

## AGRICULTURE AND ENVIRONMENT

Time Allowed: 3 hrs.

Max. Marks: 250

Q.	Marks	Instructions to Candidate
1.		<ul style="list-style-type: none"><li>• There are 20 questions.</li><li>• All questions are compulsory</li><li>• The number of marks carried by a question is indicated against it.</li><li>• Answer the questions in <b>NOT MORE THAN 200</b> words each. Contents of the answer is more important than its length.</li><li>• Answers must be written within the space provided.</li></ul> <p>Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.</p>
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

1. Invigilator Signature

*Madhush kumar*

2. Invigilator Signature

*[Signature]*

Name Jai kishan

Roll No. GSM T2017 041

Mobile No. [REDACTED]

Date 28/08/2017

Signature

*Jai kishan*

# REMARKS

**GS SCORE**  
GS MAINS TEST SERIES 2017

[REDACTED]

[REDACTED]

Q1. Despite the fact that, Food Processing sector is recognized as sunrise sector and paid ample attention in recent years, the recent statistics suggest that many of Mega food parks, which were announced in the scheme have either not been established or they are on the verge of shutdown. Analyze the factors behind this trend; also suggest what should be done to reverse the trend? (12.5 Marks)

India is proud to be the second largest producer of cereals, second largest in fisheries, largest in oil seeds and Horticulture. But still, the agricultural sector is endowed with poverty, stagnation and crop losses.

Food processing Industries was realized to be one such sector with following objectives:-

- (a) To increase farmers' income
- (b) To bring investments from abroad
- (c) To minimize crop losses
- (d) To ensure nutritional security and
- (e) To generate jobs.

In 11th five year plan, the special package was allocated for food processing Industries and special focus was given on Mega food parks. Mega food parks were one stop centre working on hub and spoke model where ~~was~~ → different food prod...  
~~production~~

Remarks

Facilities like - production of jam, pickles, flour etc. would be done and transported.

However, Mega Food parks has lost its sheen over the years. The reasons are -

(a) Problem in land procurement

Also include  
No incentive  
to farmers

(b) obsolete APMC (Agricultural Produce Marketing Act) don't denote for fruits and vegetables.

(c) Many MFPs were taken just to get the incentive from government.

(d) It is difficult to get institutional credit.

(e) Last-mile connectivity is a problem.

(f) The MFPs can be revitalized by :-

(a) Ensuring last mile connectivity to each MFP.

(b) Promoting cluster farming like - fruit in one region, vegetable etc and linking with MFPs.

(c) Incentives from government should be merit based.

(d) Skilling of workers

(e) Institutional credit to farmers/ industries

(f) Social audits

Remarks

flexibility

operation of parks

5/2

Q2. Recent Farmers' agitations and suicide once again highlight the discrepancies in inclusive development. In this reference, analyze the factors behind farmer's suicide with a reference to NCRB report. What steps are needed to break the vicious cycle? (12.5 Marks)

India's agricultural sector is at crossroads due to - land fragmentation, land degradation, stagnation in agricultural produce.

All this have bearing on farmer's income. NCRB on this has increased the cases of farmers suicide.

Farmer's suicide is a pan-India phenomenon but highly localized in dryland areas like - Marathwada, Vidarbha, Northern Karnataka and Jammu & Kashmir. Reasons are -

(a) Economic Reasons - Farmers are unable to pay back the debt taken from lenders. This is because of

- # Fluctuations of Indian Monsoon
- # Crop loss due to pest attack/hailstorm etc
- # Fluctuations of price of produce.
- # Low productivity
- # High cost of input

(b) Social Reasons - Due to indebtedness, farmer's prestige reduces, they find suicide as the easiest way to come out of such problem.

Remarks

cut

Steps to be taken:-

- (a) Increase farmer's income by
  - # Crop Diversification
  - # Providing forward and backward linkages
  - # Better Procurement Policy.
  - # Ensure Irrigation.
  - # Promote organic farming to curtail land degradation.

In order to double farmer's income, the government has taken following steps

- (a) Launch of Pradhan Mantri Kisan Aashwasan Yojana
- (b) For crop insurance - PM Posh Bima Yojana
- (c) Coming of new Model act for APMC
- (d) For better price realization - e-NAM (National Agricultural Market)
- (e) To ensure Horticulture and livestock farming to supplement → National Horticulture Mission.

