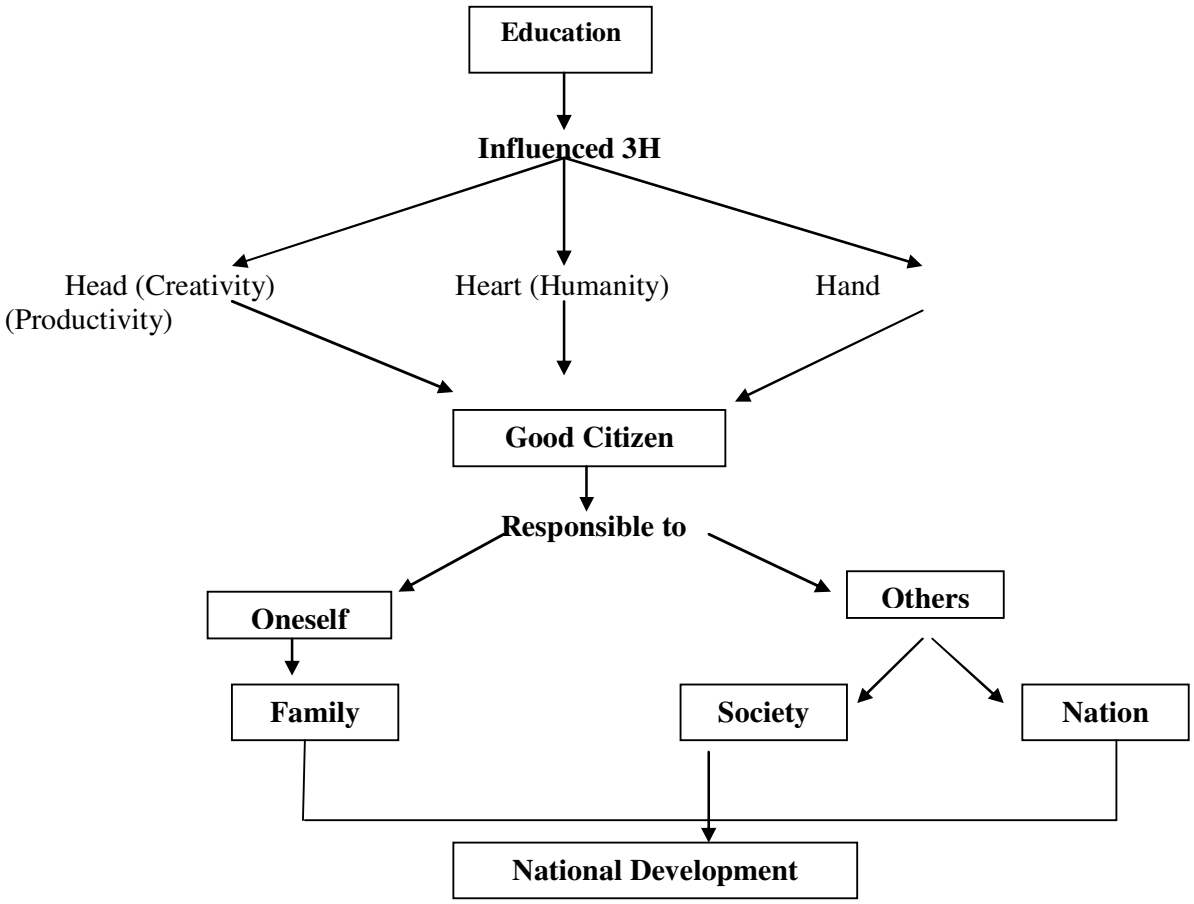
Some important thing has to change:

1. From national to global education
2. State control to open market economy
3. From education few to education for all
4. From teacher centered to learner centered
5. From one time education to life time education

Principles of Education and School Organization

- Rigved: "Education is something which makes man self-reliant and selfless".
- Upanishad: "Education is for liberation".
- Bhagavad Gita: "Nothing is more purifying on earth than wisdom.
- Shankaracharya: "Education is the realization of self'.
- Gunrunner: "Education is self realization and service to people".
- Kautilya: "Education means training of the country and love of the nation".
- Panini: "Human education means the training which one gets from nature".
- Vivekanand: “Education is the manifestation of the divine perfection, already existing in man."
- Gandhi: "By education, I mean an all-round drawing out of the best in the Child and man body, mind and spirit."
- Tagore: "The widest road leading to the solution of all our problems is education."
- Sri Aurobindo: "Education which will offer the tools whereby one can live for the divine, for the country, for oneself and for others and this must be the ideal of every school which calls itself national".

