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GENERAL STUDIES (TEST CODE : 1500)

Name of Candidate	Samyak S Jain		
Medium Eng./Hindi	English	Registration Number	861690
Center		Date	

INDEX TABLE			INSTRUCTIONS
Q. No.	Maximum Marks	Marks Obtained	
1	10		1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code). उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)। 2. There are TWENTY questions printed in ENGLISH & HINDI इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं। 3. All questions are compulsory. सभी प्रश्न अनिवार्य हैं। 4. The number of marks carried by a question/part is indicated against it. प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं। 5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one. प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे। 6. Word limit in questions, if specified, should be adhered to. प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए। 7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off. उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।
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Total Marks Obtained:			
Remarks:			

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

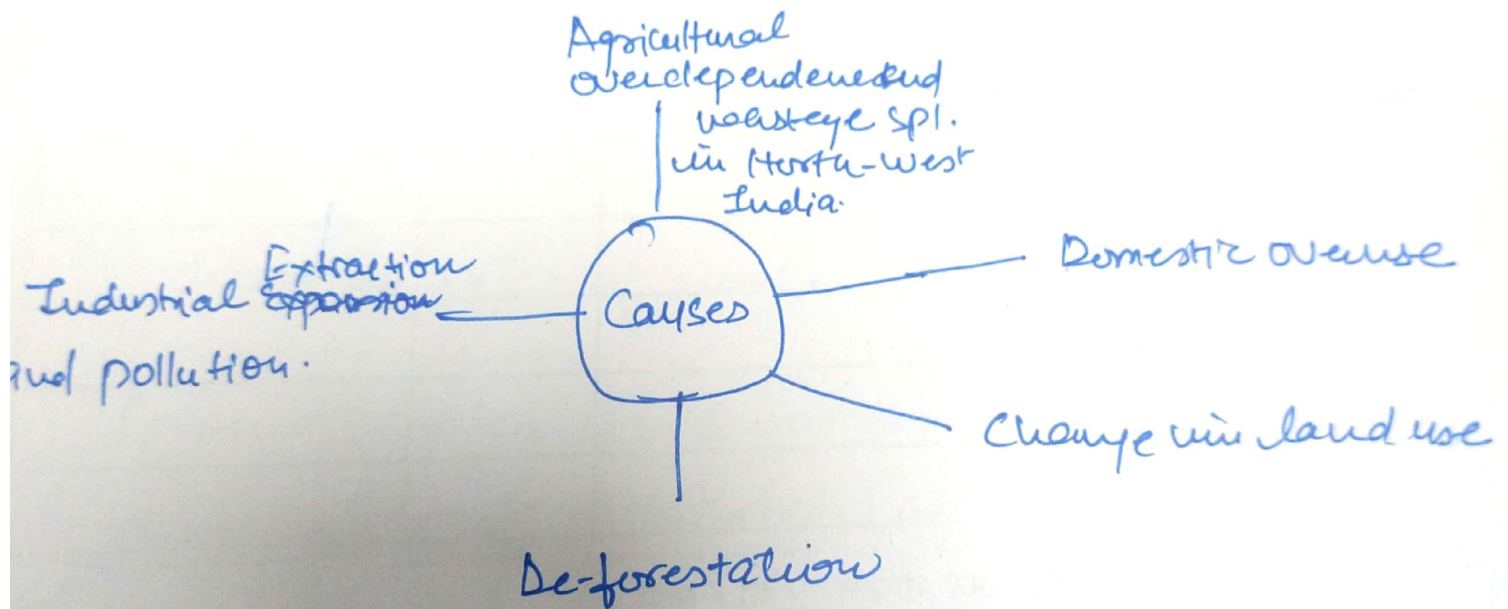
6.

All the Best

Registration No- 861690.
Test No. 1500

Ans1.

According to data published by CGWA, over to 50 districts in India are highly water stressed with low levels of underground water. This depicts the state of water scarcity in India.



Analysis of the guidelines:

1. Makes monitoring of the ground water extraction compulsory, regular and real time by mandating installation of a meter.

2. Requires an HOC for extraction, hence regulation.
3. Separates commercial extraction from domestic and agricultural ones.
4. Meters must be calibrated once a year by authorised agencies.
5. CGWA will also monitor the quality of water extracted by testing samples sent by users every year.
6. Regulates mining and other such environmentally dangerous projects to monitor the quality and quantity of water extract.

Ground water is a natural resource which must be freely available for all citizens.