Besides this, in drought years farmers should be

- # Given Counselling
- # Loan Waivers
- # Increase the role of MGNREGS and PDS.

**Remarks** Farmers have contributed in making India a food secure nation, it is duty of government to understand their adversity

Case Analysis

6

Q3. Micro irrigation can be way out for rainfed agriculture and small land holding in India.  
 In this reference, discuss the advantages associated with micro irrigation, initiatives taken by government and challenges associated with it. (12.5 Marks)

Rainfed agriculture in India plays substantive role as 85 million Hectares of 141 m Hectares of total cultivable land is rainfed. Similarly, the average land holding in India is 1.23 Hectares and decreasing linearly over the years.

Micro-Irrigation is an artificial irrigation technique - namely

(a) sprinkler system

(b) Drip Irrigation

Advantages associated with them are:-

(1) Efficient water Utilization:- India's agriculture is known for inefficient water management. In this context, this system enables better water management.

(2) It minimises the land degradation

Also reduces salinity hazards

(3) It does not need much land as needed by tank irrigation or canal irrigation

reduction in labour

(4) Farmers can use irrigation as and when

and whenever cut

Remarks

needed

- (e) It increases productivity:- If properly followed, micro-irrigation maintains best possible soil moisture which in turn increases productivity.
- (f) Can also be used to apply urea or pesticides along with irrigation.
- (g) It also reduces weed attack.

Initiatives taken by government are ->

- (a) International cooperation:- India, Israel are working together to promote micro-irrigation.
- (b) Giving incentives for initial cost.
- (c) State Governments like - Maharashtra, Telangana has taken the lead.
- (d) The PM Kisan & Aardra Yojana also has some elements related to micro-irrigation.
- (e) Proper skilling and training to farmers is given.

Per Cap note

Challenges

Less if dedicated to increase

Economic survey 2015-16 writes that Micro-irrigation can be a game changer. It has the potential to increase farmland productivity as well as reduce water

IT Remarks Critique

stress in India. Absence of easy financing mechanism



Q4. The Vulnerability of farmers is not just due to natural vagaries, but also due to defects of public procurement policy. Analyse what should be done to reform the public procurement system? (12.5 Marks)

The contribution of agricultural sector in India's Economy is just 14%, while share of population directly dependent on it is 50%. In this context, about 85% of farmers are poor. The Natural vagaries as well as anthropological ~~seasons~~ are responsible.

Natural vagaries like - dependence on Monsoon, post harvest losses like - hail-storm, flood, landslides; losses due to animal attack like - Nigah, wild boar etc. are responsible.

At the same time, the faulty public procurement policy also leads to crop losses.

The various faults are:-

(a) The government announces Minimum support price for 28 crops but it procures mainly cereals like p. wheat and rice.

(b) Many regions are away from public procurement policy like - Eastern India. The

Remarks

states like Punjab and Haryana have good track of public procurement.

(a) Centralisation:- Food Corporation of India

is burdened with many tasks like procurement, transportation and storage.

(b) Unawareness among farmers about the benefits of procurement.

(c) Infrastructure:- It includes storage infrastructure

as well as last mile connectivity. Farmers find it difficult to transport goods.

way forward:

(1) Unbundling of actions of FCI → Food

should be made responsible only for procurement

(2) Tap Eastern U.P., Bihar, West Bengal market.

(3) Diversify the crops which are produced.

(4) Better Infrastructure.

By strengthening government's procurement policy, India can sustain food security and nutritional security for a longer period.

Also include  
Shanta  
Committee  
findings  
delay in  
Exclusion of  
Shorea

Curriculum  
Kerala  
Mechanism  
for farmers

4

Remarks

**Q5. Throw light on the structural change in the composition of agriculture in recent years. Point out the areas, where the structural transformation of agriculture is still lacking.** (12.5 Marks)

*Remarks*

--	--	--	--

*Remarks*

Q6. Indian government provides indirect agriculture subsidy in the form of loan waiver to farmers. Critically examine its effectiveness in tackling the agrarian debt crisis. What alternatives can be taken up? (12.5 Marks)

Loan waiver has become a populist and political move to quell the discomfort among the Indian farmers. Recently, many states announced loan waivers like - Uttar Pradesh, Maharashtra, Madhya Pradesh. Waiving off loan is a temporary solution which cannot be sustained for long.