Role of Education in National Development



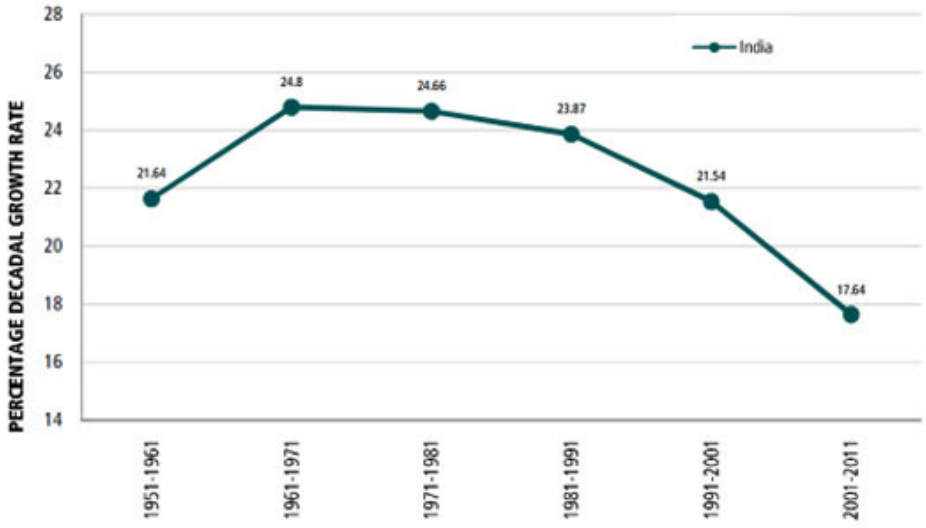
Ans. (b) Population growth:

Current Population of India - India, with 1,272,730,030 (1.27 billion) people is the second most populous country in the world, while China is on the top with over 1,360,044,605 (1.36 billion) people. The figures show that India represents almost 17.31% of the world's population, which means one out of six people on this planet live in India. Although, the crown of the world's most populous country is on China's head for decades, India is all set to take the numero uno position by 2030. With the population growth rate at 1.58%, India is predicted to have more than 1.53 billion people by the end of 2030.

More than 50% of India's current population is below the age of 25 and over 65% below the age of 35. About 72.2% of the population lives in some 638,000 villages and the rest 27.8% in about 5,480 towns and urban agglomerations. The birth rate (child births per 1,000 people per year) is 22.22 births/1,000 population (2009 est.) while death rate (deaths per 1000 individuals per year) is 6.4 deaths/1,000 population. Fertility rate is 2.72 children born/woman (NFHS-3, 2008) and Infant mortality rate is 30.15 deaths/1,000 live births (2009 estimated). India has the largest illiterate population in the world. The literacy rate of India as per 2011 Population Census is 74.04%, with male literacy rate at 82.14% and female at 65.46%. Kerala has the highest literacy rate at 93.9%, Lakshadweep (92.3%) is on the second position and Mizoram (91.6%) is on third.

Population status: World Population 2013=7,117,991,815

Population:	1,272,730,030 (2013 est.) (2nd)
Growth rate:	1.41% (2009 est.) (93rd)
Birth rate:	22.22 births/1,000 population (2009 est.)
Death rate:	1.4 deaths/1,000 population (2009 est.)
Life expectancy:	69.89 years (2009 est.)
–male:	67.46 years (2009 est.)
–female:	72.61 years (2009 est.)
Fertility rate:	2.5 children born/woman (SRS 2010)[1] (82nd)
Infant mortality rate:	30.15 deaths/1,000 live births (2009 est.)



Many areas are afflicted by population growth like water shortages, soil exhaustion, loss of forests, air and water pollution, Degradation of coastlines etc. As the world's population grows, improving living standards without destroying the Environment is a Global challenge. Most developing countries with rapid population growth face the urgent need to improve living standards. As we exploit the nature to meet the present needs, we are destroying the resources needed for the future.

