



# VISION IAS

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## GENERAL STUDIES (TEST CODE : 2420)

|                   |            |                     |          |
|-------------------|------------|---------------------|----------|
| Name of Candidate | ATUL TYAGI |                     |          |
| Medium Eng./Hindi | ENGLISH    | Registration Number |          |
| Center            | ONLINE     | Date                | 30/08/23 |

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

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

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

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6.

All the Best

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1. भारत में राज्यों की राजकोषीय स्थिरता से संबंधित मौजूदा मुद्दों का परीक्षण कीजिए। इन मुद्दों के समाधान हेतु किन उपायों की आवश्यकता है?

Examine the persisting issues related to fiscal stability of states in India.  
What measures are needed to address these issues? (Answer in 150 words) 10

Fiscal stability refers to judicious use of public money to meet the goals of good governance. Guidelines for the same have been laid out in the FRBM Act, 2003.

### Issues of states' fiscal stability

- ① Increased spending due to exigencies like the COVID-crisis.
- ② Consequent rise in the fiscal deficit  
i.e. Breached 90% of center and state combined of the GDP.
- ③ Federal sharing principles disturbed as:
  - GST compensation stalled
  - COVID as 'Act of God' for force majeure by the center.
- ④ Limited bond market development for states and local bodies for generation

of finances.

- ① Derailing quality of expenditure
  - populist measures: 'revdi' culture of freebies.
  - farm loan waivers.
  - subsidy burden.

### 1 Measures

- ① Escape clause of FRBM to be invoked  
i.e. Borrowing limits raised from 3% to 5% of GDP.
- ② Integration of PFMS across states and between center-states.
- ③ Strengthen federal institutions like the GST council and finance commission's evolution.
- ④ Proposed public debt management agency to be established.
- ⑤ Rationalise expenditure like food and fuel subsidies and use DBT to check leakages.

Bimal Jalan committee's recommendations are key for this fiscal consolidation and efficiency.



2. उत्पादन से संबद्ध प्रोत्साहन (PLI) योजना आत्मनिर्भर भारत के लक्ष्य की प्राप्ति हेतु सरकार की प्रकार सहायता कर सकती है? इसके उद्देश्यों को प्राप्त करने में आने वाली चुनौतियों क्या हैं?  
How can the Production Linked Incentive (PLI) Scheme help in achieving an Atmanirbhar Bharat? What are the challenges in realizing its objectives?  
(Answer in 150 words) 10

Atmanirbhar Bharat aims at making India a self-reliant manufacturing hub for the world. PLI plays a crucial role by providing incentives to Mate in India based on incremental sales in 14 sectors.

### PLI for Atmanirbhar Bharat

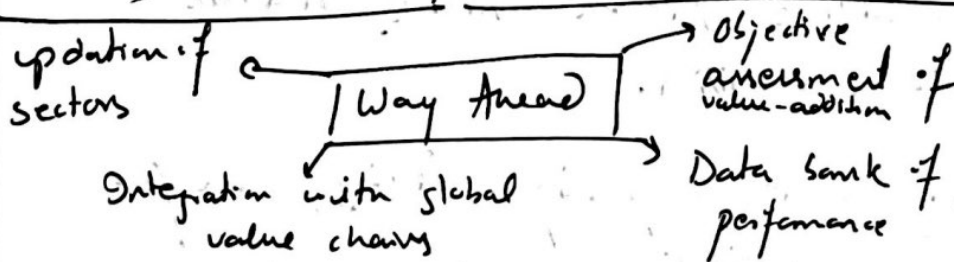
- ① Stimulus for production in India by both, domestic and foreign companies.
- ② Furthermore, provides protection to domestic manufacturers through tariffs on value foreign competition.
- ③ Along with capacity building, aim for import substitution such as in PV Solar cells, electronic hardware etc.

④ Provide robust export base to counter India's import bill  
 ↳ 80% of oil needs from imports, leading to trade deficit.

⑤ Harness comparative advantage through labour intensive sectors like textile under PLI.

### 1 Concerns

- ① Selection of sectors to be based on numerous factors: India's capability, market demand etc.
- ② Lack of global value chain connection  
 ↳ India stepped out of RCEP.
- ③ Assembly over value addition: Lower value added in more assembly lines  
 ↳ Mobile chips.



