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K. LALITH

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141

GENERAL STUDIES - PAPER III

Time Allowed: 3 hrs.

Max. Marks: 250

Q.	Marks	Instructions to Candidate
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- 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 K. Lalith

Roll No. _____

Mobile No. _____

Date 17th September 2018

Signature K. Lalith

1. Invigilator Signature _____

2. Invigilator Signature _____

REMARKS

Answers are well structured
Analysis is satisfactory
suitable points have been used to
describe the answers

SECTION - A

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

The newly launched Hydrocarbon Exploration & Licensing policy is based on C. Rangarajan Committee recommendations and has modified the ~~no profit sharing~~ model & replaced it with revenue sharing model and unified license for both oil and gas.

Need of HEP:

- (1) ONGC and other big companies did not find small fields economical.
- (2) Target to reduce dependency on foreign imports by 2022.
- (3) Small enterprises showed interest in the open acreage policy for small fields.

MERITS:

- (1) Government will realise extra revenue from this move.
- (2) Revenue sharing model will avoid gold plating of profits as mentioned by L&G.
- (3) Unified licensing will allow procedure to be efficient and cut red tapism which slows down allocation process.

Remarks

will not attract bidders due to excessive risk

(7) In any case, pricing would be revenue positive - for the government because if pricing is even below the market rate, government will be compensated on the market rate.

Demerits

- (1) Kalekar Committee highlighted the difficulties in open acreage licensing model which will thwart competition.
- (2) Free hand has been given in pricing or hydrocarbon exploration from deep ocean and ultra deep ocean areas.
- (3) Fluctuation in market prices due to freedom in cost setting by the companies.

Way forward -

The Karpal policy needs to be nationalised using Kalekar Committee recommendations and open acreage licensing must be done regularly for open competition.

⑥

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)

India through National Food Security Act (NFA) 2013 has sought to cover 69% of Indian population however the procurement system has following loopholes:-

- Only very states have actually benefitted from FCI's procurement policy like Punjab, Haryana etc.
- MSP's announced for around 23 crops but overemphasis on Rice and wheat is令人惊讶.
- There are leakages in procurement, around 48%, as registered in 2015.
- Lack of storage facilities leads to loss of grains and dumping in open market thereby distorting prices.

Shanta Kumar panel recommendations

- The procurement work should be delegated to states which have gained expertise & FCI should concentrate on situations of acute shortage.
- Price deficiency payment system should be encouraged in order to end to end computerisation

Remarks

FCI should return
stocking position

make TPDS more efficient.

- Negotiable warehouse receipts should be introduced to facilitate agrarian credit. Further the storage activities may be outsourced to private parties having better infrastructure.
- Panel recommended to avoid 'Cover And plinth' way of storage and build cold storage infrastructure.

WAY FORWARD

Both the regulator and intermediaries in procurement mechanism need to be trained and strengthened to avoid pilferage and leakage of grains. Ambit of MSP should be extended to pulses and oilseeds to maintain India's protein requirements.



Remarks

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

Cold War is the struggle between super powers to show each other their deterrence capabilities thereby maintaining global tensions yet no physical war.

During 1960's, Nuclear weapons were at the centrestage, however with Industrial Revolution 4.0, AI based cyber weapons have come into lime light resurrecting the Cold war in 21st century.

ANALYSIS

Reasons for

- Recent instances like Stuxnet use shows the potential of cyber weapons to ~~stop~~ sabotage military capabilities of any other country.
- Countries are developing AI based learning programmes for surveillance and espionage which is difficult to detect through conventional weapons.
- Even other countries have a potential reason to develop cyber weapons against those who have already ~~already~~ developed them, thus ~~resubmitting~~ ~~resubmitting~~

Remarks

will be able to ~~not~~ make use of more data or more attacks or AI coordinated attacks will be "real" launch up to "super world" super

Cold war Strategies. But reasons against:

- International agencies like UN have convened Geneva Convention which creates global consensus against such cyber weapons.
- Machine learning is a new normal and has potential benefits for humanity and development of AI should not be stopped due to its ill lit negatives.
- Countries like USA, Japan who are pioneers of cyber technology have come up with policies in developmental light instead of military capabilities.