Effect of population on Environment

Public Health

- Unclean water along with poor sanitation kills over 12 million people each year. Water pollution is a serious problem everywhere.
- Air pollution kills nearly 3 million people. Air pollution, already a serious problem in cities, is becoming worse as urban population grow and the number of motor vehicles rises.
- Heavy metals and other contaminants also causes health problems

Food Supply

- In most developing countries, the population has been growing faster than food supplies.

- Population pressures have degraded some 2 billion hectares of cultivable land- an area the size of USA and Canada put together.

Freshwater

- Supply of fresh water is limiting, since the demand is soaring as population grows and per-capita use rises.
- By 2025, when world population is projected to be 8 billion, nearly 48 countries containing 3 billion people will face freshwater shortages

Coastlines and Oceans

- Half of all coastal ecosystems are pressured by high population densities and urban development
- A tide of pollution is rising in the world's seas
- Ocean fisheries are being overexploited and fish catches are down

Forests

- Nearly half of the world's original forest cover has been lost.
- Each year millions of hectares of forests are cut, bulldozed or burned
- Forests provide over 400 billion US$ to the world economy annually and are vital to maintaining healthy ecosystems
- Current demand for forest products may exceed the limit of sustainable consumption by 25%

Bio-diversity

- Earth's biological diversity is crucial to the continued vitality of Agriculture and Medicine, and perhaps even to life on Earth itself
- Human activities are pushing many thousands of plant and animal

Species into extinction

- Two of every three species is estimated to be in decline

Global climate change

- The Earth's surface is warming due to greenhouse gas emissions, largely from burning fossil fuels.
- If the global temperature rises as projected, sea levels would rise by several meters, causing widespread flooding.
- Global warming also cause droughts and disrupt agriculture

Poverty

- During the 1990's the people in poverty increased by about 1 billion

<u>Stabilizing population</u>

- The last four decades have witnessed a profound change in Fertility rates and world population growth.
- Demographic Transition: The transition from high fertility and high mortality to low fertility and low mortality has been substantially completed in the developed world and is underway in most of the developing world.
- But in many countries of Africa and Asia, population continues to growing at 2% a year or faster and the average women, bears 4-6 children.
- Even small increases in the fertility rates- which could occur if commitment to providing family planning services, information, supplies, etc were to diminish- would mean faster population growth.
- Worries about a "population bomb" may have lessened as fertility rates have fallen, but the world's population is projected to continue expanding until the middle of the century.

- While population growth has slowed, the absolute number of people continues to increase-by about 1 billion every 13 years.
- Slowing population growth would help improve living standards and would buy time to protect natural resources.
- In the long run, to sustain higher living standards, world population size must stabilize.

Q.6. What are the problems in resettlement and rehabilitation of people? Give your opinion for the rehabilitation?

Ans. Meaning of resettlement and rehabilitation:

Resettlement: The transportation of people (as a family or colony) to a new settlement (as after an upheaval of some kind).

Rehabilitation: The restoration of someone to a useful place in society.

There are many issues and harms attached with the displacement or the resettlement of the people due to natural or man-made reasons. However, we must keep the objectives and purpose of rehabilitation in mind while displacing people. Current nuclear crisis in Japan have already displaced millions of people. There are various instances and examples if displacement and resettlement of people due to mining activities, resettlement due to dams and other multipurpose projects etc Resettlement: The transportation of people (as a family or colony) to a new settlement (as after an upheaval of some kind). Rehabilitation: The restoration of someone to a useful place in society.

Following problems are related in resettlement and rehabilitation of people

People are forced to move out of their land due to both natural and man-made disasters. Natural disasters like earthquakes, cyclones, tsunami etc. render thousands of people homeless and sometime even force them to move and resettle in other areas. Similarly, developmental projects like construction of roads, dams, canals and flyovers displace people form their home. You must all be aware of the recent nuclear leakage in Japan due to which millions of people were forced to leave the area for their safety. Thus, resettlement refer to the process of settling again in a new area. Rehabilitation means restoration to the former state.

Reasons for displacement of people

- Natural disasters like earthquake, cyclones, tsunamis, volcanic eruptions, prolonged droughts conditions, floods, hurricanes etc.
- Man made disasters like industrial accidents (e.g. Bhopal gas tragedy), nuclear accidents (Current disaster in Japan), oil spills (Exxon Valdez oil spill), toxic contamination of sites etc.
- In search of better employment opportunities.
- Developmental projects like:
  i.Construction of dams, irrigation canals, reservoirs etc.
  ii.Infrastructural projects like flyovers, bridges, roads etc.
  iii.Transportation activities like roads, highway, canal etc.
- Energy related project like power plants, oil exploration, mining activities, pipelines like HBJ pipeline etc.
- Agricultural projects

- Projects related with the conservation of wildlife like national parks, sanctuaries and biosphere reserves.