PLI holds the potential to reach India's \$5 trillion goal. Strengthening it is the way to reach that aim.

3. जलवायु परिवर्तन में वृद्धि से मोटे अनाज की खेती का पुनरुद्धार किस प्रकार हो रहा है? भारत में मोटे अनाज के उत्पादन को बढ़ावा देने के लिए सरकार द्वारा क्या कदम उठाए गए हैं?

How is the advent of climate change leading to the revival of cultivation of millets? What steps have been taken by the government to give an impetus to millet production in India? (Answer in 150 words) 10

India stands as the 5<sup>th</sup> most vulnerable country as per the Global Climate Risk Index. This also hints at food security for which millets are a way ahead.

Climate — change → Millets cultivation

- ① Climate change has risen global temperatures and need drought resistant crops like jowar and bajra.
- ② Furthermore, extremities have risen further in form of extreme weather patterns and thus sturdy millets are a solution.
- ③ Nutritional security is also under threat with climate change and millets provide micronutrients.

(4) Indiscriminate use of water resources is becoming necessary with climate change and millets need lesser irrigation than rice and wheat.

(5) Ecological restoration: by preserving soil fertility that slows land degradation: millets need less fertilisers and pesticides.

### Steps taken

(1) Policy push: Declaring year of millets and commitment to increase production.

(2) International collaboration: by pitching in the UN, G-20 guest lunch based on millets etc.

(3) Inclusion of millets in MSP  
⇒ Jawar, bajra, ragi.

(4) Use of traditional farming and ZONF for local millets.

(5) Diversification under PosHAN Ashiyon  
⇒ Poshan verticals in schools under NEP.

Millets thus serve the twin purpose of ecological sustainability and nutritional needs. It aligns with Swarinathan's idea of evergreen revolution.



4. चारे की खराब गुणवत्ता और उसकी अपर्याप्त उपलब्धता भारत में पशुधन की कम उत्पादकता के लिए उत्तरदायी प्रमुख कारण हैं। चर्चा कीजिए।  
Poor quality and inadequate availability of feeds and fodder are the major reasons behind the low productivity of the livestock in India. Discuss.  
(Answer in 150 words) 10

Livestock contributes 25% of the agriculture output. Moreover, India has the largest number of livestock in the world. (Livestock census - 20), its centrality is proportional to its productivity.

Poor feed and fodder → low productivity

- ① Ecological encroachment on traditional grasslands have reduced access and affordability of natural fodder, reducing livestock health.
- ② Land degradation like acidity and desertification has further reduced quality fodder and feeder.
- ③ Increased urbanisation has not only reduced pasture-land, but also infused pollution and plastic in livestock diet.  
eg) free-ranging cattle in Gujarat cities.

- ④ Inflation and fluctuating prices have also come at a compromise to livestock feed and fodder.
- ⑤ Lack of scientific feed life food fortification reduces productivity further.

### Way Ahead

- ① Provide fodder support as the expenditure on allied services is minimum right now.
  - ② Encourage healthy farm practices  
 i.e. Stubble burning diverted to feed.
  - ③ Integrated farming such as fisheries and farm pond with animal manure.
  - ④ Income support like Ryththu Bandhu.
  - ⑤ Farm extension services for scientific farming i.e. Livestock health farm Kisan Kendras.
- "If the farmer is rich, so is the nation."  
 Livestock can play a major role in doubling farmer incomes.

5. एकीकृत कीट प्रबंधन (IPM) क्या है? IPM के उद्देश्यों पर प्रकाश डालते हुए, इसके विभिन्न घटकों पर चर्चा कीजिए।

What is Integrated Pest Management (IPM)? State its objectives and discuss its various components. (Answer in 150 words) 10

Integrated pest management amalgamates various cycles of crop production as well as both natural and artificial methods to counter pests. It aims at using a multi-pronged approach over undue application of pesticides alone.

### Objectives

- ① Aim for pest control at every stage of crop-cycle:

Seed → Sowing healthy seeds → growing stage  
↑  
Storage ← Harvest ← Maturation

- ② Minimise excessive use of artificial pesticides

- ③ Assist it's role with natural means of weed-eradication, pest management: Nature based solutions.

- ④ Ensure health of soil and water resources by sticking to natural means.
- ⑤ Provide quality products to the consumers.