CONCLUSION

There is a possibility of potential cold war using cyber weapons however it seems to be a far fetched argument in present

Remarks

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

(10 Marks)

Intelligence agencies refer to specialised bodies created by government for surveillance, internal security, espionage etc., with a dual purpose to maintain peace, within and beyond national borders.

Their work is not just confined to information gathering and dissemination but complements efforts of military, para-military, customs department thus ensuring internal security.

Few intelligence agencies are as follows:-

① RAW (Research and Analysis Wing)
 1968 created after successive China and Pakistan wars to maintain external espionage and to undertake covert operations, Helped in combating Pakistan forces at Siachen in 1980's.

② IB (Intelligence Bureau) formed in British era as a specialised body, currently undertakes collection of internal security related data

Remarks

within Indian territory.

③ FIU (Financial Intelligence Unit) under Ministry of Finance deals with Anti-Money Laundering activities, monitor and analyses suspicious financial transactions, currently complementing PCA efforts of RBI regarding NPA.

④ Department of Revenue Intelligence, works closely with the Customs department and stops illegal trade under CITES Convention.

⑤ Narcotics Bureau → Reduced illicit of trade & consumption of psychootropic substances in the country.
 Overall the intelligence framework is robust including NATGRID, NCSC, CBI, ED which brings integration in intelligence.

6

Remarks

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

Money Laundering Act 2002 (Re-enactment) It was a milestone in punishing generation of black money and illicit wealth however its implementation has not been prominent in the past decade due to cases of economic offences and fugitives rising in the recent time.

Amendments as per Finance Act

2018

- Corporate frauds under Companies Act 2013 have been enlisted as Statutory offences thereby converging the efforts of ROC (Registrar of Companies).
- Bail provisions in the PMLA have been rationalised in order to better facilitate working of ED.
- Allowed Bail Bonds upto ₹1 crore which will help in dealing with non serious economic offenders.

Remarks

- Physical property like Building etc. now included in proceeds from crime.

PROCEDURAL AMENDMENTS -

- The ED now has been given additional time of 90 Days to better analyse the property along with its attachment to realise higher price.
- Special courts have been envisaged to deal with money laundering to fast track crime.

CONCLUSION -

The Finance Act 2018 brings about structural and procedural changes in order to better facilitate work of ED.

⑥

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)

Balanced Regional Development is the aim of the Government to reduce the fiscal capacity distance in order to reduce the effect of pre-cautious and unbalanced development.

AMRUT and Smart city mission envisaged an expenditure of around 2 lakh crores to improve amenities in around 500+100 cities having more than 1 lakh population.

Smart city mission envisages:-

- Retrofitting.
- Rebuilding
- Green Space Development
- City amenities development

AMRUT mission envisages:-

- Project oriented Development.
- Revision of transportation and clean drinking water, sanitation
- India is expected to be 50%

Remarks

urbanised by 2050, however presently 65% of population reside in villages.

As per RURBAN Mission, 300 cluster of villages will be developed and linked with urbanisation and good amenities. Because:-

- providing urban amenities in rural areas to combat Hidden Urbanisation.
- SH - Bank linkage programmes could be better developed on a cluster model.
- RURBAN Mission envisages construction of houses and connectivity with internal roads and trunk roads, clean drinking and healthy water, sanitation component is in line with AMRUT provision.

thus, in totality, simultaneous development of both RURAL and URBAN Agglomeration will help India to achieve SDG 2015-2030 at the earliest.

(6)

Remarks

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

EARTH DAY is cele-
brated on the occasion of equi-
-not around 22nd April every
year. It started in 1970's by
UN's efforts towards making global
citizens aware about environ-
mental problems and the concept
of Earth overshoot.

- It signifies global efforts towards conservation of scarce resources and sustainable use for prolonged benefits through small efforts such as switching off electronics when not in use.
 - Avoiding ~~waste~~ water loss through faucet leakage.
 - Safe waste disposal and safe recycling facilities.

The theme of earth day 2018 was of Beating plastic pollution, it envisages:-

- Increasing awareness of corporates on single use plastics and its reduction.