Resettlement issues
As per the World Bank estimates, nearly 10 lakh people are displaced worldwide for a variety of reasons. I have tried to mention a few of the sufferings that these people have to face but we are unable to feel for them:

Little or no support: Displacement mainly hits tribal and rural people who usually do not figure in the priority list of any political authorities or parties.

Meager compensation: The compensation for the land lost is often not paid, it is delayed or even if paid, is too small both in monetary terms and social changes forced on them by these mega developmental projects.

Loss of livelihood: Displacement is not a simple incident in the lives of the displaced people. They have to leave their ancestral land and forests on which they depend for their livelihood. Many of them have no skills to take up another activity or pick up any other occupation. Usually, the new land that is offered to them is of poor quality and the refugees are unable to make a living.

Lack of facilities: When people are resettled in a new area, basic infrastructure and amenities are not provided in that area. Very often, temporary camps become permanent settlements. It is also a major problem of displacement or resettlement that people have to face.

Increase in stress: Resettlement disrupt the entire life of the people. They are unable to bear the shocks of emptiness and purposelessness created in their life. Payment of compensation to the head of the family often lead to bitter quarrels over sharing of compensation amount within the family, leading to stress and even withering of family life. Moreover, land ownership has a certain prestige attached to it which cannot be compensated for even after providing the new land. With the loss of property and prestige, marriages of young people also become difficult as people from outside villages are not willing to marry their daughters to the refugees.

Increase in health problems: Lack of nutrition due to the loss of agriculture and forest based livelihood, lead to the general decline in the health of the people. People are used to traditional home remedies. But th herbal remedies and plants gets submerged due to the developmental projects.

Secondary displacement: Occupational groups residing outside the submergence area but depending on the area for the livelihood also experience unemployment. Village artisans, petty traders, laborers etc, lose their living.

Loss of identity: Tribal life is community based. The tribal are simple people who have a lifestyle of their own. Displacement has a negative impact on their livelihood, culture and spiritual existence in the following ways:

- Break up of families and communities are the important social issues of displacement. The women suffer the most as they are deprived even a little compensation.
- Inter-community marriages, cultural functions, folk songs and dances do not take place among the displaced people. When they are resettled, it is generally individual based resettlement, which ignores communal character.

- Resettlement increases the poverty of the tribal due to the loss of land, livelihood, food insecurity, jobs, skills etc.
- Loss of identity of individuals and the loss of connection between the people and the environment is the greatest loss in the process. The indigenous knowledge that they have regarding the wildlife and the herbal plants are lost.
- The land acquisition laws do not pay attention to the idea of communal ownership of property which increases stress within the family.

The tribal people are not familiar with the market trends, prices of commodities and policies. As such, they are exploited and get alienated in the modern era. My mother often says about the plight of people from Nepal who came newly to the city of Gangtok. Earlier, when they demanded four meters cloth piece, the shopkeeper used to measure the same from all the four sides of the piece. Actually it was only one meter in length but they used to charge the price of four meter cloth.

You can give following opinion for the rehabilitation and resettlement:

- Tribal people should be allowed to live along the lives of their own patterns and others should avoid imposing anything on them.
- They should be provided means to develop their own traditional art and culture in every way.
- Villagers should be given the option of shifting out with others to enable them to live a community based life.
- Removal of poverty should be one of the objectives of rehabilitation.
- The people displaced should get an appropriate share in the fruits of the development. I should say that it is really a good move by ISC to share its profits among the active contributors.
- The displaced people should be given employment opportunities.
- Resettlement should be in the neighborhood of their own environment.
- If resettlement is not possible in the neighbor area, priority should be given to the development of the irrigation facilities and supply of basic inputs for agriculture, drinking water, wells, grazing ground for the cattle, schools for the children, primary healthcare units and other amenities.
- Villagers should be taken into confidence at every stage of implementation of the displacement and they should be educated, through public meetings, discussion about the legalities of the Land Acquisition act and other rehabilitation provisions.
- The elderly people of the village should be involved in the decision making.

