

# **G|S SCORE**

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## **IAS TOPPER'S**

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### **VYOM BINDAL**

**RANK - 141**

**GENERAL STUDIES - PAPER III  
TEST - 7**



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992

## GENERAL STUDIES - PAPER III

Time Allowed: 3 hrs.

Max. Marks: 250

Q.	Marks	Instructions to Candidate
1.	4	
2.	3	
3.	4	
4.	3	
5.	3 $\frac{1}{2}$	
6.	3 $\frac{1}{2}$	
7.	—	
8.	4	
9.	4	
10.	4 $\frac{1}{2}$	
11.	6	
12.	7	
13.	7 $\frac{1}{2}$	
14.	7	
15.	4	
16.	7 $\frac{1}{2}$	
17.	7 $\frac{1}{2}$	
18.	6 $\frac{1}{2}$	
19.	7	
20.	6	

- There are 20 questions.
- All questions are compulsory
- The number of marks carried by a question is indicated against it.
- Answer the Question No. 1 to 10 not more than 150 words, whereas Question No. 11 to 20 should be answered in not more than 250 words.
- Answers must be written within the space provided.

Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

Name VYOM BINDAL

Roll No. \_\_\_\_\_

Mobile No. \_\_\_\_\_

Date \_\_\_\_\_

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1. Invigilator Signature \_\_\_\_\_

2. Invigilator Signature \_\_\_\_\_

**REMARKS**

## SECTION - A

- Q1. Recently, the Union Government announced new hydrocarbon exploration and pricing policy. Examine the merits and demerits of this policy. (10 Marks)

Government had brought about new Hydrocarbon Exploration Licensing Policy (HELP) with following features:

- 1) It introduces unified license for all hydrocarbon explorations.
  - 2) Policy puts in place revenue sharing model, which involves sharing revenues with govt. from day one.
  - 3) Policy adopts open acreage policy under which private players themselves can give proposals for exploration.
  - 4) It puts in place system of graded royalty with less royalty for explorations in deep and tough areas.
- Merits of policy**
- 1) It will enable greater private sector

Remarks

## participation

- Revenue sharing will reduce cases of contested revenues.
- Open acreage will help in leveraging private sector expertise in exploration and production proactively.
- graded royalty scheme will allow exploration of deep placed hydrocarbons.

## Demerits:

- ① 1) Greater private sector participation should not lead to under pricing of public resources.
- 2) Post experience with revenue sharing model has not been as per expectations. However, overall HELP is step in right direction to boost exploration and production in hydrocarbon sector.

Remarks

- Q2. A range of issues relating to procurement, storage and distribution of food grains is not only deeply flawed in its reading of the situation on food security, but also short on facts. Discuss in the light of Shanta Kumar Committee recommendations. (10 Marks)

Public Distribution System is suffering from several shortcomings as pointed out by Shanta Kumar Committee.

- 1) There is wastage of more than 40% of the foodgrains.
- 2) Procurement pattern is highly skewed. It estimates that only 6% are farmers are benefited by PDS procurement by FCI.
- 3) Storage of procured food grains is pathetic. It said there is rotting of foodgrains, open storage.
- 4) Committee also pointed that after National Food Security Act and subsequent higher coverage, economic cost of procuring food grain had increased manifold.

Remarks

- write in structured way
- what is being asked -
- scattered points are issue

5) There is rampant blackmarketing and diversion of PDS foodgrains into open market.

Some measures to check flaws in PDS

1) End to end computerisation, GPS monitoring of foodgrains as done in Chhattisgarh.

2) Innovative measures like food coupon can be used to reduce diversion.

3) Some union territories like Ladakh, Chandigarh had also experimented with direct benefit transfer in PDS, it can be replicated.

4) Adequate storage facilities and involvement of the private sector in building up storage capacity.

Remarks

- Q3. Critically examine the emergence of AI-powered cyber weapons as the weapons of next cold war. (10 Marks)

AI refers to the artificial intelligence technology where machines have capacity to act independently in an intelligent manner.

While on the positive side AI can lead to better governance, disaster management, raising agricultural productivity, but on other hand AI can lead to production of WMDs, warning of the cyberspace.