Remarks

- Making citizens aware regarding recycle and reuse of plastic for better management.
- Sensitizing governments and local authorities around the world and their participation in an effective way.
- Single usage plastics have to be phased immediately.
- Emphasis on the emerging issue of Microplastics.

Overall Earth Day 2018 provide a roadmap towards tackling the plastic menace its safe usage and disposal by all countries.

(6)

- 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-choloro-fluoro-carbons (HCFCs). Examine the challenges involved in eliminating HCFCs from India and suggest some remedies. (10 Marks)

Montreal Protocol 1989, which was a binding treaty to protect the depleting ozone layer calls for phasing out ODS (ozone depleting substances) i.e., CFC's, HCFC's.

India has successfully implemented Phase I and has done away with the use of CFC's in refrigerants.

The 2nd phase talks about eliminating HCFC's and takes forward the cause of combating the menace from (2015 - 2030).

CHALLENGES IN ELIMINATION.

- The temperatures in cities across the world around are rising, urban areas are becoming urban heat islands
- Refrigerators usually used for commercial purposes like cold storage houses a stoppage

Remarks

- or reduced may distort true supply chain management.
- Retrofitting alternate equipments or refrigerant is an expensive affair
 - geographical location of India exposes more solar radiation thus further requiring use of refrigeration in future.

REMEDIES & WAY FORWARD

- Montreal protocol is a binding treaty and has penal provisions for non-compliance unlike Paris deal which is voluntary.
- Phased introduction of alternate cooling technologies and green building code will reduce the need of air conditioning.
- Incentivising innovations in technology and research in this field for retrofitting etc. Should be undertaken at the earliest on a challenge basis.

5½

Remarks
Very

- 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 use of gene technology in egg and sperm cells to make changes at the embryonic level. Unlike somatic cell gene therapy, germline therapy is being interpreted as an ethical issue world across.

It refers to editing the genetic composition of embryos to introduce desired traits in the baby.

ISSUES INVOLVED

Social → The concept of family and childbirth will have to be reinterpreted as newborns would be considered as an 'Biologically perfectable objects'

- The concept of designer baby would do away with the uniqueness in genetic code mapping thereby playing with nature.

Remarks

Ethical and medical concerns

- ↳ germline therapy would introduce permanent changes in an individual's characteristics.
- May lead to health issues as germline gene therapy is still under research.

Regulatory issues in India and world over

- No country has formulated a clear law to regulate this domain.
- Around 10 countries have recognised policy formulation, around 25 countries have made it a penal offence, however countries like India and China have broad policy wholesas.
- Countries like USA & UK are encouraging germline gene-editing technology. Recent case of 3 parent baby (UK) is a recent example.

(b) Thus, as a way forward, it offers great potential in curing non-communicable diseases such as cancer etc.

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)

According to the UNODC Office of Drug Controller, Drug Abuse is a rising menace which drugs cause youth to illicit activities and mostly so generated is used for terrorism.

Ministry of Social Justice's report states that around 70 million youth in India are prone to drug abuse, 10 Deaths happen every day due to consumption of psychotropic substances.

Reasons for Drug abuse

- Prevalence of poverty and unemployment leading to frustration and use.
- India falls between the golden crescent and golden triangle.
- India falls in the route of drug peddlers for illegal transport, mainly Punjab region.

Remarks

Government Measures

- Under Article 47 of Indian Constitution, DPSR, it becomes the responsibility of the government to prohibit drug and substance abuse.
- Narcotics Control & Psychotropic Substances Authority continuously work with breaking drug rededor chains.
- States like Punjab have reformed provision of death penalty for such crime.
- Ministry of Home, Health, Finance and Ministry of Commerce have synergised efforts in controlling illicit trade i.e. Highening custom clearance, prohibition on selling additive drugs without prescriptions or pharmaceuticals etc.
- greater emphasis should be given on rehabilitation mechanisms, skill development training, infrastructure development etc.

Remarks

61

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)

The PPP mode of construction of infrastructure projects was introduced by early 2000's however various models and types have been tried and tested.

