

DETAILS EXPLANATIONS**Paper Code : RPSCEE35 | RPSCCE35 | RPSCME35****[PART : A]**

1. It is the amount of dissolved oxygen needed by aerobic organisms to break down organic material present in a given water sample at a specific temperature over a specific period of time.
2. *Land is the main natural resources and include :*
 - Fertility of Land
 - Composition
 - Water resources
 - Forest wealth
 - Oil resources
3. According to the world bank, poverty gap is the mean shortfall from the poverty line (counting the non poor as having zero short fall), expressed as a percentage of the poverty line. Poverty gap measures the intensity of poverty. It shows the extent to which individuals on average fall below the poverty line.
4. The WTO officially commenced on 1 January, 1995, under the Marrakesh agreement, signed by 124 Nations on 15 April 1994. Full form of ISO : The international organization for standardization.
5. Top management is defined as a person or group of people who directs and control an organisation at the highest level.
6. It is the amount of solar radiation that reaches upto earth surface and it is measured in per square cm per minute.
7. Transpiration is a process by which plants absorb and distribute water through their roots and release water vapour through their leaves. Transpiration is the primary basis by which a plant sustains its life.
8. *Principles of sand dune stabilisation :*
 - Stop the blowing of sand at its source.
 - Reduction of threshold velocity of wind at the sand dune surface by providing obstruction of some kind bunch of grasses and shrub, wooden planks etc.
9. According to GOI, "Any industries located in rural area, village or town with a population of 20,000 and below an investment of ₹3 crores in plant and machinery is classified as Rural or village industry."

10. Natural causes of Famine :

- Floods, cyclone, storms.
- Droughts
- Earthquake

11. The unit for PMGSY programme is a habitation and not a revenue village or a panchayat.

12. Data capture is part of the progress reporting cycle where information is regularly reported back to the project manager on the project's process and status. The data capture function may be assumed to be at the start of the information cycle and so the accuracy of the subsequent calculations are based directly on the accuracy of the data capture.

13. These are the costs that tend to remain relatively constant whatever may be the volume of production. *Example :*

- Interest on capital invested.
- Rent and insurance of building.

14. It involves the purification of water with the semi permeable membrane. Reverse osmosis will remove feed water bacteria, organics and silica and reduce the dissolved salt content by greater than 95% only.

15. Environmental protection act was enacted by the parliament of India in 1986.

16. The aim of green technologies is to make industrial manufacturing process cleaner and more sustainable.

17. Carbon footprint considers six greenhouse gases :

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (N₂O)
- Hydro-fluorocarbons (HFCS)
- Per-Fluorocarbon (PFCS)
- Sulphur hexafluoride (SF₆)

18. Bharat Ratan by Government of India :

- C.V. Raman.
- A.P.J. Abdul Kalam.

19. A formative evaluation also known as process or implementation evaluation is performed to examine various aspects of an ongoing project in order to make changes/improvements as the project is being implemented.

20. IIT Jodhpur is the first IIT and IIIT Kota is the first IIIT established in Rajasthan.

[PART : B]**21. *Effects of Soil Pollution :***

- Increase in spread of diseases.
- Radioactive wastes may enter food chain.
- Heavy metals absorbed by plants can enter food chain.
- Soil quality deteriorates.
- Pollution of underground water.
- Loss of productivity and fertility of soil.

22. *The effects on rural areas of rural urban migration :*

- Labour shortages (skills and unskilled) in the rural areas.
- Decrease in the rural population, employment.
- Decrease the quality of health education facilities in the community.
- Only women, children and senior citizens are left in the rural areas with increased in child labor, increased workload of women.

23. *Impacts of Global Warming :*

- Melting rate of glacier increases, more melting and less formation of iceberg than polar bear population is decreases because polar bear icebergs as it's hunting platform.
- Increase in ocean lever, decrease in sunlight in ocean so algae, phytoplanktons, fishes, coral reefs population decreases than affects that submerge of Islands, loss of biodiversity.

24. *The salient Features of DFC project are as :*

- Designed for a maximum speed of 100 kmph.
- Substructure designed for an axle load of 32.5 tons and superstructure with axle load of 25 tons and capacity to run long haul train of 1500 m length.
- Eastern dedicated freight corridor is from ludhina to Dankuni (1318 km) and wester DFC is from Jawaharlal Nehru port to Dadri (1504 km).