For this it equitable and justifiable usage is important.

Ans 2.



* Major coal bearing areas of India.

Issues with coal mining:

- Issue of nationalization of mines leading to under utilization of mines.
- Rampant child labour and forms of labour exploitation.
- Land allocation for mining often leads to encroachment upon tribal lands and their displacements. This leads to problem of Naxalism.
- Lack of transparency in mine allotment led to several scams in the past.
- Even after mine allotment mining doesn't start for years.

- Companies are not allowed to sell the by product from these mines in the market.
This leads to cost over rise.

- large scale environmental degradation around mines.

Bringing of e-auctioning of mines and the recent passing of the MMDRA bill will help improve the situation to a large extent.

ns3. India is very rich in natural minerals and has several mineral belts.

1. The Chotanagpur belt:

This is the most important belt with minerals like iron, bauxite, Mn, Mg, coal, diamond etc. found here.

2. Rajasthan belt:

One of the oldest known belts. Copper, iron, mica, sand and several precious stones found here.

3. Karnataka belt :

Famous for its gold reserves along with stones like maeble, mica, Copper etc.

4. KG basin :

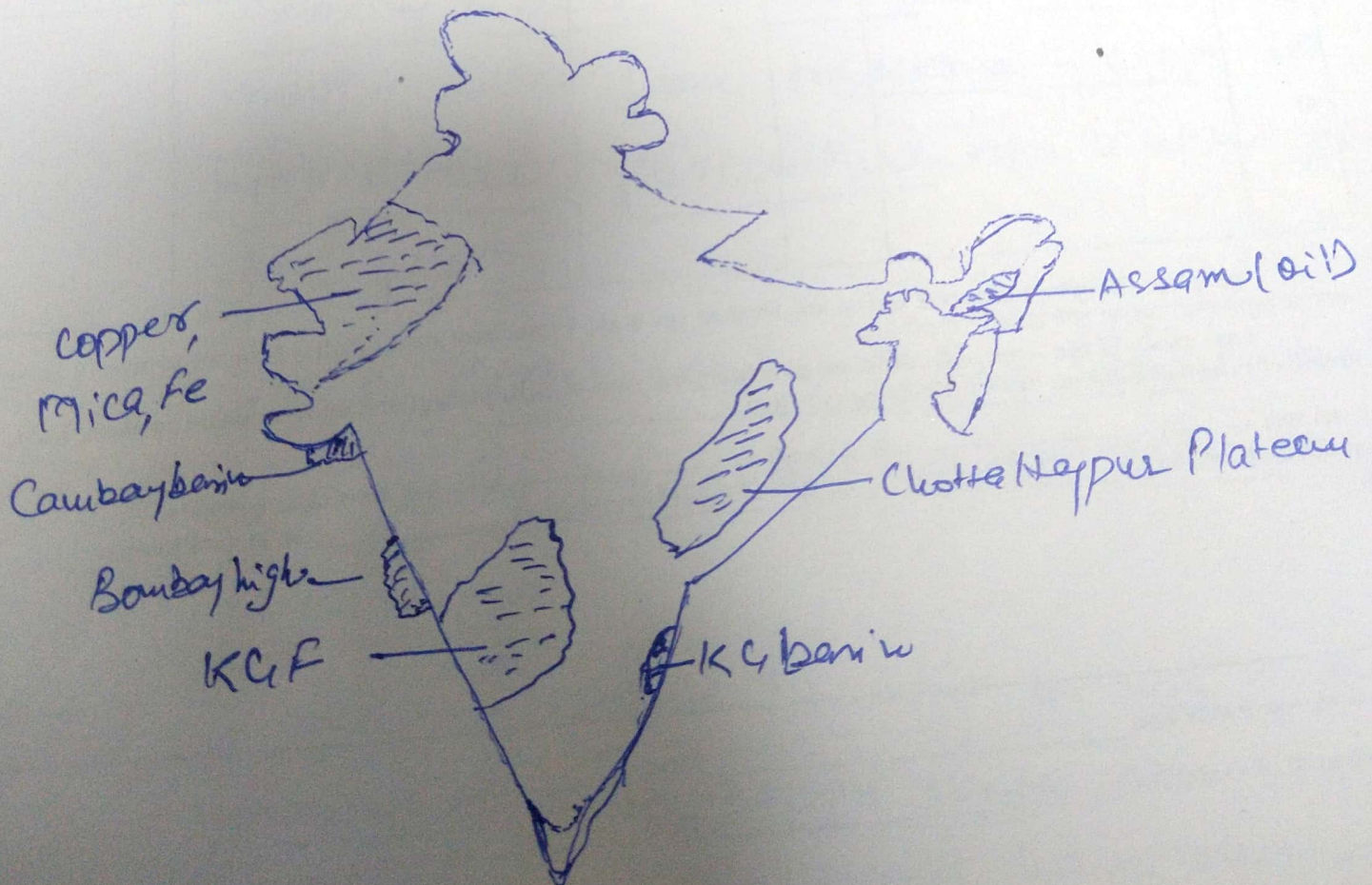
Known for large reserves of natural gas and oil.