### Components

- ① Sowing : Selection of healthy and pest resistant crop-varieties.  
     *ie* Scientific fertilification.
- ② Maturation : control of pest-infestation of the field  
     *ie* Optimised pesticide use, physical checks, entry-barriers for big animals etc.
- ③ Natural solutions : *ie* Snakes in rat-infested fields; allelopathy for weeds
- ④ Post-harvest : Ensure safe-storage, as against damage from unsafe practices like open plinth storerooms.

IPM not only ensures a healthy ecosystem it also reduces cost and gives quality to consumers. Shifts to organic foods can be harnessed through IPM.

6. आपदा जोखिम न्यूनीकरण में अंतर्राष्ट्रीय सहयोग के महत्व की व्याख्या कीजिए। भारत ने आपदाओं को कम करने के लिए क्षेत्रीय सहयोग को मजबूत करने के लिए क्या पहल की है?

Explain the significance of international cooperation in disaster risk reduction. What initiatives has India taken to strengthen regional cooperation for reducing disasters? (Answer in 150 words) 10

Sendai framework has been the guiding path for the world towards disaster risk resilience (DRR). It aims to find common solutions to common problems affecting humanity.

### Significance of international cooperation

- ① Address problems without parast:  
such as climate change which is the leading cause of extremities induced natural disasters.
- ② Exchange of best practices  
i.e. Japan's advances in earthquake-resistant cities.
- ③ Collective capacity building  
i.e. India's CDRI initiative.
- ④ Exchange of greivances across regions.



10) China's reservation on Japan releasing water from Fukushima nuclear station in the regional seas.

③ Humanitarian assistance for safety of all

10) COVID pandemic life disaster where:  
"no one was safe, until everyone was safe." - India's vaccine motto.

### 1 STEP Taken

① Use regional organisations for cooperation

10) SAADMEX exercise of SAARC for disaster preparedness.

② Institutional framework like CDR.

③ Policy formulation like India's

HADR (human assistance and disaster resilience) through SAGAR doctrine in the Indian ocean.

④ Academic connect 10) Delhi declaration on implementation of SENDAI through NIDM (National Institute of Disaster Management).

Yokohama strategy of DRR shall thus drive the world for unified efforts for collective security.

7. अत्यधिक और अविवेकपूर्ण रेत खनन की पारिस्थितिक लागत इसके आर्थिक लाभों से कहीं अधिक है। संधारणीय रेत खनन के महत्व के संदर्भ में चर्चा कीजिए।

The ecological cost of excessive and indiscriminate sand mining far outweighs its economic benefits. Discuss in context of the importance of sustainable sand mining. (Answer in 150 words)

10

Sand mining is done to extract building material. Thus, though of economic significance it has ecological fallouts to it if EIA is not alligned (Environment Impact assessment).

### Ecological costs

- ① Destabilises the river banks and thus can impact the course of rivers.
- ② Consequent impact on flood plains by breaching and flooding of water bodies.
- ③ Harmful to the vegetational and wildlife habitat.
- ④ Degradation of quality of the ecosystem such as infusion of pollution from machinery.

- ⑤ Inhibits ecosystem services like ground-water recharge and hydrological cycle.

Therefore, need for sustainable sand mining is evermore important for the economic benefits with balance:

- ① Demarcation of ecologically sensitive zones that are out of bounds.  
i.e. Kastirangan committee also for western sheets.
- ② Environment Impact Assessment as the pre-requisite to grant license and permits.
- ③ Biological shields and compensatory afforestation through CAMPA funds!
- ④ Carrying capacity limitations such as limited quantity and time periods permitted.
- ⑤ Public participation such as trials to use traditional best practices.

"There is no plan B as there is no planet B."  
Thus, economy has to be balanced with ecology.

8. थिएटराइजेशन योजनाओं के पीछे निहित तर्क पर चर्चा कीजिए, जो भारत में रक्षा बलों को विशिष्ट थिएटर कमांड में एकीकृत करना है। इससे जुड़ी चुनौतियां क्या हैं?

Discuss the rationale behind theaterisation plans, which seek to integrate the defence forces into specific theatre commands in India. What are the associated challenges? (Answer in 150 words) 10

Office of CDS (Chief of Defence Staff) has been created with the eventual aim to synergy based theatres. This is a step towards modern-military management.