Merits of loan waiver

(1) Relaxation to farmers for the immediate payment of loans.

(2) It reduces farmer's suicide.

(3) For political parties - it act as a vote bank move.

Demerit.

(1) R.D.I. called loan waiving as a moral hazard because it would disincentivise the farmers to pay the loans in future.

(2) It has fiscal cost attached to it. Many states would fallay of PRBM act.

(3) It is a temporary move which could provide some relief for a brief period.

Remarks

④ It will have Exclusion - and Inclusion factors which may be responsible for farmer unrest in various states.

⑤ Heavy load on the banking personnel. The various banks opposed the moves of the government.  
way forward. - Distort credit market structure =

In case of such like situation → besides loan waiving, other steps like - increasing the role of MGNREGS, increasing PDS can be done for long term solution:-

(a) provide better Irrigation

(b) Better Infrastructure - Cold Storage - Food processing, transportation

(c) Strengthen Food procurement policy

(d) Ban on fruit & vegetables from NPMC

(e) Work on Land Consolidation

(f) Encourage - Agro-Forestry, Livestock Rearing, Horticulture production

Comp  
Analysis

⑥

Remarks

Q7. What is precision agriculture? How precision agriculture can help in improving the resource use efficiency in agriculture, with special focus to irrigation? (12.5 Marks)

Precision agriculture refers to growing crops based on the suitability of climate, the fertility of soil, optimum soil moisture, considering the weeds and pests which may attack the crops. It has special focus on micro-irrigation.

PA  
use of IT to enhance efficiency

India's agriculture, although looks huge, but there are always concerns of low productivity. Precision agriculture can help in improving the productivity.

(a) Soil Health Card :- It would enumerate the macro- and micro nutrients present in the soil.

(b) The various seasons regions like Eastern India is endowed with good water resources. Here we can promote water intensive crops like - paddy, sugarcane, jute etc. Similarly,

Remarks

South India:- Plantation crops, → coffee, coconuts, palm, cotton, sugarcane.

Western India:- good for dryland agriculture - maize, jowar, groundnut, barley etc.

Precision agriculture has irrigation as the most substantive component. Micro Irrigation

like →

- (a) Drip Irrigation
- (b) Sprinkler System

Both system can help in optimum utilization

PAAD  
efficiency  
real time of water resources. they not only save  
dose and water but also  
conditions & soil moisture  
seasons in field  
conflict of crop  
point about  
mobile app

of water resources. they not only save

but also  
(a) Drip to best soil moisture possible for use by  
(b) reduce the growth of weed small family farms  
can be used to apply pesticides  
can be used as and when required.

Precision agriculture is a way forward to

improve the productivity of Indian farmlands.  
Poor farmers, if provided with sufficient

Remarks

input can bring a change within a decade  
not satisfactory



Q8. How pink revolution can supplement farmer's income? Critically analyse, how the developments of recent years coupled with steep inflation in animal feed prices have impacted the development of sector? (12.5 Marks)

Pink Revolution mainly focuses on increasing the output of meat production. It has dual objective :-

- (a) To increase farmer's income ✓
- (b) To achieve Nutritional security as meat are important source of protein, fats and some vitamins.

Livestock Rearing like - cows, buffaloes, pigs, chicken, goat and sheep plays a significant role in Indian Economy as well as supplements farmer's income. Good price realisation for their livestock, backyard poultry, egg production can increase farmer's income.

But there are various concerns :-

- (a) Lack of cold storage for storage of meat
- (b) poor connectivity and stringent norms on movement of cattle
- (c) In India, Beef eating is a taboo for

Remarks

Hindus. Hence, farmers are burdened with unproductive livestock.

(d) Poor veterinary services

In recent years, there has been a sharp rise in animal feed prices. This is mainly because -

(a) Baggasse which can be used as animal feed are channelled to paper industry.

(b) Indifference of the government powers.

(c) Degradation of grazing lands.

(d) Animal feed production requires a lot of

other industrial products like - paper,

etc. In such a case, poor remuneration on animal feed is unattractive.