Between (2007 - 2015) EPC (Engineering, Procurement, Laysle Construction) model was in use. But models like BOT-Tou, BOT-Annuity or Hybrid Annuity Method,

However due to administrative apathy and red-tapism in bureaucracy has become 'Build-Neglect-Rebuild'

Need of Infrastructure financing

- Remarks

- Ambitions sagarmala and bharatmala requires 10 trillion dollars which is a huge amount.
- Domestic sourcing of all funds not possible due to limitation of banking industry hence soft loan from international agencies are needed.

Issues plaguing PPP designing

- Land procurement is a major road-block due to improper implementation of LARR Act (Land Acquisition and Rehabilitation Act).
- Political instability leading to policy distortions thereby creating apprehension in private sector.
- Multiplicity of laws and difficulties in getting environment clearances for example, Posco wove up its operations from Odisha.
- Alternate development projects may sabotage the revenue stream under hybrid annuity thus dis-incentivizing private sector.

Remarks

inequitable effect
lack of any credible
guarantee system

Key challenges :-

- ① Quality of projects may be compromised due to corruption in allocation of bids etc.
- ② Profitability of private sector is in limbo if the projects are stalled due to litigation.
- ③ The skill of regulators in better monitoring of these projects is important.
- ④ Institutional capacity of Indian Banks for long term projects is low.

SOLUTIONS AND WAY FORWARD

- Government has envisaged IIFCL (India Infrastructure Finance Limited) for long term finance requirement.
- To partake in agreements between Bank's consortium, Borrower, Refinance agencies in order to smoothen the cash flow.
- Concepts like GIFT city, tripartite agreement or SPV's of such infrastructure projects enhances the speed of getting resources.

Remarks

8

- 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)

Government has envisaged speedy realisation of Digital India programme and is emphasising on e-governance as a mode of service delivery.

AADHAR CARD as a proof of identity is being linked to most of the government benefits for entitlement purposes.

Linking AADHAR with Nation Card, Driving license, PAN number etc. is creating a unified database that would facilitate cross KYC, LN alkhet (MoR Recommendations). This would facilitate faster identification of beneficiaries and targeted Direct Benefit transfers thereby reducing leakages.

Remarks

However the picture is not completely bright due to Issues like :-

- Cases of Data theft ~~are at~~ due to cybercrimes are at rise like 30 lakh ATM pins of SBI were leaked, Thiruvananthapuram Social Justice Department Data regarding beneficiaries and their Aadhar numbers were mistakenly displayed on their website.
- Aadhar Data involves biometrics which if intelligently planted can act as impersonation thus making the task of forensics difficult.
- No Audit mechanism of verifying the claims of UIDAI regarding Data Safety.
- Cloud storage of Data makes it even easier for hacking thus increasing vulnerability of Data.

Remarks

critical data will be stored on cloud platform and operates on data access option and operates on increasing every year

CHALLENGES AND WAY FORWARD.

- ① Infrastructure preparedness for data security is debatable. Countries like China mandate storage of any personal data of the citizens within the territory.
 - ② India has still not developed Quantum Computing mechanism to combat cyber crime as Data theft.
 - ③ Industry - Academia linkage is important for innovation in research for new solutions.
 - ④ Enforcement mechanism in India is relatively weak, intelligence agencies still do not complete a protection of online AADHAR Data.
- cyber Swamita Kendre
- and BOTNET clearing centres are in their nascent stages, government initiatives like E-Kavach and e-Kavach and 2 factor Authentication of AADHAR Data is a potential safeguard. A clear policy guideline regarding data theft and zero tolerance policy is need of the hour.