### 1 Rationale

- ① Lessons from history : Kargil commission saw the lack of coordination between the three forces during the Kargil war.
- ② Exchange of best practices  
 i.e. Navy's capital advancements and research.

Major theatres  
proposed in  
India



- ③ Reduction of duplicity of efforts in separate forces.
- ④ Holistic preparation on land-air-water based on borders  
 $\Rightarrow$  Western command for Pakistan border.
- ⑤ Best international practice  $\Rightarrow$  Done in USA and China.

### Concerns

- ① Inertia of the three forces due to present independent domains.
- ② Silos-based demarcation so far, leads to status-quoist approach.
- ③ Limited infrastructure  $\Rightarrow$  Air force has raised concerns to share flight capabilities which are already below capacity.
- ④ Lack of institutional precedents  
 $\Rightarrow$  CDS was formed only in 2018.
- ⑤ Overhauling of current structure  $\Rightarrow$  separate commands.

Lieutenant General Anil Chauhan has said theaterisation as the step for unified National security strategy. It shall lead to a leaner and fitter defence force.



9. व्याख्या कीजिए कि धन शोधन (मनी लॉन्ड्रिंग) के लिए शेल कंपनियों का उपयोग कैसे किया जाता है। भारत में धन शोधन के लिए शेल कंपनियों के उपयोग को रोकने के लिए क्या कदम उठाए गए हैं?

Describe how shell companies are used for money laundering. What steps have been taken to curb the use of shell companies for money laundering in India? (Answer in 150 words)

10

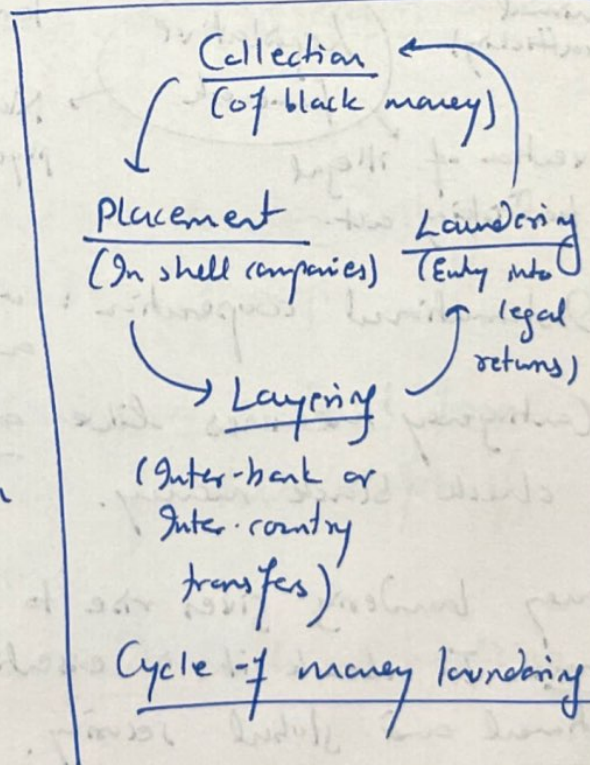
Money laundering is the layering of black money into legal channels. This is detrimental to the exchequer and gives rise to corruption and other illegal activities like trafficking.

### Use of shell companies

- ① Used to collect and place money from illegal sources.

- ② There are then layered in jurisdictions with minimal checks

→ Switzerland,  
Mauritius.



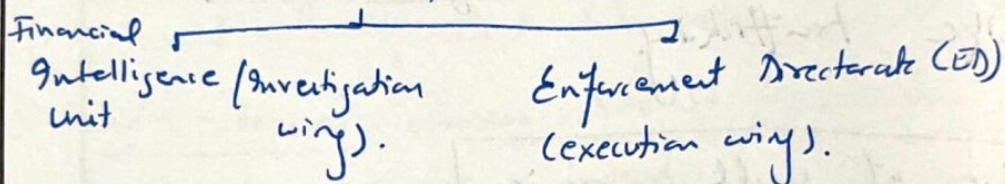


- ③ The same money is then invested in any alternate business venture to enter the legal market.

Shell companies are thus non-functional in themselves and merely act as channels for the money laundering cycle.

### Steps taken

- ① Institutional framework



- ② Wildlife protection act (for animal trafficking)

Prevention of illegal trafficking act.

Legislative framework

Prevention of money laundering Act

Narcotics and psychotropic substances etc

- ③ International cooperation : with INTERPOL and CBF.