In order to curtail such problem, Mr. Anant Kumar

suggested that stubbles in farmlands, Baggasse,

etc. can be used as an

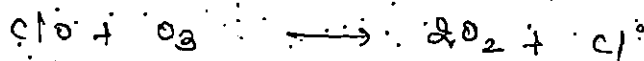
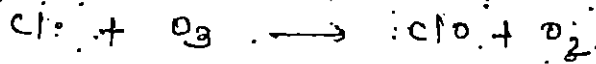
animal feed.

Remarks

Q9. Give brief account of Ozone Depleting Substances? What are the recent controversies regarding proposed amendment to the Montreal Protocol to phase-down the harmful greenhouse gases? What is India's stand on this issue? (12.5 Marks)

Ozone depleting substances are those chemical products which rises upto stratosphere and thereby reduces the formation of ozone. In other words, it disturbs Chapman's cycle. They are -  
~~for~~ CFC (Chloro-fluoro carbons), Nitrous oxides etc.

These substances releases free  $\text{Cl}$  atoms and this free chlorine can destroy hundreds of ozone molecule.



Recently, Kigali Amendment was signed where Hydro-fluoro carbons which have high global warming potential are included in the Montreal protocol. Hence, countries are legally bounded to reduce the production of HFC and phase out its production by a certain time frame.

Remarks

Consequences

HFCs are primarily used in refrigerant industry. For India, refrigeration is a sunshine industry and rising at a healthy pace. Banning HFC would hamper the refrigeration industry.

# Hence, it is expected that India should be provided:

(a) More time for phasing of HFC production.

(b) Transfer of technology from the developed world.

(c) Financial support for Research & Development.

India was put under third category where

India will have to phase HFC production

by 2024 and reduce  $\text{O}_3$  to  $1.5\%$

by 2027.

Overall, global agreement is a welcome move

and a ~~step~~ step forwards towards sustainable

Development.

Remarks

Case  
Analysis

5/11

Q10. Environmental governance introduced by international bodies aims at improving the quality of human living within the carrying capacity of supporting ecosystems. Elaborate with respect to role played by UN in sustainable development. (12.5 Marks)

Post Industrial Revolution and <sup>in</sup>industrialization  
Urbanisation has led to many environmental  
problems globally like - Global warming, Melting  
of glaciers, threat on Biodiversity, Marine  
pollution, Land degradation etc

Realising the mistakes, International bodies came  
together to save the planet earth.

Historical Background:-

First such International ~~steps~~ cooperation was  
envisaged in 1972, popularly called as

Stockholm Convention; Later, in 1992 Rio-Summit  
was organised, popularly called as Earth Summit

In 2015, the UN played an important role  
in coming up with 17 major goals as

Sustainable Development goals, some of them  
are →

- (a) Reducing poverty
- (b) Ending gender discrimination
- (c) Conserving marine resources / biodiversity

Remarks

(d) Zero Hunger

(e) partnership for growth

etc. In the same years, UNFCCC-81 popularly known as Paris Summit was organised. It was a historic summit as various countries agreed to prepare a roadmap for sustainable development. Some of its important provisions are

(a) to limit the global warming up to  $2^{\circ}\text{C}$ ,

with special efforts for  $1.5^{\circ}\text{C}$ .

(b) Ambition bottom up contributions.

(c) freeze GHG production by 2050.

In the same year, Sendai Framework was

organised to understand Natural Hazards,

prepare mitigation plan and International

Cooperation.

Non-discrimination

The United Nations seeks to promote International

Cooperation, funds many voluntary organisations,

seeks to provide technological and financial

Remarks assistance to countries for achieving

Sustainable Development goals.

UN's  
role is

Knowledge  
at

data  
gathering

Facilitate  
collaboration

Attract  
investment

Sustainable  
development

UN's  
role is

Q11. Recently Uttarakhand high court banned mining activities in the state. In this reference, discuss the various available in Uttarakhand and how mining in this hilly state is impacting the ecology and environment? What should be done to maintain a balance between economic need and environment protection? (12.5 Marks)

Uttarakhand is a hilly state and prone to many natural hazards like - Earthquake, Glacial outburst, Landslides, Flash floods, cloud bursts etc. The ban on mining activities by Uttarakhand H.C. was a welcome move. <sup>Write about availability of resources</sup> This is because, illegal mining and dumping of debris was responsible for aggravating the Uttarakhand Flash Flood of 2014; <sup>of resources</sup>