5. Assam :

For oil and natural gas.

6. Bombay high and Cambay basin :

off shore basin for oil and natural gas.



Ans 4.

Agriculture is one of the largest contributors of GHGs in India. It emits large quantities of methane and NO₂ during its process.

Emission sources:

- Paddy fields ~~also~~ release methane.
- over use of fertilizers leads to release of nitrous oxides.
- Burning stubble in fields of north India after harvest releases huge amount of GHGs.

Method to control these:

- Adopting newer agriculture methods and moving away from traditional crops to horticulture, floriculture etc. which release less gases.
- Use of direct seeding of Rice (DSR) method for paddy plantation which reduces methane emissions.
- Preventing stubble burning by use of modern machines like happy seeder etc. several liquid based solutions have also been developed by ICAR.

- Use of organic fertilizers instead of chemical ones.

It is important to recognize and resolve agriculture as ~~seemingly~~ one of the largest GHG emitters.

Ans5. Sea level rise due to global warming will have adverse impacts upon India.

Vulnerability:

- India has very long shore lines with several strips of islands and low lying areas.
- Many large Indian cities like Chennai and Mumbai are on the coast line. Sinking of these cities will adversely impact on economy.
- SLR will continue ground water as well leading to further water crisis.

- Make agriculture in these areas impossible.
Millions of farmers in southern states dependent upon it.

Preparedness:

- Govt. has drawn out NAPCC 2013 for fighting climate change. Includes green India mission, national solar mission etc.
- setting up of centre to monitor sea level rise and change in Indian Ocean in Gov.
- Adoption of novel agricultural techniques like Kuttanad rice variety of Kerala sown under sea water.

A lot more needs to be done in order to combat SLR.

Ans 6.

Jute is known as the golden fibre because of its colour and remunerative prices.

Challenges Faced:

- lack of proper market as cloth and rope markets have been captured by new fibres like nylon etc.
- lack of irrigation facilities in jute growing areas.
- Jute mills far away from fields.
- lack of government interest and support.

Steps taken by government:

- Compulsory packing of 100% of sugar and 20% of rice in jute bags to provide them with ready made market.
- Promotion of jute exports through APEDA.
- Abolition of jute textiles council for direct connect with farmers and faster approval for plans.
- Promotion of new irrigation methods like drop irrigation etc.

Jute has the potential to change the economic condition of farmers in East India.

Ans 7. India has laid great stress upon iron and steel industries from the second 5 year plan onwards.

Factors affecting location of industry:

Raw material
based

Market based.

1. Raw material based industry:

- In early industries grew near to the location of raw materials like coal, iron, water etc.
- Located in Chhattisgarh, Jharkhand, WB etc.
- Plants like Bokaro, Bhilai, TISCO etc.
- Domestic consumption major needs.

2. Market based industry:

- Developed in later part. Early 1980s.
- Generate electricity from hydro power or near by power station. Don't use coal.
- Located in Andhra Pradesh, Karnataka etc.

- Plants like Vijay steel plant, RINL, Mangalore steel plants etc.
- Majorly steel exports through closely located shipping docks.



Steel Industry is vital for the rapid development of India and hence, Capacity expansion must be undertaken in this sector.

Ans.

HABs are the over growth of algae on the surface of water bodies like lakes, ponds, wetlands etc.

Causes :

- Over pollution of water bodies. Dumping of wastes.
- Increase in organic content inside the body.
- Lack of proper cleaning or maintenance.

Consequences :

- Increase in Biological Oxygen Demand (BOD) in the body due to over growth of algae requiring large oxygen.
- Increases in microbial action to decompose the waste inside it.
- Death of large quantities of fishes and aquatic life due to lack of oxygen.
- Contamination of water making it unfit for domestic use.