- ④ Contingency measures like demonetisation to check black money.

Money laundering gives rise to subsidiary crimes. To check it is essential for national and global security.



10. भारत ने हाल ही में अपना पहला जैविक डेटा केंद्र स्थापित किया है। इसके उद्देश्य और महत्व क्या हैं?

India has recently set up its first Biological Data Centre. What are its objectives and significance? (Answer in 150 words) 10

Data is the new fuel, driving the 4<sup>th</sup> industrial revolution. In the wake of this, India has pioneered a Biological Data center to harness scientific biological resources for evidence-based decision making.

### Objectives

- ① Use biological data such as genetics makeup for research and explorations.
- ② Assist in objective decision making based on scientific findings.
- ③ Abide by Cartegena protocol for equitable sharing of the benefits of biological resources.
- ④ Create common goods such as medicines, vaccines etc.



## 1 Significance

- ① Central in countering rising health emergencies like COVID pandemic  
 i.e. Vaccine development.
- ② Predicting the health metrics of the future:  
 i.e. Genetic liability to disease-prone elements.
- ③ Consequently form policies with a vision  
 i.e. Need for geriatric care, life-style disease treatment etc.
- ④ Cure of existing ailments like AIDS.
- ⑤ International collaboration through exchange of data, research, technology etc.
- ⑥ 'One Health' concept by measuring environmental pollutants.

While ensuring data protection, the bank holds the possibility to revolutionise health sector. It aligns with India's Digital Health mission to achieve SDG-3.



11. भारत में तीव्र शहरीकरण को देखते हुए, शहरी क्षेत्रों में पूंजी निवेश की बढ़ती मांग को पूरा करने के लिए म्युनिसिपल बॉण्ड्स का उपयोग करना आवश्यक हो गया है। चर्चा कीजिए।  
In view of India's rapid urbanisation, it has become imperative to tap into municipal bonds to meet the rising demand of capital investment in urban areas. Discuss. (Answer in 250 words)

15

Despite only 3% of landmass, urban areas contribute 60% to world's GDP. This is true for India too which leads to the increase of urban areas from 32% to 40% by 2030 (UN urbanisation prospects report, 2019). Financing is a central focus for that.

Demand for capital investment municipal bonds needed

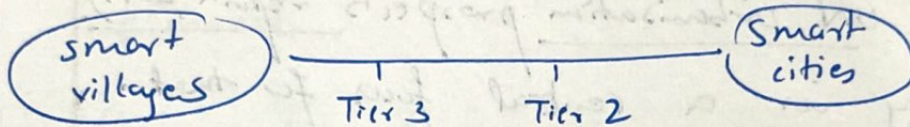
- ① Cities as the agglomeration of infrastructure:  
physical: Roads, building, power.  
digital: Network connectivity, IT hubs like Bangalore.
- ② Policy push such as SMART cities program need finances.
- ③ International collaboration like LOTUS and TULIP schemes with Nordic nations



can succeed only with adequate funding.

(4) Formation of new urban centers like GIFT city of Gujarat needs heavy investments.

(5) Expansion of existing cities too for regional development:



(6) Social justice: by the provision of basic necessities like affordable housing, water and sanitation, sewage lines etc.

For all these reasons, municipal bonds are of leading importance to assure:

(7) Self-sufficiency by own capacity to raise funds ~~by~~ from bond markets.

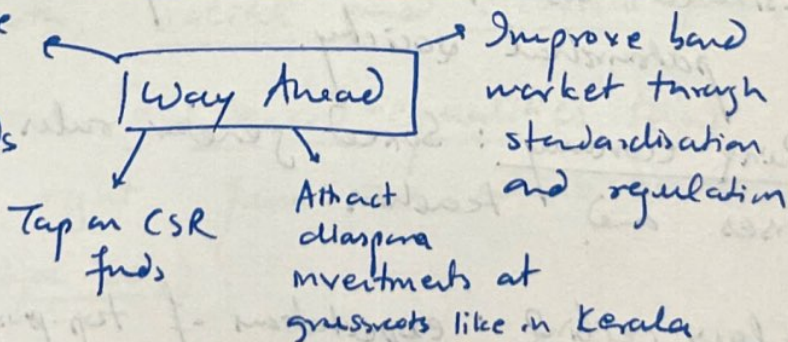
(8) Gives flexibility to Urban local bodies for need based expenditure as against



tied grants from states and centers.