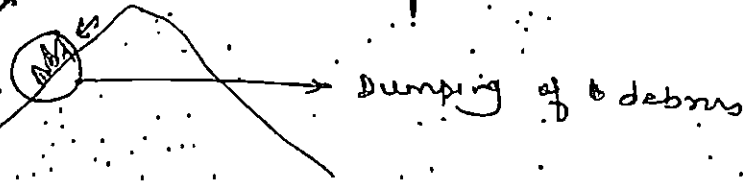
Mining and Ecology,

Uttarakhand has Himalayan peaks. The Himalayan ranges are young mountain ranges with unconsolidated soil. Hence, they are highly ~~more~~ vulnerable to land slides. Illegal mining and dumping of the debris on the slopes makes them even more vulnerable. In rainy seasons, due to cloud bursts these debris

Remarks

would move against the slope at a higher pace and causing massive destruction

Impact along its path.  
increasing landslides  
loss of biodiversity  
habitat destruction



In order to maintain a balance between development and conservation, following steps can be taken

(a) Making Environment Impact Assessment compulsory for each project

(b) Make Gyan Ganga consensus essential

(c) we can take help of polluter pay principle where damages to ecology need to be compensated

(d) Under National Green Mission, the afforestation of slopes of the hills can reduce the chances of soil erosion.

(e) we can make use of technology to map the areas which are responsible for vulnerable to hazards

Also Disaster Mapping and Mitigation

4

Remarks



Q12. The effects of urbanization and climate change are converging in dangerous ways. In this reference, Discuss how cities are contributing to climate change and in turn how they are impacted by it? discuss what should be done to make cities more suitable with special mention of concept of green buildings to reduce impact of climate change.

(12.5 Marks)

Urbanization in India is anarchic in nature. The problem is aggravated by the climate change. The various issues like

# Deh smog

# Air pollution

# Urban Flooding

# Urban Heat Islands

# Issues of epidemics due to poor sanitation are cause of concern.

Cities are one of the major contributors in climate change. This is because

(a) Heavy concentration leads to Urban Heat Islands.

It reduces albedo and increases temperature.

(b) Cities are centres of economic activities, the industries located in and around them are

polluting environment - air, sound, water, and land.

(c) Heavy traffic and construction activities

often add more pollutants to the environment.

(d) The ginger-shaped growth of cities and

Remarks

This  
is  
main  
part  
of  
green  
buildings  
design

hidden urbanisation in towns is adding woes to the problem.

① the problem can be reduced if we take care of proper urban planning with various dimensions like

② Reducing industrial waste around cities

③ proper drainage - sewage management

④ focus on public transport

⑤ Better building codes for the houses

TERE has come up with GREEN

Rating for Integrated Habitat Assessment) which would rate houses in terms of energy efficiency.

Bureau of Energy Efficiency has also come out with a plan to enhance the energy

efficiency of buildings. It has following components

① to utilise maximum light for vision from sunlight

② Better ventilation

③ to increase albedo to reduce the Urban Heat Island effect.

Remarks

Rajasthan government came out with voluntary proposals for making green buildings.

Better urban planning coupled with other sustainable efforts can mitigate the damages caused by climate change.

Impact on Cities  
Urban Planning  
Health Issues  
Cross-section  
Urban or  
Private  
Suburban

4

Q13. Elephant-human conflict is one of the most challenging issues in conservation of Heritage animal of India: What are various reasons of Elephant-human conflict? What need to be done in resolving these conflicts? (12.5 Marks)

~~Elephant~~ Man-Animal conflict has been on the rise in India. There are several reports of attacking of leopards, tigers, monkeys, elephants etc. in urban or rural areas. Elephant-Human conflict is one of the aspect of such conflicts.

Regions:-

Elephant-Human conflict is localised in states like - Jharkhand, Orissa, Assam and some southern states like - Kerala, Jammu & Noddu.

Challenges:

# often Elephants create chaos by destroying property and damage to the food crop.

# Many times, Elephants are crushed to death by trains.

The various reasons of Elephant-Human conflict

(a) Encroachment of land:- Due to rapid urbanisation and growing population, forest lands are being encroached by humans.

Reason  
- Deforestation  
- movement  
- availability  
of forest  
- Changing  
elephant  
behaviour  
- Culling

Remarks

(B) Fragmentation of forest.

(C) ~~Development~~ construction of roads and footway lines amid the forest, the movement of elephants is being affected.