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)

In the recent report as to India's anti-climate change measures could be summarised as follows:-

- ① India was a pioneer in Kyoto protocol and envisaged the concept of CBR (Common but Differentiated Responsibilities) and called for creation of global climate fund of 100 Billion \$ in emerging economies.
- ② Active participant in Paris treaty in 2015 and announced ambitious INDC (Intended Nationally Determined Contributions) of reducing fossil fuel use of 40% by 2030 for power generation, by renewable sources, carbon sinks and sequesters should be created. Reducing 33% carbon intensity (2005 levels).
- ③ India has embarked on its ambitious programme NAPC having

Remarks

10/10

13 components, few of them are:-

- ① National Mission on Green energy, GRIDA Rating and Green HRGON BUILDING CODE.
- ② National Mission on Sustainable Development of Himalayan eco-system ~~etc~~
- ③ National Mission on Human Health, water, wind resources.
- ④ National mission on waste to energy, etc have been envisaged, to better manage solid waste, announced of HOBAR - DHAN is a clarion call in this direction.
- ⑤ R&D O Plus initiative for reforestation activities in developmental projects for maintaining and increasing green cover under the GREEN INDIA MISSION.

India has played a pioneer role in integrating efforts of solar energy rich countries between Tropics of Cancer and Capricorn and

Remarks

Launch of ambitious ISA
 (International Solar Alliance
 at NURUHARI).

The renewable energy production target has been created at 175 GW out of which 100 GW is from solar, 60 from wind, etc.

Out of 100 GW, 40 GW will come from rooftop solar installations. The country envisages SMART GRID and NET METERING mechanism to improve overall energy transmission. Currently India's electricity production is from coal based power plants which has to be reduced in future.

ISA is an innovative way for sourcing international finance to build renewable energy infrastructure. Here government is emphasising on local content requirement on developing indigenous capacity in photovoltaic cell technology. Such initiatives truly justify the analysis of WB.

Remarks

SW

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)

Poverty eradication could be best achieved through rapid development as envisaged by trickle down theory.

Such rapid rate of development entails consumption of fossil fuels which hasten the process of climate change and associated ill impacts.

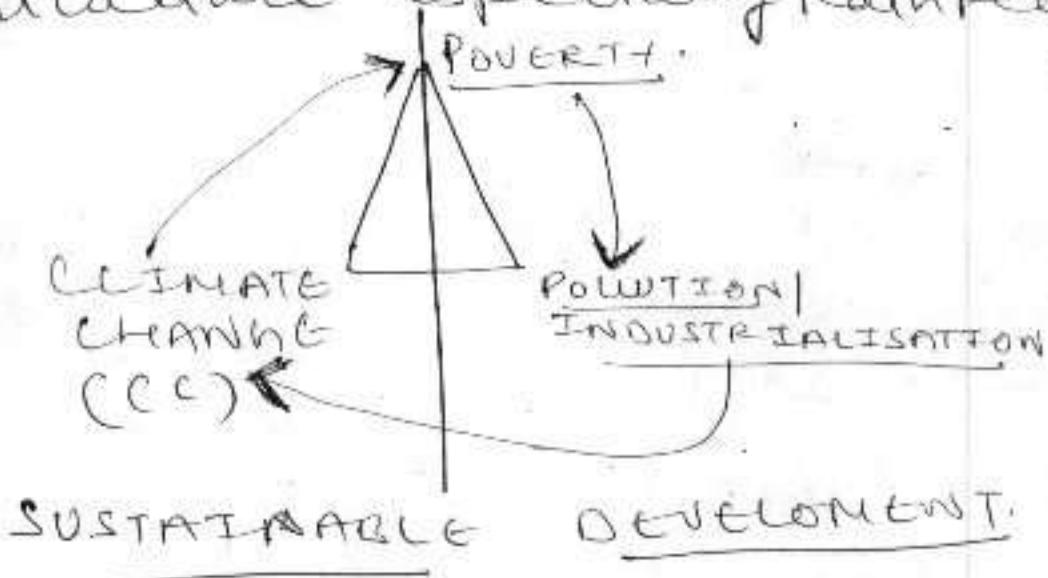
The target of sustainable development is the only way to reconcile both goals that is minimise poverty as well as climate change.

United Nations recognised such a need and transformed MDGs into Sustainable development goals 2015-2030.

India is chiefly an agrarian economy where 60%

Remarks

of total population relies on agriculture especially Rainfed.



Sustainable development is the solution to break this vicious circle.

IMPACT ON CLIMATE CHANGE

ON POVERTY

- CC leads to erratic monsoon which distorts agricultural productivity and further aggravates poverty.
- CC leads to change in biogeographical conditions which increases the risk of new diseases, makes poor vulnerable.
- Natural Disasters such as all Urban floods, cloud burst, forest fires, etc.