25. Trees play a vital role in protecting our environment in several ways so it is our duty to protect the forest. These deforestation solutions can be undertaken to control the excess deforestation around the world.

- The best way to prevent deforestation is reforestation or replanting.
- The clear-cutting of entire forests must be banned. This can lead to total depletion of the forests.

- Due to the extent of deforestation, efforts to stop the human activities can be complemented by laws and regulation at governmental and organizational levels.
- Cutting of trees must be replaced by planting young trees to replace the old ones that were cut.
- Sensitization and Educative Campaigns should be organized to create awareness about the effects of deforestation.

26. *The Salient Features of MGNREGA :*

- All rural households in rural areas, whose adult members volunteer to do unskilled manual work eligible.
- Job card under the act is the right of every rural household willing to work on NREGA and applies for it.
- Choice of works done through village level plans and 50% or more of work to be executed by panchayati raj institutions.
- Work focuses on areas like water conservation, land development, provision of irrigation facility on private land of people below the poverty line, rural connectivity etc.
- Contractors are totally banned in NREGA works.
- Unemployment allowance to be paid if Government unable to provide jobs within 15 days of application. Social audit made mandatory.

27. *Major reasons for non-acceptability of a solar cooker are :*

- It is too expensive for an individual family ownership.
- It is incompatible with traditional cooking practices.
- It requires comparatively more time and menu has to be preplanned.
- It is to be used outdoors (except community and advance cookers)

28. *Problems Associated with Indira Gandhi Canal :*

- There have been problems with water logging caused by excessive irrigation, seepage from canals and poor drainage. these factors produced a rise in the water table, increased salinity and a rise in the water table, increased salinity and finally submergence of the land.
- Vector borne diseases are spreading in the canal command area.
- The excessive irrigation and intensification of agriculture over the years has caused environmental degradation and creation of new wastelands. These problems have been exacerbated by the cultivation of water intensive cash crops.

- Vision to bloom the thar desert is threatened due to the hazards of "Desertification/land degradation" in form of water logging due to alarmingly rising ground water levels and sand dune reactivation.

29. NDMA (National Disaster Management Authority), established in 2005, under disaster management act, 2005. It is statutory body. It's primary purpose is to co-ordinate response to natural or main-made disaster and for capacity building in disaster resiliency and crisis response.

It is also responsible for forming policies, laying down guidelines and best practices and co-ordinating with state disaster management Authority (SDMA) to ensure a holistic and distributed approach to disaster management.

30. *Impacts of Acid rain :*

- It affects water bodies and cause vegetation loss, fishes death etc.
- It destroys chlorophyll, affects animal skin also, hence loss of biodiversity.
- It decolorises marble structures.
- It causes soil acidification, so harmful substances like Cd, Al, Hg come outside and contaminate nearby water bodies.
- It also causes leaching (removal of upper soil surface).

31. *Benefits of organic farming :*

- It helps in maintaining environment health by reducing the level of pollution.
- It reduces human and animal health hazards by reducing the level of residues in the product.
- It reduces the cost of agricultural production and also improves the soil health.
- It improves the soil chemical properties such as supply and retention of soil nutrients and promotes favorable chemical reactions.

32. *The liquids processed to remove radioactive impurities:*

- Filtering
- Routing through demineralizers
- Boiling off the water and leaving the solid impurities to be processed as solid waste.
- Storing the liquid to allow the radioactive material to decay.

[PART : C]

33. The broad trends in supply and demand of various fuels including fuel wood, animal residues, crop residues and commercial fuels are outlined below.

(i) **Fuel Wood :** The average consumption of fuelwood at present is around 200 million tonnes per annum, With estimates ranging between 100 and 300 million tonnes. The per capita or per family Consumption of fuelwood varies considerably across different regions and agro-climatic Zones depending on the resource endowments and accessibility. Also most of the fuelwood Consumed in the rural areas is collected in the form of twigs and branches, mainly by Women and children, and not purchased.