Steps to be taken.

(1) Forest operators must be trained ~~up~~ to tackle the mob of Elephants.

(2) Elephant corridors should be mapped and minimum intervention should be allowed.

(3) Use of technology to track the movement of elephants like - use of Radio Frequency collars, Infrared cameras etc.

Ans (4) The various wildlife parks - Kaziranga, Nokrek, Assam etc. which houses maximum elephants must be intervened at minimum level.

(5) Local people must be trained adequately, what to do in crisis situation.

(5) Recently, Orissa, West Bengal, Jharkhand and Assam jointly carried out a census to count number of elephants.

Similarly, inter state coordination along with

Remarks

proper training of people would reduce

elephant animal conflict.

Q14. What are BS IV emission standards? How are they different from BS III? Do you think carbon emissions can be checked by implementing these standards? Critically Comment. (12.5 Marks)

BS IV emission standards refer to Bharat Stage Emission standards in parallel to Euro-IV with stringent norms for

- (a) Fuel
- (b) automobile engines

The sulphur content in BS IV is 50 ppm

BS-III standards were having greater presence of sulphur content in the fuel. BS-IV differs from BS-III on two points

(a) Reduced presence of sulphur

(b) The IC (Internal Combustible) engines need to

# Reduce Nitrous oxides more efficiently.

# Oxidise volatile organic compounds

# ~~low~~ less emission of sulphur dioxide.

Merits of BS-IV

(a) It would reduce the emission of sulphur dioxide, Nitrous ~~oxide~~ oxide and volatile organic compounds.

Remarks

⑤ BS-IV is now applicable at pan-India level. Automobile is one of the major contributors to air pollution. Hence, BS-IV based on Swarna Shiksha Committee recommendation is a significant move.

Challenges.

① It would add more input cost on automobile sector and hence would increase price of automobile.

② It would also increase the shipping cost of various vehicles.

③ Other than emission standards, other steps need to be taken.

④ Regulate the construction activities.

⑤ Air pollution management

⑥ Blending of petrol with ethanol

⑦ Strengthen public transport

⑧ Promote use of Hybrid & electric cars.

⑨ Make Green Highway Mission at a faster pace.

⑩ Various steps taken by government in this

Remarks regarding ~~steps~~ are commendable.

⑤

BS IV can check carbon emission. Stricter fuel standards. Upgrading emission norms. Significant.

Cost check

Commence use of electric vehicles using

Highly significant content

Q15. What is light pollution? Why is it harmful to humans? What are the measures have been taken worldwide to tackle it? (12.5 Marks)

Light pollution refers to the unwanted light which makes our skies artificially brighter. Light pollution has become a cause of concern and that is why 2017 Earth Hour focused on two things →

(a) Energy conservation and

(b) Reducing light pollution.

China has become the first nation to mark an area where it would work to reduce light pollution.

Reasons :-

(a) ~~Light~~ Artificial light coming out of window panes, street lights, structures in the night.

Light pollution is harmful to humans because

(a) It affects the migratory trajectory of the birds. Birds are one of the pollinators. Hence, any effect on their population would lead to effect on food

Remarks

security, similarly, it affects the daily routine of honey bee and other pollinators.

⑤ It reduces the aesthetics and beauty of many tourist places.

⑥ It also makes astronomy a difficult task because efficacy of ground stations in light polluted areas becomes adverse.

Various states are slowly realising the issue of light pollution. Various steps taken are

① World Wildlife Fund raised the concern of light pollution in Earth Hour.

② China becomes the first nation to mark a geographical area where it would seek to ban excessive light pollution.

Light pollution although seems apparently harmless but has direct impact on human's circadian rhythm and food security. In this context greater cooperation is needed among nations to control it.

Supplements  
Answer

Use of LEDs  
to mark a  
program  
to ban  
excessive  
light  
pollution

Remarks

9



Q16. Recently NGT suspended the environmental clearance granted to the India based neutrino Observatory? Has NGT overstepped its mandate? Critically examine. -----

(12.5 Marks)

National Green Tribunal is mandated with various act like - Biodiversity Act, Indian Forest Conservation Act, 1980, etc. so as to expedite the cases related to Environmental clearance. It acts as a civil court with powers getting from Principles of Natural Justice.