In order to check HABs, there is a need to check the point and non-point sources of pollution into the water body.

Ans 9.

The north east of India has been naturally endowed with large rivers and waterfalls making it fit for generation of hydro power.

Challenges :

- Difficult topography or terrain of the area increases the construction costs.
- Area is densely forested with tropical evergreen forests making penetration difficult.
- Area is rich in biodiversity. Large scale construction will lead to its loss.
- Boundary issues with China has hindered development.
- Several insurgencies in the area since independence have also hindered development.
- Concerns of downstream countries like Bangladesh about their water security post dam construction have also slowed progress.

Way ahead :

- Focus on smaller dams instead of large dams which cause less harm to environment.
- Settle boundary issues with China.
- Prioritise development of Horth-East.

Horth-East region can solve the renewable energy demand posed by a growing India.

Ans 10: Early availability of cement is one of the key requirements for fast development of physical infra.

Factors:

- Availability of raw materials like limestone etc.
- Distance from markets. Generally large townships and urban areas provide large markets.

- Availability of land and labour.
- Policy stability in the region.
- Conditions of law and orders in the area.
- Environmental factors as cement industry is a heavily polluting industry.

Measures to control carbon footprint;

- Installation of filters in the chimneys of factories to catch pollutants before their release.
- Mixing of fly ash into cement to reduce its consumption.
- Mandatory planting of trees around cement factories to neutralize releases.
- Stricter vigilance ~~upon~~ and proper implementation of EIA norms.

A sustainable production of cement will lead to sustainable development of India.

Ans 11. South India has seen large scale plantation of sugar, coffee, tea, banana etc.

Reasons:

- Lack of land fragmentation due to population control in the states has led to availability of large tracts of land.
- Land reforms in Kerala has also helped.
- Availability of capital for investment in agriculture. Private sector investment as well.
- British policy of plantations for coffee and tea in Malabar.
- Educated people who are aware of modern farming techniques and machinery.
- Strong culture of cooperatives in Kerala, Karnataka and Tamil Nadu has led to people forming large plantations for better output.

Significance:

- Economic empowerment of farmers.
South Indian farmers much well off than north Indian counterpart.
- Better yield in sugar mills.
- High production of coffee of superior quality like Arabica and Robusta.
- Attraction of further private investment and FDI.

Challenges:

- Fast land degradation due to climate change and connected reasons.
Fall in output.
- Increasing instances of man animal conflict due to deforestation and loss of habitat. Many elephants die every year in Karnataka due to this.
- Lack of proper marketing of produce.

- Over production of sugar leading to fall in prices.
- lack of EODB, tax terrorism etc.

The plantation model of South India can be an inspiration for the rest of India if the existing challenges are tackled properly.

Ans 12. The UN had declared the 2011-2020 decade the strategic decade for biodiversity. India contains 4 bio-geographical regions of the World :

Steps taken by India:

- Signed and ratified the Nagoya protocol on biodiversity in 2014. Agreed upon the related Aichi targets to met by 2020.

- Increased its network of protected areas (PAN) to a total of 18 bio-sphere reserves, 51 tiger parks etc.
- Increased tiger population to almost 3000. India contains more than 70% of the world's tigers.
- Recognised the role of local beliefs in conservation and hence given legal sanction to sacred groves.
- Recognised the importance of indigenous traditional knowledge about bio-diversity and its uses. Taken steps to counter bio-piracy.
- Given forest rights to traditional dwellers of forests.
- Adopted EIA like institutions for preventing large scale biodeversity degradation.
- According to the latest forest cover in India report by FSI, the total forested area has decreased to more than 24.5% of its total area.

- Declared National Action Plan for Combating Climate Change (NAPCC) in 2013 which adopts several sub-missions for a wholistic approach to bio-diversity.

- Recent steps in infra include green highways, ECBC code, GRIHA rating etc.

Even after all these efforts, India remains one of the most vulnerable countries to biodiversity loss. Urgent steps need to be taken to prevent it.

Ans 13.

Industrial Inertia is the continuance of an industry in an area long after the initial factors like raw materials favourable environment etc. are gone.

Factors:

- High cost of shifting to another location.
- Lack of availability of new suitable location.
- Aquaintance with the area and its business strategies. Loss of contact with new area.
- Lack of availability of skilled and trustworthy labour in new areas.
- Emotional attachment and nostalgia about the present location preventing a shift.
- New suitable areas being far off than the present one.
- Existence of auxiliary industries in the present area.