On the supply side, it is estimated that the annual sustainable yield from different land Sources is about 86 million tonnes — 36 million tonnes from forests and the rest from other Lands such as plantations, revenue lands, wastelands, etc.. Thus there is a wide gap between The demand and the sustainable supply. Of the total supply, forests contribute just about 32% of the total fuelwood while the rest comes from a variety of other sources.

Given the trend, the demand for fuelwood by the turn of the century is expected to top 300 Million tonnes. At the present rate of supply, this will clearly result in further degradation of the biomass resource base, and containing this demand would be a major concern.

(ii) **Animal Residues :** Animal waste in the form of dung cakes is an important fuel in the regions which are agriculturally prosperous but where the fuelwood supply is poor. The total current consumption of dung as fuel is about 100 million tonnes per annum. On the other hand, the total supply is about 200 million tonnes. However, most of the dung produced is used as manure in the fields, and diversion of its use for fuel has a large opportunity cost.

(iii) **Crop Residues :** Crop residue is the least preferred of the biomass fuels because, being in loose form, the rate of combustion is high and difficult to control. As a consequence, it is also an inefficient fuel. However, this acts as a back-up fuel wherever there are scarcities of fuelwood, and is gaining prominence as the fuelwood availability is becoming difficult. It is estimated that about 100 million tonnes of non-fodder crop residue is produced and consumed as fuel in different parts of the country.

(iv) **Commercial Fuels** : Kerosene and electricity are the other important fuels in the domestic sector, while diesel and electricity are prominent in agriculture. Presently about 10 million tonnes of kerosene and 8 billion units of electricity are consumed in the rural areas, and the demand is Expected to go up to 12 million tonnes and 13 billion units respectively, by year 2006.

34. A social problem is a problem which is created by the people of society and it is a condition that at least some people in a community view as being undesirable.

Major social problems in Rajasthan :

- Child labour
- Child marriage
- female foeticide
- Untouchability
- Illiteracy

(i) **Child Labour** : Child labour is the practice of having children engage in economic activity, on part or full time basis. This practice take children away from their childhood, and is harmful to their physical and mental development.

Child labour in Rajasthan :

- Rajasthan accounts for nearly 10% of the total child labour in the country.
- Jaipur alone having more than 50,000 child labourers.
- The state stands third after UP and Andhra Pradesh as far as child labourers are concern.
- The National Commission for Protection of Child Rights (NCPCR) to detected large scale child labour in Bhilwara district.

Efforts of Rajasthan Government :

- The State Govt. has announced that a person below 18 years will be considered as a child labourer if he or she is employed.
- The Govt. announced a standard operating procedure (SOP) for identification, rescue, and protection of children employed in various occupations.

(ii) **Child Marriage** : Child Marriage is a marriage when a boy and a girl getting married before attaining full mental and physical maturity. Most child marriage involve underage women. Child marriage can lead to a lifetime of disadvantage.

Child Marriage in Rajasthan :

- Bihar, Jharkhand, Rajasthan and Andhra Pradesh have the highest rates of child marriage.
- Female mean age at marriage in Rajasthan is 17.7 years.
- The % child marriages in Bhilwara(54), Rajsamand(42), Bundi (38.4), Jhalawar(36.6) and Dausa (34.6) are the highest in the state.

Efforts of Rajasthan Government :

- For Rajasthan, the Union GOVT is preparing a national action plan to prevent child marriages.
- The United Nations is assisting Rajasthan in conducting a programme to promote women's leadership.
- Rajasthan has come down to almost 22% in child marriage.

(iii) **Female Foeticide :** Female foeticide is the selective abortion of the girl child in the womb itself, done deliberately by the mother, after the detection of the child's gender through medical means. This is usually done under familial pressure from the husband or the in-laws or even the woman's parents.

Female foeticide in Rajasthan :

- According to the 2011 census, Rajasthan has 883 girls in the 0 - 6 age group for every 1,000 boys.
- Rajasthan reports 8th position in the female foeticide in India.

Efforts of Rajasthan Government :

- A Rajasthan community has decided to put 5,000 as fixed deposits for every newborn girl.
- Between 2012 and 2013, the Rajasthan Govt. carried out 20 sting operations and registrations of 150 centres and many doctors were cancelled.
- The Rajasthan Govt. giving ₹2,100 to couples on the birth of a newborn girl under the Janani Shishu Yojna (JSY).