Last year, NGT suspended the environmental clearance granted to India based neutrino observatory, the observatory was to be established in frontier district which is very much close to Tamil Nadu border. The reason cited for the suspension by NGT was -

# Since, it is very much close to two states, it needs to seek fresh licence under different category.

NGT did not overstep its mandate. Under NGT Act, the body has the

Remarks

mandate on Environment Protection Act, 1986.

EPA mandates Environment Impact Assessment for various projects. Hence, Indian Neutrino observatory needed to make EIA and cleared through NCT. It has done EIA but it sought license under different category. Under EPA rules, there are different categories for such projects which are in the vicinity of two states. Hence, NCT cancelled the orders.

Overall, NCT has been doing excellent job in environment protection. However, it needs to come out with a detailed reasons for cancelling any project. The body should not become an impediment in its development work. Rather, its goal should be to endorse sustainable development.

Need to write whether NCT overstepped or not in separate heading

Remarks

Over stepping  
 detrimental effect in environment  
 thwarted the pace of growth  
 NCT  
 Radically different view  
 supported the view raised  
 by professor

Q17. What does the court verdict terming Ganga and Yamuna as living entity mean? What are the consequences of such directives? (12.5 Marks)

Ganga and Yamuna are two rivers which have bearing on the lives of 50 crores - economically as well as religiously.

Recently, Uttarakhand High Court termed Ganga-Yamuna as a living entity. Any tributary to Ganga-Yamuna would also be treated as a living body. It has following aspects:-

- (A) Any body can sue Ganga-Yamuna seeking compensation for damages.
- (B) Ganga-Yamuna can sue anybody for pollution.

Under the court order, the secretary of Namami Ganga, the chief secretary of Uttarakhand government and the Advocate-General of Uttarakhand government would act as parent.

Earlier, New Zealand Court also granted

Remarks

living entity status to a river.

The various consequences :-

(a) In case of floods caused due to Ganga or Yamuna waters, private individuals can move to court seeking compensation from Uttarakhand.

(b) Similarly, in case of pollution to the river environmentalists can move to court.

This would make the administration of Uttarakhand government troublesome. It would add many litigations.

Or late, the Supreme Court has put a stay on the Uttarakhand High Court verdict.

Looking at the importance of Ganga-

Yamuna, it is essential to conserve both rivers. By turning the rivers living entity, it would clearly make the state government responsible for protection of its rivers.

Remarks

Q18. With fires raging across Central Indian forests and the Himalayan Pine forests, the frequency of such blazes has risen by a drastic 55 per cent in the past year. In this reference, discuss whether forest fire is always non-desirable? What are various reasons of forest fire and How to prevent Major Fires? (12.5 Marks)

Forest fires can be caused due to -

(a) Natural reasons like - lightning

(b) Man-made reasons like negligence, camp fires in tourist places etc

The standing parliamentary committee on science and technology took the concern issue of forest fires in central India and the Himalayan pine forest.

Forest fires are not always desirable. Forest fires are characteristic features of - Mediterranean and savanna grasslands. The benefits of forest fires are -

(a) It kills the invasive species.....

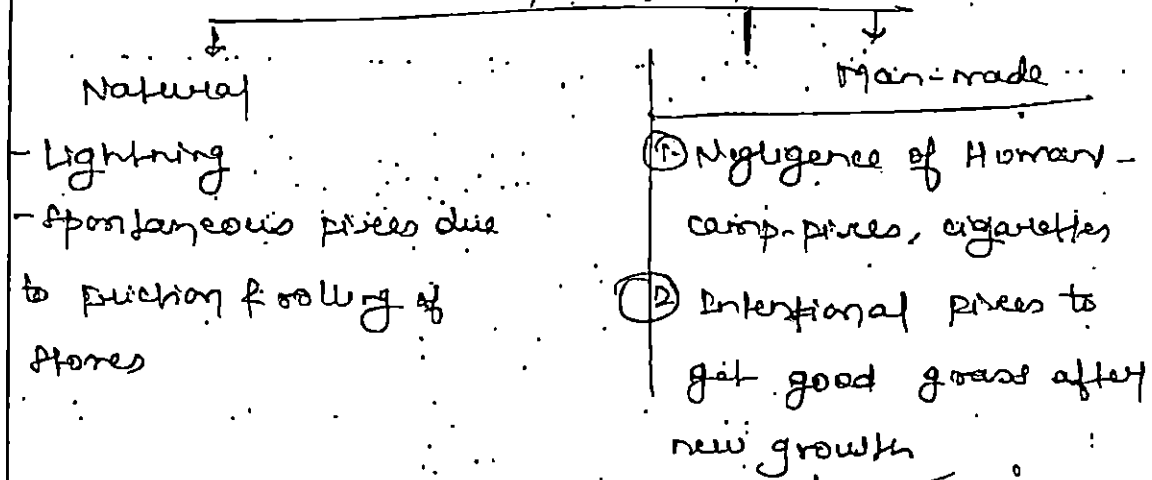
(b) It promotes the survival of the fittest.