Examples from India :

- Several steel industrial plants have become unsuitable in the Chotanagpur plateau but they are reluctant to shift to new areas. Instead now they are sourcing their raw material from far off areas making them uncompetitive.
- Sugar mill industry in north India has also become moot due to lack of demand and over production. Yet, due to politics and faulty govt policies they continue to function.
- Traditional handloom industry in rural India is reluctant to shift. They have been made uncompetitive by powerloom industry.

The govt. should provide proper incentives and other necessary motivation for rehabilitation of such industries otherwise they might result in large scale loss of jobs.

Ans 14. Rare earth elements are the elements especially mentioned in the periodic table in the lanthanide series. They are found in very small quantities along with other minerals. Therefore, it is difficult to extract them.

Distribution across the World :

1. China has the largest known reserves.
2. Also found abundantly in central Australia and New Zealand.
3. India has around 4% of the world's reserves mostly in offshore areas and around the Chotanagpur plateau. Offshore found at sea bed in form of nodules.
4. Also found in Latin America in Argentina, Brazil, Chile, Bolivia etc.
5. Small quantities also known in African continent.

Applications:

- Used in making semi-conductor chips.
Modern technology heavily dependent upon them.
- Used in making rechargeable Li ion batteries.
- Used for satellites and space instruments.
- Used for making communication instruments like towers etc.
- Small scale medical and therapeutic purposes.

Realizing their potential, India has recently started missions to explore and exploit its Indian Ocean EEZ for these metals. It has also tied up with US and Australia for future cooperation.

Ans 15. India is one of the worst affected countries by air pollution with 8 out of top 20 cities in global air pollution index being from India.

Causes:

- Vehicular emissions from the biggest chunk of pollution with over 38% share of fatality in cities like Delhi
- Stubble burning in north India contributes heavily.
- High dependence upon agriculture and heavy sowing of paddy across India adds to air pollution.
- Large scale construction works required for quick infra development in India also cause pollution.

Context Specific solutions:

- Govt has launched National Clean Air Programme to monitor and purify air of over 100 cities.

- Special funds for solving air pollution in NCR.
- Use of innovative technologies like happy seeder etc. to solve stubble burning problem.
- Declaration of Taj Trapezium zone for mitigating impact upon Taj Mahal.
- Green India mission for increasing tree cover.
- Nayal Van scheme for city forests.
- Idea like agro-forestry, social forestry, community forests should be promoted.
- India recently jumped from Bharat IV norms to stage Bharat VI norms to tackle vehicular emissions better.
- Promotion of CNG vehicles especially in public transport and metro rail in cities.

- Increasing use of bio fuels. Mysuru became the first city to launch a fleet of buses run purely on ethanol.
- Promotion of EVs through FAME India. Proposal to run electric buses between Delhi-Jaipur.

Thus, innovative and context ~~particular~~ specific solutions can help bright it better.

Ans 16:- India has recently become a hub for semi-conductor assembly owing to its PLI scheme. The need is now to become a manufacturer in this field.

Challenges:

- Problem of technology transfer from developed countries.
- Lack of enough funds for R&D through public and private sectors in this field.

- low private sector interest for investing in this area.
- lack of coherent govt policies to promote manufacturing.
- lack of highly skilled labour required for this purpose.
- Problems with Patency laws also hamper RnD and patent registration.
- Difficulty in assimilating oneself in the global supply chain as the raw materials required for manufacturing are sourced from across the world.

Opportunities:

- Can start 4th industrial revolution in India.
- Can put India at par with global tech giants like US and China.
- Provides military edge with the 5th generation warfare concentrated upon cyber warfare.
- Potential to provide millions of well paying jobs.
- Decrease in electronics prices leading to increased domestic consumption.

Way Forward :

- Sign technology transfer contract with friendly countries like Japan and US on a war footing.
- Introduction of PLI scheme for manufacturing.
- Increase outlay for RnD and incentivise Private sector to do the same.
- Higher outlay for mineral exploration required for manufacturing.

A partnership between large companies and MSME sector in this field has the potential to change the picture for India.

Ans 17. ecosystem restoration refers to the scientific method of restoring the lost biodiversity of any ecosystem slowly over a period of time.