Use of such weapons by one country to carry on cyber attacks such as Sapostis Malware, Stuxnet of US against Iran, can lead to a competitive race for acquisition of AI powered cyber weapons.

Remarks

good example

Just as in case of nuclear weapons,  
AI powered cyber weapons pose grave  
dangers to global security.  
It can be misused to attack critical  
infrastructures like power plants, nuclear  
facilities.

- It can be misused for distributed denial  
of services.

Hence there is need for  
global co-operation on preventing acquisition  
of AI powered cyber weapons. Currently  
Budapest convention is only global  
agreement specifically on cyber security.  
There is need for wider co-operation in  
interest of humanity as a whole

D  
good  
Remarks

Also mention about  
How cold war will be  
fought with AI

Q4. Briefly introduce various intelligence agencies in India and their major functions.

(10 Marks)

Intelligence agencies are vital to gather intelligence, adopt a pro-active approach in preventing crimes.

Various intelligence agencies are -

- 1) Directorate of Revenue Intelligence: It collects and collates information about economic crimes like money laundering, terror financing etc.
- 2) Intelligence Bureau: It is India's internal intelligence agency entrusted with task of gathering intelligence about possible terror attacks, communal riots, anti-national activities.
- 3) Research and Analysis Wing (RAW): It is India's external intelligence agency

Remarks

neeraj

It has duty of gathering intelligence from foreign jurisdictions, spying and surveillance on India's adversary.

(P.M) Its input was instrumental in capturing the Sia Chen glacier by Indian army.

v) National Investigation Agency: It has specialised role in investigation of terror incidents.

Multiple intelligence agencies also present the problem of co-ordination and for that institution of National Security Advisor had been set up for better co-ordination.

NIA  
 National Intelligence  
 Defense Intelligence Agency  
 NSA

Remarks

- Q5. Discuss major amendments in the Prevention of Money-laundering Act, 2002, through Finance Act, 2018, to make it more effective. (10 Marks)

To make the Prevention of Money Laundering Act, 2002 more effective and to curb the growing menace of money laundering, following amendments had been made to Finance Act, 2018.

- 1) It now enables the confiscation of proceeds of crime by Special court itself. Earlier separate procedure was required for this.
- 2) This gives search and seizure powers to the law enforcement agencies during the course of investigation, earlier they needed judicial approval.
- 3) This also allows the law enforcement agencies to question the persons related to

Remarks

(35)  
C

the money laundering accused.

- 4) Amendment had set in place for ~~completion~~ completion of trial and investigation in money laundering cases.

Money laundering is a serious crime which not only involves evasion of taxes but is also used to fund terror activities, drug smuggling, human trafficking etc. Hence stricter approach was needed to curb this menace, which these amendments try to do.

Remarks

- Q6. The concept of urban development of infrastructure in India cannot be separated from rural infrastructure development. Explain in the light of AMRUT, Smart Cities, and RURBAN concept of rural development. (10 Marks)

Urban India now constitutes around 31% of India's population and is likely to add 300 million new residents by 2030.

This creates pressure on the urban infrastructure and civic amenities like water supply, power, public transport, sanitation among others.

To address these challenges govt. took steps such as:

- 1) Developing 100 SMART cities with world class amenities, sustainable and inclusive infrastructure, use of IT in service delivery.
- 2) AMRUT scheme for regeneration of 500 cities where govt. will enhance level of basic amenities like water supply, public infrastructure etc.

Remarks

32

However, urban population growth in India is basically outcome of rural-urban migration due to distress in rural areas which leads to forced distress migration.

Hence, to promote sustainable and manageable urban development, development of rural areas is vital to stem ~~the~~ unsustainable migration.