(c) It maintains ecological balance.

(d) Ecology of savanna grassland, scrublands of Mediterranean type climate is controlled by forest fires.

Remarks

## Reasons of Forest Fires



The suggestions to prevent fires are

- Obtain the Forest department approval.
- Involve local communities as they are first responder.
- Awareness among tourist - not to throw cigarette butts.
- Vacuum clearing of chir pine in Himalayan forest.
- Chir pine forest need to be replaced by broad ~~leaf~~ leaved.
- Standard of procedure for respondy to forest fires.

Remarks

Q19. India's air pollution is now surpassing China, as the deadliest in the world. Are the measures taken by India with respect to air pollution sufficient? Examine: (12.5 Marks)

WHO report on air pollution puts ~~in~~ ~~order~~ India as one of the most polluted country in terms of air pollution. In top 20 cities, 18 cities are from India in terms of air pollution. The air pollution has become the biggest killer - killing 1.5 million people annually due to chronic obstructive pulmonary diseases, asthma, lung cancer etc.

Measures taken by the Government are:-

- ① Launch of Bharat Stage IV emission standards in all cities of India.
- ② National Green Mission to ~~cut~~ reduce the pollutants.
- ③ Blending of petrol with ethanol which releases less pollutants.
- ④ Focus on public transport under Smart City, AMRUT and metro projects in various cities.
- ⑤ Policy on Hybrid vehicles.

Air Quality Index

Remarks

- (A) For better data collection, National Air Quality Index in various cities has been launched.
- (F) Pradhan Mantri Ujjawala Yojana to reduce burning of wood, cow dung cakes and to reduce indoor air pollution.

So far, the government has done many things with respect to reducing air pollution, better data capture.

However, there are a few areas which need to be considered.

(a) Government should put a ban on stubble burning post harvest.

(b) The industrial clusters must be monitored to look into the aspects of air ambience.

(c) Pan-India Rules for  
 # Handling of Fly ash and  
 # Demolition and Construction Rules.

By involving the common people, industries and the N.G.Os., we can reduce air

Remarks

pollution  
 not sufficient  
 lack of real time monitoring  
 Ignoring health work



Q20. Indian efforts in conserving tiger population are appreciable. In this reference, discuss achievements and steps taken by government to protect this magnificent animal. Also highlight some challenges which remains and need to be addressed. (12.5 Marks)

Tiger is the national animal of India found in almost all regions - right from the Himalayas to the Western Ghats. In this context, India has taken a number of ~~steps~~ steps to conserve tigers. The survey of M.O. F. has found that population of tigers has increased from 1411 to 2226 in a span of less than a decade. Steps taken by the government are -

(a) Creation of tiger parks - these regions are protected, any interference is prohibited and tigers are regularly monitored.

(b) Use of technology - the wildlife conservationists used Radio Frequency collar, CCTV cameras to monitor tigers.

(c) National tiger conservation authority - It is an apex decision making body which monitors the steps taken in

Remarks

Tiger conservation,

(a) International cooperation: India has established World Tiger Forum where many South East Asian countries including Bangladesh and China are members. They have laid a plan to double tiger population by 2022.

CETE

(b) M-STREPS Initiative taken to count the number of tigers.

Challenges.

(a) Conservation cum development: Tiger Reserves often has buffer zone where construction activities, mining etc are prohibited.

(b) Due to fragmentation of forests, man-animal conflict has been on the rise.

(c) State governments and centre government cooperation is needed.

~~animals~~ Tigers are not only the national animal but the apex prey in Indian forests. Their conservation is essential to conserve

Remarks

the entire biodiversity of ecological

chain.