Challenges:

- Lack of interest and funds for this purpose.
- Problem of land encroachment upon earliest ecosystems makes it difficult to restore them after land reclamation.
- Several permanent damages to the sites like mining, quarrying etc. makes it impossible to restore them.
- Difficult to bring back lost flora and fauna once extinct from the area.
- Continuous land degradation and pollution by humans makes it difficult to permanently restore a system.
- Difficult to check hunting and poaching activities. Also illegal felling of trees.
- Large scale corruption and apathy in the local administration across country.

Opportunities:

- Ecosystem restoration can contribute to GDP growth upto 2% every year according to some estimates.
- Improve living conditions by providing better environment and have a positive impact on health.
- Lessen man animal conflict. Improved harmony with nature.
- Huge tourism potential in these areas.
- Better fishing grounds leading to higher yield with less toxicity.
- Help fight climate change which will indirectly impact agricultural yields positively.

India has seen success stories like restoration of Chilika Lake in Orissa and the recent setting up of Wardha Forest near Pune. The need is to create more such stories across India.

Ans 18: Single used plastics are one of the most widely used forms of plastics across the world.

Problems with them:

- Non biodegradable. Cause lot of harm to environment during their production and post their disposal.
- Micro beads enter the ocean and aquatic animals & ultimately into humans causing bioaccumulation of toxic substances.
- Accumulate upon rocks and land along shore line and form a layer of plastics.
- Choke many birds and fishes when they swallow them.
- Packaged food in SUP is one of the leading causes of cancer in humans.

Challenges:

- Lack of proper alternatives. Plastics are cheap and have a wide ~~range~~ usage. No other material has so far been found with those qualities.

- Habit: It's use has become a part of our lifestyle.
- Difficult to control as there are multiple sources of their manufacturing and difficult to check all of them.
- lack of effective legislation and political will.

Steps taken:

- Imposition of ban on SUP from 2019 by central govt.
- EPR rules added in solid waste management rules 2018.
- Provision of heavy fines on violators.
- Promotion of cloth bags at shopping mall.
- Alternate packaging materials like cardboards etc. being promoted.
- Promotion of sanitary landfills for their proper disposal.
- Setting up of sewage treatment plants and separation of waste at source

done during Swachh Bharat Mission.

There needs to evolve a wholistic approach if we are to tackle this problem effectively.

Ans 19. Climate change has both natural and anthropogenic factors, although the latter has contributed much more to it.

Natural:

- Volcanic eruptions.
- Natural mass extinctions.
- Slow change in amount of energy received by Earth from the sun.

Man-Made:

- Vehicular emissions
- Large deforestations and industrialization.
- Urbanization
- Pollution of all kinds air, water and land.
- Wars and weapons testing.

- Contributions to GHGs by CFCs, HCFCs etc.
- Unscientific agriculture practices.
- Growing population.

Change in climate since the past century:

- Retreat of Himalayan glaciers by several ~~kilometers~~ kilometers due to global warming.
- Changing rainfall patterns, decreasing rainfall over central and northern India.
- Increased instances of droughts especially in 1950s and 1960s.
- Sea level rise causing salination of ground water table near shore line.
- Increased instances of heat waves in north India and on hill stations causing multiple deaths due to heat strokes.
- Shortening and intensifying of winters.
Earlier it used to start from mid-October in north India but now it can be felt only from December onwards.

The govt, civil society and citizens all need to come together in order to evolve a democratic approach towards tackling climate change in India.

Ans 20. The recent death of a baby elephant through electrocution in Karnataka has brought the light upon man animal conflict once again.

Causes:

- Destruction of their natural habitats for its conversion into agricultural lands, leaves them without proper home.
- Urbanization near forests has also brought man in close contact with wildlife.
- Selective poaching of top carnivores has disturbed the ecological balance. This leads to over population of some animals carrying ecosystem to reach maximum carrying capacity. The excess folk have to hunt elsewhere for food.
- Construction of infra projects like: railways, highways through forests leads to habitat fragmentation.

steps taken by government:

- Declaration of national parks and wildlife sanctuaries around identified habitats to minimize human interference.
- Setting up of wildlife corridors at identified places.
- Construction of eco-bridges around highways for animal crossing.
- Restoring ecological balances by various local level plans.
- Regulation of urbanization around forests through several legislation.

Landscape approach:

- Involves a wholistic approach towards conservation of elephants.
- Declaration of elephant reserves in the area.
- Construction of several elephant corridors for them.
- Transfer of excess elephant to other areas.

- spread of awareness and conduct training programmes with local farmers on how to tackle elephants without harming them.

Empathy and compassion should form the guiding principles when dealing with man animal conflicts.