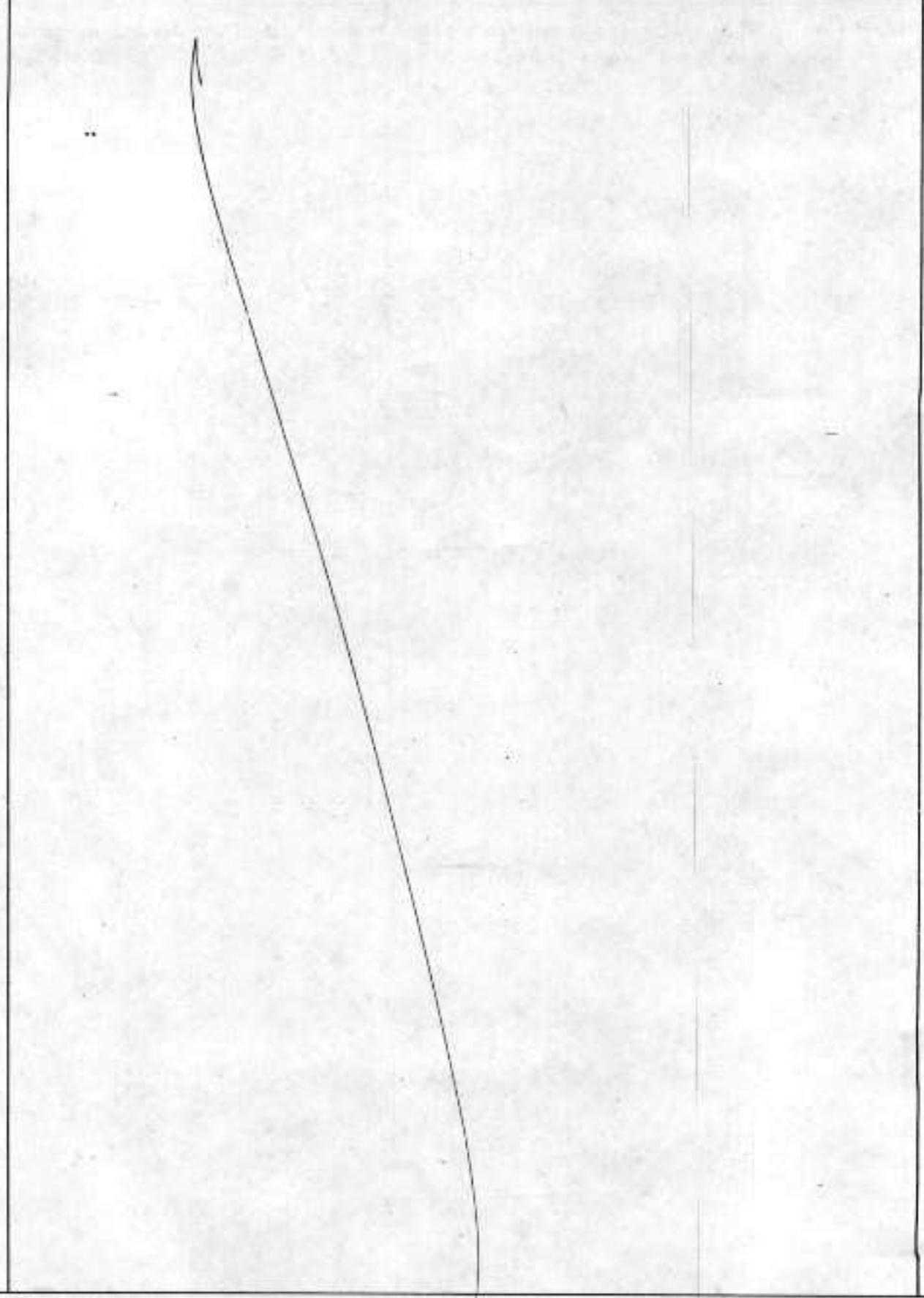
For this govt. had taken steps like:

- 1) Rurban mission for cluster based development of villages and to provide urban amenities at cluster level.
- 2) giving boost to rural economy by giving higher agriculture credit, schemes like doubling farm incomes by 2022.
- 3) Prime Minister Employment Generation programme, MUDRA Yojana to generate self-employment opportunities specifically in rural areas.

Remarks

Q7. While highlighting the significance of celebrating Earth Day, discuss the major components in the theme of Earth Day 2018. (10 Marks)

*Remarks*



**Remarks**

- Q8. As part of its commitment under the Montreal Protocol, India has launched the second phase of its programme that aims to eliminate the use of hydro-chloro-fluoro-carbons (HCFCs). Examine the challenges involved in eliminating HCFCs from India and suggest some remedies. (10 Marks)

India under the Kigali agreement had put forward commitments to eliminate HCFCs which are although not ozone depleting substances but has greenhouse potential several thousand times higher than carbon dioxide.