Case study: **NVP and Tehri dam project**

Rehabilitation: On 26 th January, 2001 the state of Gujarat was hit by an earthquake of magnitude of 6.9 on the Richter scale according to IMD (7.7 Richter) causing colossal damage to life and property.

State govt. took up the task of rehabilitation and reconstruction to facilitate resettlement and reconstruction facilitate resettlement and provision of shelter to the severely affected population. The rehabilitation program evolved was in the form of four different packeges by the Gujarat State Disaster Management Authority based on the recommendations of the task force.

S. No.	Category	Assistance
1.	Completely destroyed hut	7000/-
2.	Partially damaged hut	2000/-
3.	Crake (1/2 inch width)	2000/-
4.	Repair of damage up to 10%	5000/-
5.	Repair of damage up to 25%	10,000/-
6.	Repair of damage up to 50%	20,000/-
7.	Completely damaged kachha/pakka house	40,000/-

Narmada Velley Project

The Narmada Velley Project was coincide in 1946 and finally in the year 1978. NVP, if and when completed will rank as the largest irrigated project ever planned and implementated as a single unit anywhere in the world. By the year 2040 the project authorities hope to complete 31 major dams, 135 medium dams and 3000 minor dams. The Sardar Sarovar Project (SSP) in Gujarat and the Narbada (Indira) Sagar Project (NSP) in MP are the most controvertial projects. SSP dam will impound water in a 455 foot high reservoir that will submerge 37,000 ha of land in the states of Gujarat, MH and MP.

About 1,50,000 people in 245 villages, live in the area affected by submergence of NVP. Narmada Velley Project and the international and domestic protests against it, none has generated as much controversy and litigation as the issue of resettlement and rehabilitation of project of project Project Affect Peoples (PAPs). The most widely known group of protesters, save the Narmada Movement known by its Indian acronym NBA (Narmada Bachao Andolan) has built its widespread support and the primary focus of its protest is on displacement issue.

Tehri dam project: The relocation of more than 100,000 people from the area has led to protracted legal battles over resettlement rights, and ultimately resulted in the project's delayed completion. Since 2005, filling of the reservoir has led to the reduced flow of Bhagirathi water from the normal 1,000 cubic feet per second (28 m^3/s) to a mere 200 cubic feet per second (5.7 m^3/s). This reduction has been central to local protest against the dam, since the Bhagirathi is considered part of the sacred Ganges whose waters are crucial to Hindu beliefs. At some points during the year, the tampering with Bhagirathi waters means this tributary stops flowing. This has created resentment among many Hindus, who claim that the sanctity of the Ganges has been compromised for the generation of electricity. Though the officials say that when the reservoir is filled to its maximum capacity the flow of the river will again become normal. In spite of concerns and protestation, operation of the Tehri Dam continues.

Q.7 (a) What do you understand by wasteland reclamation?

(b) What is Consumerism and possible solution?

Ans. (a) Wasteland : An uninhabited wilderness that is worthless for cultivation.

According to Bhumbla &Khare A) which are eco logically unstable B) Whose top soil has been nearly completely lost C) which have developed toxicity in root zones for growth of most plants, both annual crop and trees.

Causes of land degradation

- Over cultivation
- Deforestation
- Overgrazing
- Improper irrigation practices

Types of wastelands According to NRSA & SOI-13 types

Categories of Wastelands in India	
Category	**Area (in sq.Kms.)**
Snow Covered/Glacial	55788.49
Barren Rocky/Sheet Rock	64584.77
Sands-inland/coastal	50021.65
Land affected by salinity/alkalinity	20477.38
Gullied/or ravenous land	20553.35
Upland with or without scrub	194014.29
Water logged & Marshy	16568.45
Steep sloping area	7656.29
Shifting cultivation land	35142.20
Mining/Industrial Wastelands	1252.13
Degraded/pastures/grazing land	25978.91
Under utilized/degraded notified forest land	140652.31
Degraded land under plantation crop	5828.09

Wasteland reclamation: The conversion of wasteland into land suitable for use of habitation or cultivation is known as wasteland reclamation. Some different policies and schemes working for wasteland reclamation as follows:

Policies so for

- Govt. of India land use policy (1983)
- National Land Resources Conservation and Development Commission (NLRCDC)
- National Land Board (NLB)
- National Land Use and Wastelands Development council (NLWC)
- The National wasteland Development Board (NWDB)
- IWDP (Integrated wasteland development Project)

Schemes so far

- Grants in aid to NGO's
- Decentralised people's nurseries
- Silvipasture farm
- Seed development
- Area oriented fuelwood & fodder project
- Ariel seding prog.
- Plantation of minor forest produce
- Margin money scheme
- Rural employment scheme
- By March,2004-148 schemes sanctioned with total outlay- 143.23 cr.
- 63 projects completed/ foreclosed.
- It lacked addressing ecological crisis &people's participation.