- ③ Scope for local solutions to local problems by self-fund generation
  - ⇒ Done by panchayati institutions like Mangalajodi eco-tourism model in Odisha.
- ⑩ Better income-generation due to responsibility of re-payment
  - ⇒ Improved services for fee, better tax collection etc.
- ⑪ Bottoms-up development paradigm by ULBs.
- ⑫ True principle of subsidiarity by providing funds and functions at grassroots.
- ⑬ Tap on the private-sector due to limited capacity of the government.

Innovative methods like green bonds



Municipal bonds shall lead to true cooperative federalism and sabka Vikas through sabka Prayas.



12. भारत ने आर्थिक संवृद्धि, महिला शिक्षा और प्रजनन दर जैसे विभिन्न विकास मानदंडों पर महत्वपूर्ण प्रगति हासिल की है। हालांकि, देश की महिला श्रम बल भागीदारी दर (FLFPR) वैश्विक स्तर पर सबसे कम है। चर्चा कीजिए। भारत में FLFPR में सुधार के लिए कौन-से कदम उठाए जा सकते हैं?
- India has achieved significant strides in various development parameters such as economic growth, women's education, and fertility rates. However, the country's Female Labour Force Participation Rate (FLFPR) remains amongst the lowest in the world. Discuss. What measures can be taken to improve the FLFPR in India? (Answer in 250 words) 15

India is the 3<sup>rd</sup> largest economy on Purchasing power parity terms. Women now make half of the higher education share and fertility has reached replacement rate of 2.1.

Yet, our Female LFPR is 24%, due to many reasons:

### 1) Reasons for low FLFPR

- ① Domestic burden as household chores considered as the domain of women in patriarchal society.
- ② Pink economy: Sexed gender roles like nurses and teachers.
- ③ Glass ceiling: expectations of top-posts to be the domain of males.



- (4) Gender pay gap: women earn 34% less than men globally (ILO report).
- (5) Sex Workspace culture: instances of sexual harassment at workplaces discouraging women participation (Vishakha guidelines).
- (6) Skewed economic structure
- ↙ Feminisation of agriculture on one hand  
 ↘ High skilled service sector jobs as the other end.
- (7) Lack of end-to-end connectivity  
 i.e. Safe public transport, 12 night shifts etc.

### Measures

A multi-pronged approach is needed on both, social and economic fronts:

- (1) Address gendered inequalities that start right from the womb to tomb (Amartya Sen):

Mortality → Basic necessities → special opportunities

(Beti Bachho, (Health and (Political and  
Beti Padho) Education) economic participation)



- ② Address root causes like child/early marriage that prevent women entering into workforce.
  - ③ Special emphasis on female recruitments such as in college placements.
  - ④ Retention of female workforce  
 i.e. Maternity leaves, creche facilities so that familial burdens don't come at the expense of career.
  - ⑤ Safe work-culture through gender sensitisation. i.e. Internal complaint committees.
  - ⑥ Women-centric sector modification  
 i.e. Gender appropriate fams implement.
  - ⑦ Ownership and credit access to women  
 i.e. STMs.
  - ⑧ Awareness generation for educated women who choose to refrain from economic participation due to male counterparts.
- India's GDP can grow 27% faster if women participate at par with men (WEF). We need this for gender justice as well as growth.



13. फसल कटाई के बाद की मूल्य श्रृंखला में अक्षमताओं के कारण लघु और सीमांत किसानों की आजीविका पर अत्यधिक प्रतिकूल प्रभाव पड़ने के साथ-साथ फसल की हानि हो रही है। भारत के संदर्भ में चर्चा कीजिए। इन चिंताओं को दूर करने के लिए सरकार ने क्या कदम उठाए हैं?

The inefficiencies in post-harvest value chain are leading to crop losses, with significant adverse impact on the livelihood of small and marginal farmers. Discuss in the context of India. What steps has the government taken to address these concerns? (Answer in 250 words) 15

86.1% of Indians are small and marginal farmers. Yet, Dalwai committee estimates 92,600 crore annual losses in post-harvest stage. This is an impediment at two fronts:

Post-harvest value chain losses

Crop-loss

- ① Poor storage facility  
 ↳ Plinth-based open warehouses.
- ② Lack of cold-storage facilities:  
 reducing shelf-life of crops.
- ③ Poor transportation logistics:  
 ↳ CAG report has highlighted the losses during transit stage.
- ④ Lack of food processing which



limits value addition like  
packaging, preservation, marketing etc.