However, in phasing out HCFCs, India will face the following problems =

- 1) The alternatives to HCFCs are very good  
expensive and patents of these technologies  
is largely in hands of developed countries =
- 2) There will be issue of ensuring co-ordination with various agencies like state governments, local bodies, pollution control boards etc.

Remarks

in phasing out HCFCs.

- 3) ~~Imposition of such strict environmental standards is likely to harm the competitiveness cost of production of industries, especially the small industries.~~

To overcome these challenges following steps can be undertaken:

- 1) Enhancing the public investment in research to discover a cheaper and eco-friendly alternative to HCFCs.
- 2) Allowing the smaller enterprises for smooth transition to new technologies with govt support.
- 3) Promoting the collaboration with similar countries for joint R&D to build alternative

Remarks

- Q9. What do you understand by germline editing? Discuss the ethical, social and regulatory issues that human germline editing raises. Also, highlight how it is being regulated in India and countries across the world. (10 Marks)

Germline editing refers to the making changes in embryonic stem cells to cure genetic disorders, bring desirable features into unborn babies.

Since embryonic stem cells are basis for all other cells, hence germline editing can achieve above mentioned results.

However, it is beset with host of concerns such as

### Ethical concerns

- 1) Embryo is seed of life. Any damage to it during germline editing may even amount to deliberate murder—
- 2) It may bring in demand of "designer babies" re-enforcing the existing societal prejudices in

Remarks

OR  
answers  
are  
very  
defined

(2)

terms of colour of skin, eyes, etc. and even gender.

Social concerns: It will create divide among rich and poor, as such expensive technology could be afforded only by few people.

Regulatory issues: If allowed, germline editing can open up several regulatory challenges like:

D 2. Use of clones for crimes.

- Setting up procedural limitations and enforcing them will be tough.

India: India had totally banned germline editing given the concerns highlighted above.

Globally, also only UK had permitted it and that too only for research purposes.

Remarks

Q10. Highlight the prevalence of drug abuse in India? Discuss the various measures taken by government to curb the drug addiction in country. (10 Marks)

The problem of drug abuse had achieved alarming proportions. In states like Punjab more than one-third of youth are drug addicts. Drug abuse leads to following issues:

- 1) Wastes the precious youth potential which could have contributed to national growth.
- 2) Increase in prevalence of crimes, social unrest unleashed by drug cartels, youth under influence of drugs.
- 3) Revenue generated from sale of drugs is used to finance terror activities.

To tackle this govt. had adopted following approach:

- 1) **Preventive**: It is using mass media, campaign in schools like "No to drugs" to highlight adverse impacts of drug

Remarks

4½

prev  
re?  
?  
days

②

abuse.

2) Legal approach:

- NDPS Act. had been passed which criminalises production, selling, stockpiling of narcotic drugs.
- Narcotic division in law enforcement agencies for focused attack on problem of drug menace.

(2) Recently four northern states came out with regional plan to manage drug abuse by sharing information, joint operations.

- International co-operation: with neighbouring countries like Pakistan, Myanmar, Afghanistan, Nepal to share information on drug smuggling.

- Rehabilitation: Free rehabilitation centres and de-addiction centres had been set up however given the magnitude of problem much more efforts are needed to curb this

Remarks

## SECTION - B

- Q11. There is an urgent need for India to get infrastructure financing, however, the current investment model of PPPs is poorly designed and needs restructuring. Discuss the issues plaguing the success of PPPs with respect to stalled projects, risk management, governance & institutional capacity. (15 Marks)

6  
 = =

There is tremendous need of infrastructure financing in India. As per Economic Survey, India needs 4.5 trillion \$ investment in infrastructure sector by 2040.

This cannot come from government sector alone, hence PPP model was envisaged to leverage the private sector investment as well as expertise in building infrastructure. However, PPP system had virtually collapsed due to following issues:

- With the balance sheets of corporates under stress and banking sector facing NPA, mobilization of resources for infrastructure projects had become difficult.
- The Model Contract on agreement of recent

Remarks

You must write in the way

Question has been asked -

What is good But best needs restarting

PPP projects, puts entire risk of potential revenue shortfall due to less traffic on the private party.