Remarks

Maintaining climate at planet's national and regional levels
. experiment of communities

most impact poor dwellings and are causal impacts of climate change.

- Government envisages poverty reduction through industrialisation which creates health hazards for poor. (Air pollution)

REMEDIAL MEASURES AND WAY FORWARD

- Basic human rights irrespective of rich or poor like health, shelter, clean drinking water needs to be provided to one and all.
- Shift towards green jobs is necessary to 緩和 climate change initiatives and alleviate poverty with such strategies (ILO)
- Developing low cost technology solutions for health due to industrial pollution need to be envisaged.

⑧

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)

Emission reduction is the most plausible and direct method of combating climate change as reiterated by various global conventions ranging from Earth Summit 1992 to Paris Treaty 2016.

Kyoto Protocol laid down a complete framework for trading emission reduction rights thus encouraging corporates to participate. However its implementation has been poor.

Green house gas potential emissions reduction is a long term challenge and mere reduction is not sufficient because:-

- ① The existing amount of green house gases will have to be reduced

Remarks

= Cumulative impact over time
 Temperature rise in the coming century. Even if all the emissions are stopped right away, the temperatures would rise and stabilise by 2100.

- ② The Paris target of controlling temperature to by 1.5° and 2° is not possible, through various scientific evidences. The damage to nature has started occurring rapidly and immediate radical measures need to be taken.

CLIMATE ENGINEERING SOLUTIONS

- ① Various countries have already tried projects like stratospheric cloud seeding by artificially spreading hydrosolopible particles in the air to act as cloud condensation nuclei. In drought prone regions.

↳ Analysis → Increase in Air pollution, may lead to Smog formation as secondary pollutant.

• Expensive Technology and a temporary measure.

Remarks

② Increasing Albedo effect by engineering cirrus clouds to reflect solar energy back.

- ↳ Analysis :-
- Commercially not viable
 - Has relatively less impact at ground level.

③ Scientists have witnessed volcanic eruptions and dust in the upper atmosphere reduction in global temperature, such artificial techniques are envisaged to raise the cooling effect.

- ↳ Analysis :-
- May lead to sudden rise of persistent organic pollutants and airborne diseases.

- Hindrance in Airborne transportation.

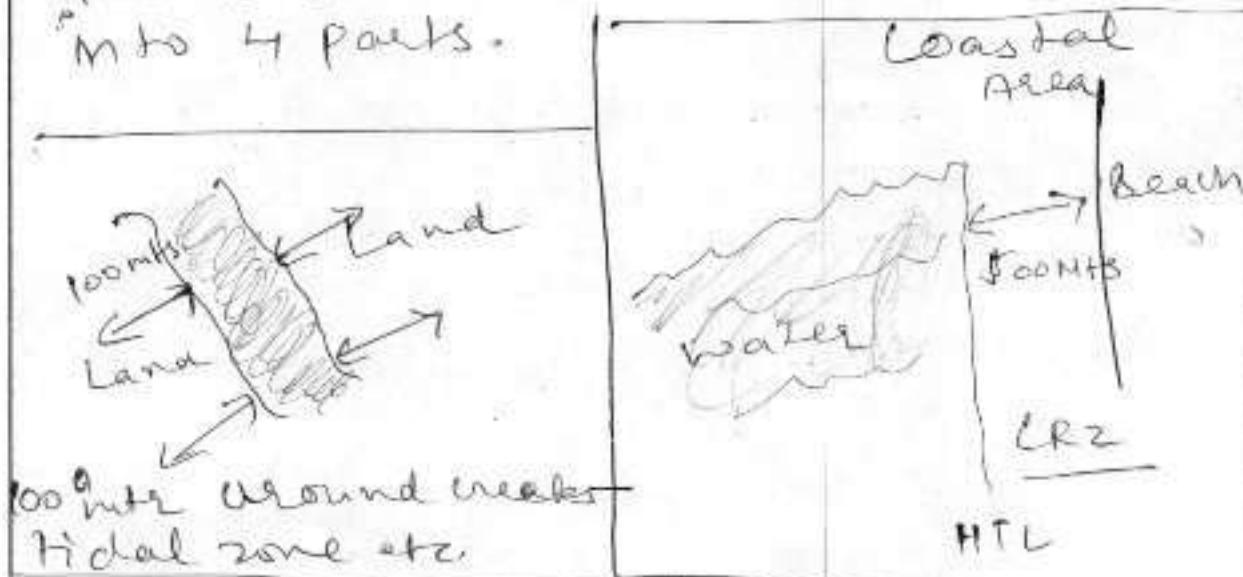
In view of the above it can be still argued that emission reduction is currently the most viable technique to combat climate change as climate engineering techniques would take time to develop at global level and the concept of sustainable development calls for immediate and gradual action.