(iv) **Untouchability :** Untouchability is the practice of excluding a group by segregating them from the mainstream by social custom or legal mandate.

Untouchability in Rajasthan :

- Untouchability is spread in vast expanse in western Rajasthan.
- In Rajasthan Untouchability can be identified in the districts Bikaner, Shriganganagar, Hanumangarh, Churu, Jhunjhunu, Alwar, Bharatpur and Dhaulpur.

Efforts by Rajasthan Government :

- To remove Untouchability a reservation criteria has been fixed in each and every field by the government.
- Free education plans provided to the scheduled caste people.
- Free medical service provided to them.

35. **Features of a Rural Industry :** Some of the characteristic features of a rural industry need to be mentioned :

- It is decentralised and the units are thinly and widely spread.
- It has enormous production, traditional as well as non-traditional.
- There is vast disparity in technology employed as well as scale of production.

- The sector lacks standard and standardisation.
- There is diverse nature of markets ranging from local and regional to national and international.
- There are serious infrastructure constraints in the rural areas for the development of the sector.
- It suffers from financing, marketing and managerial constraints.

Importance of Rural Industries : Rural industries play very important role in any economy. Rural industries help in the proper utilization of local resources like raw materials and labour for productive purposes and thus increase productivity. It has helped in increasing the national income and also in its equal distribution.

Rural industries promote entrepreneurial development in the rural sector. It encourages young and promising entrepreneurs to develop and carry out entrepreneurial activities in the rural sector which finally facilitate the development of the rural areas.

Employment generating capacity of the rural industrial sector is eight times greater than that of the large scale sector justifies the case of the rural industries in India. Rural industries are labour-intensive and are capable of generating more employment per unit of capital employed.

Rural industries, set up on cooperative basis ensure participation of the people in the development process. The rural industries have tremendous export potential. These industries produce goods of common use. Supply of common necessities goes up and their prices naturally fall. So rural industries are anti-inflationary in nature.

- The Ministry of Agro and Rural Industries in India was established in September, 2001 with the aim to develop the Rural Industries in the Indian Economy. The main objectives of this initiative were to ameliorate the supply chain management, upgrade skills, introduce innovative technologies and expand markets of the entrepreneurs and artisans. A wide range of programs, schemes, projects and policies have been formulated to carry out various activities in the rural sector in India.
- The Government of India has also ensured employment generation program in the rural regions under Rural Employment Generation Program (REGP) and the Prime Minister's Rozgar Yojana (PMRY) in association with of State Governments, Reserve Bank of India (RBI) and other banks.

36. The definition of information is any material in any form including records, documents, memos, e-mails, opinions, advices, press releases, circulars, orders, logbooks, contracts, reports, papers, samples, models, data material held in any electronic form and information relating to any private body which can be accessed by a public authority under any other law other of the time being in force but does not include "file noting."

Reasons for seeking information are not required to be given. Only a citizen of India can request for information. Under RTI law, "public authority" means the following: any authority or body set up under the Constitution or Parliamentary law or law made by the State Legislature or Government order or anybody owned, controlled or substantially financed by the government or non-Government organization substantially financed directly or indirectly by the Government.

This definition does not include private bodies which perform public services or which receive funds or concession from the Government. That is private bodies are not within the Act's scope directly. However, information that can be accessed, regarding a private body, under any other law in force by a public authority can also be requested for. Central Information Commission ruled that privatised public utility companies continue to be within the RTI Act their privatisation notwithstanding.

The following is the information that is not open to disclosure:

- Information, disclosure of which would prejudicially affect the sovereignty and integrity of India, the security, strategic, scientific or economic interests of the State, relation with foreign State or lead to incitement of an offence
- Information which has been expressly forbidden to be published by any court of law or tribunal or the disclosure of which may constitute contempt of court.
- Information, the disclosure of which would cause a breach of privilege of Parliament or the State Legislature.
- Information including commercial confidence, trade secrets or intellectual property, the disclosure of which would harm the competitive position of third party, unless the competent authority is satisfied that larger public interest warrants the disclosure of such information.

