Question 1. Why is the atmosphere essential for life (SAII - 2011)
Answer: Atmosphere is essential for life because of the following masons :
(i) It keeps the average temperature of the earth fairly steady during the day and even during the course of the whole year.
(ii) It prevents the sudden increase in temperature during the daylight hours.
(iii) It contains all the important gases which are required for sustaining life on earth.
These gases are :
(a) Oxygen for respiration of living organisms and oxidation.
(b) Carbon dioxide for photosynthesis in plants and for making food.
(c) Nitrogen for providing inert atmosphere and making proteins.
(iv) The stratosphere region (16-23 km from the surface of Earth) of atmosphere contains a thick layer of ozone which filters the harmful UV radiation from Sun. If these radiations reach on the surface of Earth, then they may cause cancer in animals and are also harmful for plants.

Question 2. Why is water essential for life ? (SAII - 2011)
Answer: Water is considered essential for life because of the following reasons :
(i) All cellular processes take place in water medium.
(ii) All the reactions that take place within our body and within the cells occur between substances that are dissolved in water.
(iii) Substances are also transported from one part of the body to the other in a dissolved form.
(iv) Water makes up about 70% of body weight of all living organisms.
(v) It helps in the digestion of food and absorption Of nutrients in the blood. Hence, organisms need to maintain the level of water within their bodies in order to stay alive.
(vi) It helps in maintaining body temperature.

Question 3. How are living organisms dependent on the soil? Are organisms that live in water totally independent Of soil as a resource ?
Answer: Living organisms are dependent on the soil in the following ways :
(i) Soil provides a natural habitat for various different organisms (such as bacteria, fungi, algae) which help in improving the quality of the soil. Thus, they maintain the fertility of the soil.
(it) Number of insects, animals like rats, rabbits, etc., build their home in the soil.
(iii) Earthworms perform all their activities in the soil. They maintain fertility also as their excreta is rich in nitrogen.
(iv) Soil provides anchorage and nutrients to the plants for their growth and development.
Yes, all organisms that live in water are totally dependent on soil as a resoure :
The mineral nutrients are present in water in the dissolved form. But their recycling takes place only with the help Of decomposers which are present in the soil beds. Thus, all water bodies has soil beds which contain decomposers for the recycling of nutrients and to

convert them into readily absorbable forms.

Question 4. You have seen weather reports on television and in newspapers. How do you think we are able to predict the weather?
Answer: Weather observatories collect information regarding the pattern of temperature, speed of wind, air pressure, ocean features and all other features which can affect the weather. This information is collected by remote sensing and weather forecasting satellites. The information collected is then sent to the meteorological departments which prepare a weather report which is displayed on the maps. This information is further transmitted through radio and television.

Question 5. You might have heard about weather report saying 'depressions' in the Way of Bengal have caused rains in some areas. We know that many human activities lead to increasing levels of pollution of the air, water bodies and soil. Do you think that isolating these activities to specific and limited areas wcwld help in reducing pollution ?
Answer: Yes, definitely if these activities are isolated to specific and limited areas, then the level of pollution Of the air, water bodies and soil will 'decrease. For example
(i) If all the sewage discharge, industrial waste is collected and treated properly before diScharging into water bodies, then obviously aquatic life in these water bodies will be affected to a little extent.
(ii) If hot water from the industries (which is used for cooling machines and other devices) is collected at a common place and cooled and aerated properly before discharging into water bodies. Then this will not affect the breeding capacity of aquatic organisms.
(iii) If all the industries and commercial places of a city/town are located in a particular area which is far away from a residential area. Then all diseases resulting from air pollution could be minimised.
(iv) Above all, if we use only biodegradable substances, then they will get decomposed easily and there will be very little pollution of our precious natural resources.

Question 6. Write a note on how forests influence the quality "four air, soil and water resources.
Answer: Forests influence the quality of air, soil and water resources in the following ways :

1. Influence of forests in controlling the quality of air :
   (a) Forests help in minimising the level of C02 in the atmosphere. This prevents greenhouse effect and global warming.
   (b) Forests reduce environmental temperature which in turn increases the rate of photosynthesis in plants in the surrounding regions.
   (c) Some of the trees has the ability to absorb harmful gases present in the atmosphere, e.g., Jamun trees can absorb compounds of lead easily.
2. Influence of forests in controlling the quality of soil :
   (a) The roots of huge trees larger area and prevent erosion of topsoil by holding the soil particles tightly.
   (b) Forests also regulate biogeochemical cycles which are responsible for cycling of nutrients and making them available for the plants in the soil,
   (c) Many of the decomposing bacteria and nitrogen-fixing bacteria live in close association with the roots of the trees.
3. Influence of forests in controlling the quality of water :
   (a) Forests help in returning pure water back to the surface of earth through rains
   (b) Forests help in maintaining the water cycle as well as

water resources of the earth.

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