Remarks

8½

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)

Coastal Regulation zone refers to geographical demarcation near zones Coasts and other inland features i.e., creeks, backwaters, proposed by central government for development and preservation of these regions. These zones have been divided into 4 parts.



CRZ-1 is from High tide line to Low tide line

CRZ-2 is till 100 meters in the coastal areas.

CRZ-3 → 100 - 500 mts. towards land and

CRZ-4 → Lining the aquatic region

Remarks

in territorial waters in CR2-I only salt extraction and oil exploration is allowed. Till CR2-II limited economic activities are allowed similarly in CR2-3.

Amendment in CR2 rules are :-

- ① The CR2-II has been reduced 200 to 100 meters as was earlier.
- ② Areas around creeks and tidal zones have been reduced to 50 mts from 100 meters.
- ③ Liberty to perform greater commercial activities of tourism like temporary installations in CR2 and 3 is allowed for example drinking water facilities, toilets, make shift houses etc.

and

CONCERNs ASSOCIATED

- Environmental activists are apprehensive of destruction of CR2 due to increased commercialisation.
- The ambiguities ^{about} jurisdiction

Remarks

of power of central & states in such zones still remains.

- Fiscal devolution for management of CRZ is highly skewed in the favour of tourism rich states which negates balanced regional growth.
- In totality, the CRZ scheme is a positive initiative towards conservation sustainability of coastal regions and empowerment of coastal youth and communities too, also promoting coastal tourism.

8k

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)

Currently India has a 2% share in global biotech manufacturing industry, government through Biotechnology Strategy (2015-2020) aims at increasing the potential of biotech sector to 100 Billion \$ through the latest strategy.

CHALLENGES IN INDIA

- ① Lack of enough industry-academia linkage thereby falling short in research and innovation activities.
- ② Lack of infrastructure, limited national laboratories for experimentation.
- ③ Lack of financial support to startups due to fiscal constraints and difficult availability of institutional finance as these initiatives are risky.

Remarks

- (1) Lack of incentives by the government prior to this strategy.
- (2) Early Harvest mechanisms to implement research findings in commercial applications face legal hurdles, transition takes time (Labs to Market).
- (3) Backward forward linkages are the greatest challenge as biotechnology is a nascent market in India hence awareness is still required.

- (4) Profitability is a key challenge as initial cost of R&D are huge and India is a price-sensitive market.

NATIONAL BIOTECHNOLOGY DEVELOPMENT STRATEGY is a solution.

- Addresses various challenges like Industry-academia linkages, Institutional credit facilities, forgesation

Remarks

build skilled research facilities
improve

of incubation centres across the country on PPP model.

- All the above mentioned ultimately leads to realise the 100 Billion \$ by 2020.

(B)

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)

fast advancing changes in the field of science of new age is a global wave which India needs to surf on to become an economic superpower and knowledge hub.

Indo-Japan bilateral relations offer huge investment potential inward as follows:-

- ① Complementary efforts, Japanese hardware technology coupled with Indian ingenuity in software will create a overall global product.
- ② Single window clearance system towards and red carpet initiative for Japanese Ease of Doing business in India would further facilitate inward investment in hardware.
- ③ Japan is a pioneer in robotics and application of machine learning which helps India in cost

Remarks

Cutting techniques in Public service delivery.