Since there is no risk sharing by the government in PPP projects.

② The dispute resolution mechanism under current PPP regime, is skewed highly against private player, with government appointed authorities acting as adjudicators and courts refusing to intervene.

③ The scope for re-negotiation of project cost even due to genuine problems has been reduced to fear of investigative agencies by the govt.

④ Large number of projects are stuck in the issues of land acquisition, environmental clearance, delaying the costs.

#### Remarks

Clarify your point in the form of stalled, Risk, lower

To resolve these issues government had taken following steps:-

- 1) It started Hybrid Annuity Model on advice of Kelkar Committee, where govt. and private sector invest in ratio of 40:60 of project cost, payment to private sector is made by annuities.
- 2) Innovating financing mechanisms like infrastructure investment trusts, NIFT to mobilise long term funds in infrastructure projects.
- 3) Setting up of commercial courts for faster adjudication of commercial disputes.
- 4) New models like EPC, where entire investment, land acquisition is done by govt. and private sector gives engineering construction services.  
Several steps has been taken, much more needs to be done given the scale of the problem.

Remarks

new, Institute capacity etc

- Q12. There is an overdrive by the government and India Inc. to link 12-digit Aadhaar with verification process of various schemes and realize Digital India dream faster. However, increased incidents of cyber frauds and data-theft highlight lack of preparedness. Analyze. Also, suggest solutions to handle these issues. (15 Marks)

*(T) good  
new  
few  
schemes  
to  
weed out fake beneficiaries.*

Government had accelerated the linking of Aadhaar with various schemes in order to:

Prevent leakages in the system.

Bring in transparency in social sector.

In cases like direct benefit transfer for LPG subsidy, substantial savings had also been achieved.

However, in absence of adequate back end infrastructure, cyber security systems, it had also led to certain issues such as:

1) Theft of the personal data of the citizens from the Aadhaar database.

2) Instances of telecom companies opening accounts of customers in their payment bank.

Remarks

without their consent.

- 3) Instances like theft of personal data of 50 million Indians by Cambridge Analytica, points towards threat of violation of privacy.
- 4) There are also last mile challenges in using Aadhar for welfare schemes example: inadequate number of POS machines stopping of funds under Mid-day Meal scheme due to absence of Aadhar.

To tackle this challenge following steps can be taken:

- 1) Use of innovative methods like Virtual Aadhar ID which prevent revelation of Aadhar number.
- 2) Blockchain technology can be leveraged to make Aadhar identification purpose neutral. UN is doing this in Rohingya refugee camps.

Remarks

- Q) Advanced cybersecurity techniques like quantum computing to secure the Aadhar data.
- 5) In current Aadhar Act, only UIDAI can file case for misuse of Aadhar, this authority should also be given to the citizens.
- 6) Until the Supreme Court decides on the constitutionality of Aadhar, alternative authentication systems like One time password, face ID needs to be mandatorily provided.

*Digital  
India  
Dream*

Aadhar is no doubt a crucial building block to improve governance. However, it cannot be allowed to violate the right to privacy which is fundamental right. A comprehensive data protection law must be urgently implemented.

Remarks

- Q13. The World Bank has observed that India is emerging as a frontrunner in the fight against climate change. It has noted that India is gradually replacing coal energy with solar power as a source of energy. Elaborate. (15 Marks)

India has chosen the path of sustainable development and is ready to be the part of solution of climate change, even as it was not the cause.

Currently, around 70% of India's energy needs are met by coal which causes huge air pollution.

To reduce this and to help arrest climate change India had taken following steps:

1) At National level

2) Market mechanism: India has come out with green bond norms to channelize investment into renewable energy.

3) Renewable energy targets: India had set the ambitious target of producing 175 GW

Remarks

of renewable energy by 2022.

3) Penal approach:

- India had imposed clean environment taxes on coal.
- Despite declining global crude oil prices, India did not allow cost of polluting fuels like petrol, diesel to come down by imposing additional duties.