- Information available to a person in his fiduciary relationship, unless the competent authority is satisfied that the larger public interest warrants the - disclosure of such information.
(Fiduciary relationship involves a profession in which the nature of the services provided causes the recipient of those-services to place a substantial degree of trust and confidence in the integrity and specialized knowledge of the practitioner. For example law, insurance, medicine, financial services etc).
- Information received in confidence from foreign Government.
- Information, the disclosure of which would endanger the life or physical safety of any person or identify-the source of information or assistance given in confidence for law enforcement or security purposes.
- Information which would impede the process of investigation or apprehension or prosecution of offender; cabinet papers including records of deliberations of the Council of Ministers, Secretaries and other officers;
- Information which relates to personal information the disclosure of which has no relationship to any public activity or interest or which would cause unwarranted invasion of the privacy of the individual.

37. *Effect of Industrial Pollution :*

Below are few of the causes of industrial pollution that have resulted in environment degradation.

(i) *Water Pollution :*

Most industries require large amounts of water for their work. When involved in a series of processes, the water comes into contact with heavy metals, harmful chemicals, radioactive waste and even organic sludge. These are either dumped into open oceans or rivers. The untreated industrial wastes and effluents dumped into the nearby water bodies by the factories lead to water pollution. As a result, many of our water sources have high amount of industrial waste in them which seriously impacts the health of our eco-system. This water when used by human beings leads to different water borne diseases and when used by farmers for irrigation purpose affects the quality of food.

Thermal pollution of water is the rise or fall in the temperature of a natural body of water caused by human influence. A common cause of thermal pollution is the use of water as a coolant by power plants and industrial manufacturers. When water used as a coolant is returned to the natural environment at a higher temperature the change in temperature impacts organisms by :

- (i) Decreasing oxygen supply
- (ii) Affecting ecosystem composition

Water pollution has already rendered many ground water resources useless for humans and wildlife. It can at best be recycled for further usage in industries. The industries polluting water are paper, chemical, textile and dyeing, oil refineries, electroplating and the tanneries.

(ii) Soil Pollution :

Soil Pollution is caused by the presence of man-made chemicals in the natural soil environment. The most common chemicals involved are petroleum hydrocarbons, solvents, pesticides, lead and other heavy metals. Intensity of chemicals mixing in the soil increases due to heavy industrialization. This type of contamination also arises from the rupture of underground storage tanks, application of pesticides, percolation of contaminated surface water to subsurface strata, oil and fuel dumping, leaching of wastes from landfills or direct discharge of industrial wastes to the soil.

Soil pollution is creating problems in agriculture and destroying local vegetation. It also causes chronic health issues to the people that come in contact with such soil on a daily basis.

(iii) Air Pollution :

Power plants, industries release gaseous pollutants such as carbon dioxide, oxides of nitrogen and sulphur dioxide along with particulate matter in the form of smoke. All of these have harmful effects on plants and humans.

Air pollution has led to a steep increase in various illnesses and it continues to affect us on a daily basis. Emission of poisonous gases by the industries affects the human health, animal and plants. Factories producing paper, bricks, metals and other factories which burn fossil fuels pollute the air.

(iv) Wildlife Extinction :

Major industrial accidents like oil spills, fires, leak of radioactive material and damage to property are harder to clean-up as they have a higher impact in a shorter span of time. The issue of industrial pollution shows us that it destroy natural rhythms meaning that the wildlife is getting affected in a severe manner. Habitats are being lost, species are becoming extinct and it is harder for the environment to recover from this natural disaster.

(v) Global Warming :

With the rise in industrial pollution, global warming has been increasing at a steady pace. Smoke and greenhouse gases are being released by industries into the air which causes increase in global warming. Melting of glaciers, extinction of polar bears, floods, tsunamis, hurricanes are few of the effects of global warming.

The issue of industrial pollution concerns every nation on the planet. As a result, many steps have been taken to seek permanent solutions to the problem. Better technology is being developed for disposal of waste and recycling as much polluted water in the industries as possible. Organic methods are being used to clean the water and soil, such as using microbes that naturally uses heavy metals and waste as feed. Policies are being pushed into place to prevent further misuse of land. However, industrial pollution is still rampant and will take many years to be brought under control.