- ⑤ Limited coverage of procurement  
 i.e. National food security act covering  
 only wheat and rice.

### Livelihood of small and marginal farmers

- ① Lack of institutional coverage:

i.e. Shanta Kumar committee: only 6%  
 farmers get benefits of MSP.

- ② Low bargaining powers under middlemen  
 in APMCs.

- ③ Limitations on market access and price discovery  
 i.e. limited area sugar mills  
 for Fair and remunerative pricing.

- ④ Limited capacity of cooperative or  
model contract farming.

### 1 Steps

#### PROCUREMENT

- ① Diversification

→ More crops → 16 vegetables  
 procured in  
 Kerala  
 → channels → Local procurement  
 by states and civil  
 society



1cy) Delhi's Roti roti  
achhika abhiya.

### TRANSPORTATION

- ② Use of cluster-based approach through FPOs.
- ③ Farm-gate model, especially in organic products demand and eco-tourism.  
 1cy) Mangalajodi model in Odisha.

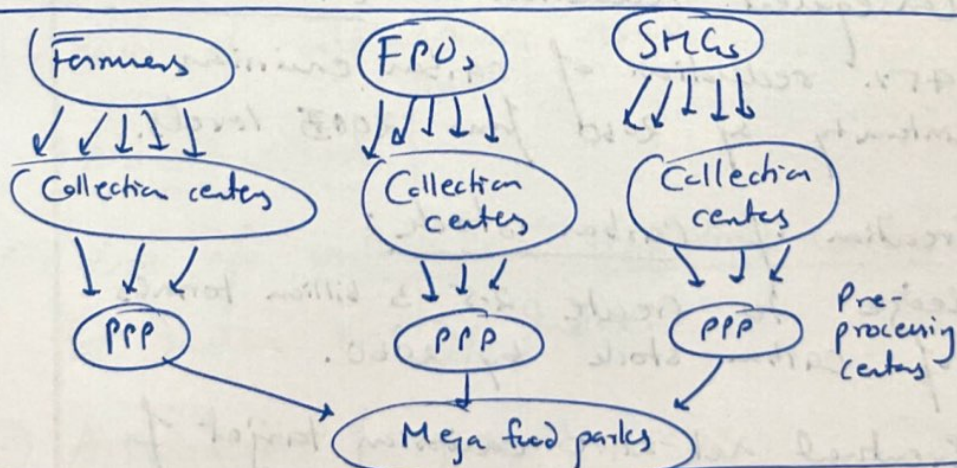
### STORAGE

- ① Integrated cold-storage network.

### VALUE ADDITION - PROCESSING

- ① Mega food processing parks through PM Sampada scheme.

### POLICY FRAMEWORK for integrated institutionalised supply-chain



A robust supply chains do justice to farmers as well as provide no hunger under SDG-2.



14. ऊर्जा क्षेत्र के संदर्भ में डीकार्बोनाइजेशन, विकेंद्रीकरण और डिजिटलीकरण की प्रवृत्तियां तेजी से उभर रही हैं। चर्चा कीजिए।

When it comes to the energy sector, the trends of decarbonisation, decentralisation and digitisation are fast emerging. Discuss. (Answer in 250 words)

15

India is the 3<sup>rd</sup> most suitable candidate in Renewable energy country attractiveness index. This has been seen through decarbonisation, decentralisation and digitisation.

### 1. Decarbonisation

① India's push to renewable energy  
 ↳ 500 GW from non-fossil fuel sources in Panchamita.

② Consequent reduction in carbon-emission  
 ↳ 45% reduction of carbon emission intensity by 2030 from 2005 levels.

③ Creation of carbon-stock:  
 ↳ pledge to create 2.5-3 billion tonnes of carbon-stock by 2030.

④ Eventual net-zero emission target of 2070.