IWDP Scheme

- In effect since 1989-90 along with NWDB
- Only non forest wastelands are taken up.
- It's objective are based on village/ micro watershed plans.

- Activities- In situ soil/ moisture conservation, plantation, agro- forestry & horticulture, training, extension, awareness, capacity building, engineering structures etc.
- Success story- Sivganga district of Tamilnadu
- SPWD An organisation with mission
- Activities- collaborative project with grass root organisation,Networking, policy advocacy
- Functional Area- Land, water, forest & natural resources.

Another way of reclamation of wasteland

- Govt. should view a forestation as a support to agriculture
- Afforestation
- Reforestation
- Controlled grazing
- Mulching
- Raise grasses nearby eroded land
- People's involvement by mobilization.
- Separate line of credit by banks/FI.
- Transfer of available technology.
- Each dev. Project should involve reclamation cost of waste resources.
- Sufficient planning for raising of nursery.

Ans. (b) Consumerism: Consumerism is generated entirely by humans and creates many problems on earth. The theory that an increasing consumption of goods to pay more amount of money for the comfortable life style. Nature given equal right to all people they have equal rights on all natural resources. But due to money differences made the great difference among the peoples and their utilization pattern of natural resources. For example urban peoples and villagers for consuming electricity. Electricity provided to villagers for 2-3 hours but in case of urban peoples the duration 24 hours in a day. Urban peoples are utilizing more electricity because they are able to pay money. But this is produced from the all natural resources which is given by the nature and villagers also having equal right on it. It may well be impossible to stop consumerism in all developed as well as in developing country with moderate socialism.

Because it is so ingrained into the developed country as well as rich people identity that they can buy whatever they like because they have the money. For example America, there definitely needs to be cultural change as well as policy change. France, Canada, Britian are doing pretty well with a more socialistic approach, and, although they don't limit spending so much, they do spread the wealth through their taxes. Their savings ratings and such are much better as well. The excessive spending is due as much to the culture of America as it is to the low interest rates. There was also no mention of the billionaires and upper class who tend to be fairly excessive and they made up around 40% of America's wealth a year or so ago. Since we're coming out of the recession, the wealth hopefully balanced a little bit, but probably not by more than a few percentage points.

Consumerism sets each person against themself in an endless quest for the attainment of material things or the imaginary world conjured up and made possible by things yet to be purchased. Weight training, diet centers, breast reduction, breast enhancement, cosmetic surgery, permanent eye make-up, liposuction, collagen injections, these are some examples of people turning themselves into human consumer goods more suited for the "marketplace" than living in a healthy balanced society.

The rise of China and India will result in less consumerism because their culture promotes more thrifty spending. The average American home is at least 2 times larger than the average Canadian home, and the Canadians are quite comfortable in their homes. America has tended to be about quantity rather than quality since the "roarin' twenties" and we only see that starting to reverse.

Possible solution:

A huge system of cultural assumptions and actively intrusive advertising is bombarding people with the message that they are not happy, healthy, whole and satisfied unless they buy, have, use, and consume the latest product.

The issue of environmental protection has brought the consumers, the industry and the govt. to a common platform where each has to play its own role. Some of the fields that have already been well developed process as follows:

1. Ecolabelling
2. Green marketing
3. Consumer protection body
4. Industrial ecology
5. Pigouvian taxes
6. Ecomark

Other solution:

1. To save the planet and all of its life forms from a global environmental collapse fueled by spreading hyper-consumption.
2. To increase the overall happiness and fulfillment of the human race by encouraging simplicity, and by doing so, reduce war, cruelty and suffering worldwide.
3. To preserve the planet's spiritual and cultural traditions from annihilation in the face of the global consumer religion promoted by multinational corporations and their lackeys in national and supra-national governments.
4. By using ecofriendly product