- 38.** If disposed of properly, nuclear waste disposal need not have any negative effects. Instead, nuclear waste can lie in its storage place for many thousands of years until it is no longer radioactive and dangerous without being disturbed. However, if the nuclear waste is improperly disposed of or if the disposal methods are compromised, there can be serious consequences and effects of nuclear waste disposal.

(i) Accidents :

Although most of the time a lot of emphasis is placed on the safe disposal of nuclear waste, accidents do occur. Throughout history there have unfortunately been a number of examples of times where radioactive material was not disposed of in the proper ways. This has resulted in a number of disastrous situations, including nuclear waste being spread by dust storms into areas that were populated by humans and animals and contaminated of water, whether ponds, rivers or even the sea. These accidents can have disastrous knock on effects for the animals that reside in or around these areas or that rely on the water of lakes or ponds to survive.

Drinking water can become contaminated too, which is absolutely disastrous for locals and residents close to the epicenter of the disaster. Even if nuclear waste just seeps into the ground, it can eventually get into reservoirs and other water sources and, from there, can reach the homes of people who unwittingly drink high radioactive material. There are examples of these sorts of accidents from all over the world and from all time periods, with severe accidents happening very rarely but having a huge effect on very many people.

(ii) Scavenging :

A particularly bad problem in developing nations, people often go scavenging for abandoned nuclear waste that is still radioactive. In some countries there is a market for these sorts of scavenged goods, which means that people will willingly expose themselves to dangerous levels of radiation in order to make money. Unfortunately, however, radioactive materials can be highly volatile and cause a number of problems.

Usually, people who scavenge these sorts of materials will end up in hospital and may even die of problems related to or caused by the radioactive materials. Unfortunately, once someone has been exposed to nuclear waste, they can then expose other people who have not opted to go scavenging for nuclear waste to radioactive materials.

(iii) Transportation :

Transporting nuclear waste from power plants can occasionally result in problems. If poor shipping casks are used for the containment of radioactive material, for instance, then a slight knock or bump or even crash could cause the contents to spill and affect a wide radius. Despite all the cautions that are put into place when transporting nuclear waste, accidents still occur and can have a devastating effect on all those in the vicinity of the crash.

(iv) Health Effects :

The biggest concern is the negative effects that can have on the human body when exposed to radiation. Long term effects to radiation can even cause cancer. It is interesting to know that we are exposed to radiations naturally by living our lives that comes from the ground below us. Radiation can cause changes in 'DNA' that ensures cell repair.

(v) Expense :

If one of these accidents does occur, the cost of cleaning everything up and making everything safe once again for people, animals and plants is very high. There is no simple or easy route when trying to clean up spilled radioactive material instead, it can take years to ensure that an area is safe to live in or even to visit once again. In the case of very serious accidents, it may take many tens of years until things start growing or living normally once again.

39. India embarked on developing space science and technology in an era when it was being criticized for spending money on such expensive technologies when it's priority should be fighting rampant poverty that prevails.

However, our visionary leaders like Nehru and scientists prevailed over such criticisms and led India onto a path of great technological achievements. It has shown its proverbs in the field through achievements like *Mars Orbiter Mission* at a cost ten times lower than US's similar project, *Chandrayan mission* which made ISRO sixth space organization to send orbiter to moon, developing it's own navigation system through *NAVIC (IRNSS)*.

Thus ending its dependence on GPS. It has also made major strides in launch vehicles by developing *Reusable Launch Vehicle (RLV)*, GSLV with indigenous cryogenic stage which made India self reliant in launching 2 ton class communication satellites, record launch of 20 satellites in 2016 etc.

Apart from being a mighty achievement, these achievements have also helped in socio-economic developments of the country. Through metrological data sent by satellites, it has been possible to gauge weather changes, arrival of monsoon and extent of rainfall, monitoring cyclones in advance which has helped farmers and citizens through advanced preparedness in general and in events of disasters. The communication satellites have enabled data connectivity to rural India eventually helped in digital India. NAVIC has made India self reliant thus saving resources, ensuring reliable data for army, farmers, tourists, navigators, fishermen.



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