② 4) Policy approach:

- It had come with dedicated national action plan on climate change and identified eight key sectors for targeted approach.
- India is first country in the world to come with dedicated national agro forestry policy.

5) Push for cleaner fuel and vehicles:

- India will leapfrog to BS VI cleaner

Remarks

fuel norms.

- India had come up with dedicated biofuel policy to promote production of biofuel.
- India had set target of all passenger vehicles being electric vehicles by 2030.

#### At International level

- 1) India had submitted ambitious nationally Determined Contribution targets like 40% renewable energy by 2030, reducing emission intensity etc at Paris climate deal. (21)
- 2) It had set up International Solar Alliance to promote co-operation, research collaboration among solar energy rich countries.
- 3) India submitted its Voluntary National Review to the UN regarding progress achieved in combating climate change.

Remarks

Q14. Ending poverty and stabilizing climate change will be two unprecedented global achievements and two major steps toward sustainable development. Critically discuss the impact of climate change on poverty. In regard to this, suggest some measures.

(15 Marks)

Climate change impacts people across the divide of class and country, yet it has disproportionate impact on the poverty stricken sections due to following issues.

1) It enhances rural poverty due to declining farm productivity. Economic Survey suggests that climate change can reduce farm incomes by 15-18% in India.

2) Climate change induces distress migration due to flooding, coastal erosion, loss of livelihood. Poor people are forced to become climate refugees.

3) Impact of climate change induced extreme weather events like heat wave, cold wave, disproportionately impacts poor.

Remarks

especially the homeless persons.

4) Increase in spread of tropical diseases like malaria, dengue due to climate change increases poverty due to catastrophic health expenditure.

5) Climate change induced disasters like floods, earthquakes destroy the habitations and livelihoods of marginalised sections.

To address this problem certain steps can help:

1) Putting the requirements of marginalised section in central focus while preparing climate change mitigation plans.

2) Extending facilities like social security, climate insurance to the poor people.

3) Building disaster resilient homes for the

Remarks

disadvantaged groups, as is also envisaged in Pradhan Mantri Awas Yojana.

- i) Retrofitting of existing infrastructure, stem redevelopment to prevent poor people from vagaries of climate change induced disasters.
- ii) Proper vulnerability mapping to identify the most vulnerable sections likely to face brunt of climate change.

The first SDGs is ending poverty in all forms, hence it is imperative to shield the marginalised groups from adverse impacts of climate change. Only then goal of sustainable and inclusive development can be achieved.

Remarks

- Q15. An emissions-reduction approach to fight global warming is not enough. Alternative solutions involving climate engineering might have to be deployed sooner than we think. Critically examine the statement. Also, discuss climate engineering.

(15 Marks)

In wake of unprecedented rise in global temperature vis-a-vis all past experiences and its devastating impact, some scholars suggest use of climate engineering solutions like:

1) [Solar radiation management and global dimming]:

Under this particles like sodium chloride, sea water is added to clouds.

This increases the albedo of clouds.

This helps in reflecting back larger amount of solar radiation back into space, hence less insolation on earth.

2) [Iron fertilization of ocean water]:

Under this iron oxide is added to

#### Remarks

why tree is shift?

why emission reduction is not enough? =

ocean water, which enhances its carbon dioxide absorption capacity, in this way it helps in fixing and reducing CO<sub>2</sub> in atmosphere.

- 3) Using bio-char in soils:-  
 Under this approach bio-char is added to soil to enhance its CO<sub>2</sub> absorption capacity, thus reducing atmosphere CO<sub>2</sub>, lowering the greenhouse effect.  
However, such approaches are  
seen with skepticism because :
- 1) Interfering with solar radiation may lead to large scale changes in food chains, food web and decrease the earth's biomass productivity.
  - 2) Non fertilization will lead to acidification.

Remarks

of sea water, which will disturb marine life, lead to bleaching of corals.

- 3) Bio-char addition may infect soil fertility and productivity.
- 4) These methods are extremely costly and also their efficacy is not well documented.

Hence, precautionary principle should be applied and emission control approaches should gain priority over the climate engineering techniques, which are uncertain to say the least and counter-productive at most.