④ Innovative India project of government and CII PANjab have increased IP creation in India especially in the software domain.

Industrial Revolution 4.0 has made it clear that the future world is going to be more of automation and robotics and India being an aspiring superpower cannot ignore the call.

Japan helps India not only technology wise but also through soft loans to purchase such technologies (ODA). Potential technology transfers between India and Japan in the field of AI has increased in the last five years.

Remarks

Potential Applications and Way forwards.

- ① In Disaster management like fire fighting robots, forklifts in congested urban areas.
- ② Perform mundane activities such as Solid Waste management.
- ③ Robotics limbs as assisted living devices for differently abled.
- ④ Indo-Japanese collaboration in Supercomputer technology for meteorological advancements etc are the way forwards.

(SY)

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 refers to usage of farm inputs in a scientific manner thereby increasing overall productivity by reducing wastage of scarce resources.

Few precision farming techniques are:-

- Rice intensification system (SRI), which uses very less water for cultivation of paddy in water stress condition.

Drip irrigation for direct delivery of fertilizers to the roots, laser levelling of farmland to reduce top soil erosion and sparing of planting material etc.

Precision Farming

Remarks

is one component of ambitious target of doubling farmers income by 2022 by making agriculture more productive, profitable and sustainable.

- (1) Profitability to be ensured by market initiatives like reforms in APMC's, nationalisation of MSP (Budget announcement of 1.5 times MSP).
- (2) Sustainability to be ensured through model land leasing policy through NITI AAYOG, encouraging contract farming for fiscal benefits & farmer welfare.
- (3) Productivity to be ensured through improving agricultural inputs by quality planting material, availability of water through Pradhan Mantri ~~Bharat~~ Krishi Sinchay Yojna,

Remarks

rational use of fertilisers and pesticides. Profitability to be increased by shifting from low value to high value commodities like agriculture.

Precision Farming to be extended through farm extension programmes, Gram Vikas, Gram Sahayadri initiative through association of scientists with Villages and AKYA scheme (Attracting & Retaining youth in Agriculture).

It is rightly said that future evolution in agriculture would come from Microirrigation like Drip and SPRINKLER IRRIGATION. Given that water is going to be scarce in future, however, precision farming techniques are costly and require scientific application hence adequate education of farming community is a prerequisite for its success.

Remarks

87

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)

Food subsidy is a major component of overall subsidy burden of government.

1.25 lakh crores out of 8 lakh crores is the quantum of food subsidy out of the total.

However it is relatively very less in comparison to revenue forgone forgone through corporate tax. Hence food subsidies can't be ~~blamed~~ criticised as they are socio-political measures in the wake of NFSA.

2013.

CHALLENGES IN IMPLEMENTATION OF TPDS

① As per TPDS, there is

② As per research, there is a 60% exclusion and 25% inclusion error in PDS beneficiaries.

Remarks

- (2) Collusive corruption between PDS Shop Owners and intermediaries leading to bogus allocation of grains.
 - (3) Infrastructure deficiencies are acting as roadblocks to incorporate technology solutions in T PDS.
 - (4) Agriculture is a state subject hence statewise policy & distortion leads to breakage in forward/backward linkage in procurement and distribution mechanism.
 - (5) Lack of awareness among citizens leads to pseudo dissentiments.
 - (6) Non implementation of Sanchay Kisan Panel recommendations regarding reforms in PDS system.
- Thus, price deficiency payment system (NITI AAYOG)
Action plan, Direct Benefit Transfer in Beneficiary Bank A/c

Remarks

to ensure quality of offtake.

Alternative Methods and Way forward -

- Connecting Aadhaar Card with ration card to avoid exclusion and inclusion errors.
- Electronic PDS (Computerisation) Identification with the use of POS (Point of Sale) machines, where beneficiaries can swipe their card which will also help in analysing overall beneficiary offtake on a monthly basis.
- Total inclusion methods in some states like Tamil Nadu, where every citizen is entitled to PDS irrespective of income level. However, it may add to fiscal burden of the state.

Overall biometric authentication of beneficiaries through training of PDS shop owners is the most scientific method.

Remarks