### Climate Engineering?

#### Remarks

Explains global bodies not able to reduce emission despite

Q16. What are Coastal Regulation Zones? Government has recently proposed changes in CRZ regulations through draft Coastal Regulation Zone (CRZ) Notification, 2018. Highlight the salient features of the same. What are the concerns toward new changes? (15 Marks)

(12) Coastal Regulation zones (CRZ) refer to the ecologically sensitive zone near the coastal areas which are biologically diverse, highly productive yet very fragile.

Government had recently brought about draft CRZ notification to amend the 2011 rules. Features of proposed rules:

- 1) Unlike the previous rules, these rules permit low intensity activities like eco-tourism, nature trail in the most sensitive CRZ-1 zone.
- 2) Earlier rules divided CRZ in four distinct parts like CRZ 1, CRZ 2 etc. New rules prescribes further subdivision of these zones like CRZ 1-a, CRZ 1-b etc.

Remarks

- 3) These proposed rules limit the definition of CRZ from earlier definition of upto 500 metres from high tide line to only upto 100 metres inward from high tide line.
- 4) Draft rules also give discretionary powers to state governments for permitting some activities in certain portion of coastal regulation zones.
- However, these new draft rules poses certain challenges -
- CRZ-1 is most ecologically sensitive region. Any disturbance there can lead to disturbing aquatic food chain, pollution, fragmentation of habitats.
- Discretionary power to states can be misused, they may permit potentially harmful

Remarks

activities in CRZ.

- 3) Reducing the territory of CRZ is also criticised for lowering protection to these extremely important ecosystems.
- a) Draft rules were framed without consultation with ecological experts, general public.
- b) Rules goes against the spirit of goal 14 of SDGs, which entails to preserve ocean ecosystem.
- Hence greater amount of deliberations, consultations is needed to preserve the delicate coastal ecosystem.

Remarks

- Q17. Highlight the challenges being faced by biotechnology sector in India. Also, discuss how the National Biotechnology Development Strategy (2015-2020) which aims to establish India as a world-class bio-manufacturing hub. (15 Marks)

Biotechnology sector can be vehicle of better healthcare, life sciences research, enhanced agricultural productivity.

However, full utilisation of potential of biotechnology sector is facing the following challenges

1) Shortage of funds: With India's investment of R&D activities below 1% GDP, perpetual shortage of funds is plaguing the biotechnology sector.

2) Human resource deficit: India's youth is more inclined towards subjects of engineering, management. Hence, less number of people choose biotechnology as career, leading to lesser manpower in the sector.

Remarks

3)

Low private sector participation

Currently majority of expenditure on R&D sector is coming from ~~the~~ public sector which restricts realisation of full potential which private sector can bring.

4)

Inadequate extension facilities

In absence of land-to-lab connect, biotechnology is perceived as elite subject, hence lack of public support for biotechnology sector.

To address these issues, govt. had come up with National Biotechnology Development strategy with following measures

i) It aims to attract investment worth 100 billion \$ in the biotechnology sector.

Remarks

- 2) It aims to enhance human resource in the biotechnology sector both domestic as well as diaspora for example Soumalugam re-entry scholarships for foreign biotechnology researchers.
- 3) Strategy aims to generate public awareness towards importance of biotechnology. (2)  
For instance: "Sciencity" "Science City" initiative by National centre for Biotechnology, Bangalore, where it is holding free science classes for residents.
- 4) Foster greater private sector participation by tax exemptions.  
 Hence, a holistic approach is envisaged by National Biotechnology strategy to boost India's biotechnology sector.

Remarks

- Q18. Leveraging Japanese expertise in robotic manufacturing and channeling local software talent would allow India to come to terms with a fast-changing global economic scenario, where automation will rule the roost. Analyze. (15 Marks)

Japan had made great strides in robotic technology, India on the other hand vast talent pool in terms of demographic dividend of youth, well developed information technology sector.

Hence, a great scope of convergence and complementarity is there is coming to terms with fast changing world.

It is important for following reasons:

- 1) World Bank estimates that automation threatens 69% of Indian jobs, hence this partnership will help keep our workforce future ready

Remarks

How Automation will

- Robotics can have application in several fields such as:
- Agriculture: It can help in precision farming, raising the productivity and real time soil testing.
- Defense: In defence sector robots can help in dealing with landmine detection, replacing humans in difficult terrains like snowen glaies, hilly borders. (3)
- Medical sector: Nano-robots can help in carry out less invasive, more effective precision surgeries, Targeted drug delivery in cancer.
- Inter security: unmanned aerial vehicles can allow the crowd monitoring,

Remarks

dealing with criminals.

Commercial sector: Robotics can help in easing routine activities like Teller robot in banks to deal with customers.

(2) Differently abled: Robots can be effective and handy assistants for the differently abled people.

Hence India should boost robotic co-operation with Japan for smooth transition to an era ruled by ~~not~~ automation.

Remarks

Q19. What do you understand by precision farming? It is said that future revolution in agriculture is going to come from precision farming and micro-irrigation can be the stepping stone towards achieving the goal of making Indian farming sustainable, profitable and productive. Discuss. (15 Marks)

Precision farming techniques refer to those techniques which help in resource optimisation by targeted interventions like delivery of fertilizers to specific plants, soil treatment in specified area rather than entire farm.

Micro-irrigation techniques involve technologies like drip irrigation, sprinkler technology which help in bringing more crop per drop.

These technologies are going to benefit Indian farming sector in following ways:

Sustainable

Micro-irrigation saves much water compared to traditional flood irrigation technique. This

Remarks

explain taking some example for Indian Agriculture - Punjab etc

is important given that per capita water availability had reduced from  $1820 \text{ m}^3$  to  $1345 \text{ m}^3$  in less than two decades.

- 4) Precision farming can help check the use of ~~most~~ indiscriminate fertilisers, pesticides which causes water pollution, bio-magnification, leaching into ground water.

(i) Profitable:

- These techniques will reduce the input cost in terms of requirement of fertilizers, seed, water. For example, fertigation can be used to reduce consumption by of fertilizers by drip irrigation.

Remarks

### Productive

Precision farming and micro-irrigation also leads to enhanced productivity by giving specific solution and reducing wastage.

Hence there is need to promote use of such technologies in agriculture to make it inclusive, sustainable engine of overall economic growth.

### Remarks

Challenges in India for precision farming?  
Explain it and conclude it.

Q20. Food subsidy has increased six-fold over the past 10 years. In light of this, discuss the challenges in the effective implementation of Targeted Public Distribution System (TPDS) and alternatives to reform the existing machinery. (15 Marks)

⑥ TPDS system was slated to ensure following objectives:

- 1) securing remunerative prices for farmers.
- 2) Ensuring food security for all.
- 3) Control food price inflation during scarcity situations.

However, it suffers from several challenges such as:

~~How  
Food  
survive  
in  
present  
Due to  
fault  
newer  
service~~

Diversion of the foodgrains meant under TPDS system to open markets.

2) Poor quality of food grain delivered through TPDS system.

3) CGO report pointed out lack of adequate covered storage facilities leading to eating of food grains.

Remarks

- a) social centre approach of current TPDS system fails to address the issues of "hidden hunger", or malnutrition definitely.
- b) Benefits of procurement under TPDS reaches only 62 farmers as highlighted by Shanta Kumar Committee.
- c) State Food Commission and grievance redressal authority as mandated under NFSA had not been set up yet.
- d) Some scholars also point out that extremely low cost of food grains much below the economic cost is unsustainable.

### Some Solutions

- During procurement: preference should be given to procuring from the relatively backward regions and small farmers.

Remarks

- 2) Storage: To enhance storage capacity, private sector participation can be encouraged
- 3) Tracking of foodgrains: End to end computerisation of TPDS system as done in Chattisgarh, to minimise the leakages in the system.
- 4) Social Audit: A beneficiary led social audit mechanism of TPDS will help weed out fake beneficiaries.
- 5) Better authentication tools: Use of bar coded ration cards, Aadhar card can be used to ensure proper targeting.
- 6) Food coupons: Beneficiaries can be given food coupon with freedom to purchase food grain from any shop, it will reduce diversion.
- 7) Moving to nutrition security by adding pulses, eggs, poultry products in TPDS.

Remarks