## Decentralisation

- ① Push for decentralised production of energy  
     ⇒ Rooftop solar-power mission.
- ② Similarly, a breakdown of mega-projects into decentralised units  
     ⇒ Mini-dams or solar powered pumps under PM-KUSUM.
- ③ Harnessing local capabilities and suitability  
     ⇒ Wind energy in Tamil Nadu and geo-thermal energy from Kashmir hot-springs.
- ④ Hybrid power projects to suit local needs  
     ⇒ hybrid solar-wind energy project taking care of intermittance issues.

## Digitisation

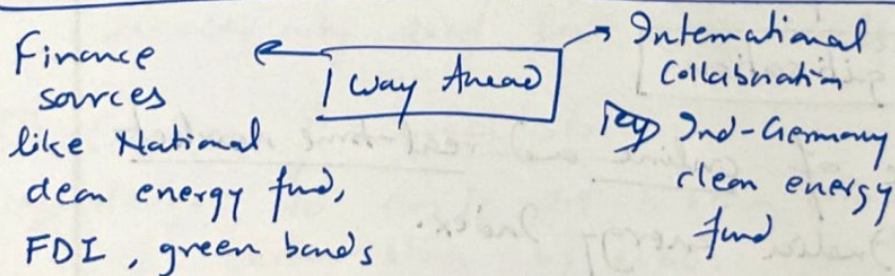
- ① Use of online and real-time market  
     ⇒ India energy Index.
- ② Assessment of project progress  
     ⇒ GIS-based tracking.



- (3) Regulatory mechanisms  
     *iey* Smart metering.
- (4) Predictive analysis through new tools  
     *iey* AI, data analytics etc.

### Limitations

- (1) Intermittent : nature dependant form of renewable energy.
- (2) Storage mechanism *iey* harness green hydrogen.
- (3) Technological and skill expertise missing  
     *iey* Nuclear power thorium usage still limited in progress.
- (4) Inertia of market to switch away from centralised fossil fuel.



The emerging trends in India are towards sure, pure, secure sources of energy. It shall boost standard of living and economic growth.



15. भारत में रासायनिक आपदाओं को कम करने संबंधी चुनौतियों पर चर्चा कीजिए। इन चुनौतियों का समाधान कैसे किया जा सकता है?

Discuss the challenges in mitigating chemical disasters in India. How can these challenges be addressed? (Answer in 250 words) 15

India has faced major chemical challenges like the Bhopal Gas tragedy. However, the centrality of the disasters remained peripheral, despite rising urbanisation and industrialisation due to many challenges.

### Challenges in mitigation

- ① Lack of institutional framework like SOPs in case of a disaster.
- ② Lacuna in regulatory mechanism to check safety measures installed in industries and factories.
- ③ Crony capitalism as a check on quality control at the stage of licensing and permits due to political-bureaucratic-corporate nexus.



- ④ Justice system has shown delays in holding accountability in cases like Bhopal Gas Tragedy.
- ⑤ Relaxed EIA rules such as mining licensing to be permitted or no prior experience as well.
- ⑥ Limited technological advancements especially in government establishments of the pre-LPG era, due to erstwhile government monopoly.
- ⑦ Security threats like Left-wing-extremism in areas like the red-corridors.

### Way ahead

- ① Formation of building guidelines ~~by~~ ALARA principles for safe nuclear power plant structures.
- ② Independent EIA assessment bodies and expert appraisal committees.
- ③ Role to district administration to



implement city-limitations on new projects  
 i.e. outside residential limits  
 to safeguard urban-dwellers from  
 any fallouts.

- ④ Timely security checks made  
 mandatory to continue operation.
  - ⑤ International collaboration for best  
 practices such as India-Japan  
 development assessment partnership  
 and CDRI initiative of India.
  - ⑥ Establish rescue-relief SOP along  
 with timely drills.
  - ⑦ Use of technology like real-time  
 monitoring, central control system to  
 prevent any mishaps or check intensity  
 through rapid response.
- "Careful today, safer tomorrow." Checking  
 chemical disaster is a pre-  
 requisite for safe and sustainable  
 economic growth.



16. जलवायु क्षतिपूर्ति (क्लाइमेट रेपरेशन) के विचार से आप क्या समझते हैं? इस विचार को वर्तमान संदर्भ में लागू करने की आवश्यकता पर चर्चा कीजिए। इसके कार्यान्वयन के समक्ष आप क्या चुनौतियां देखते हैं?

What do you understand by the idea of climate reparations? Discuss the need to implement this idea in the current context. What are the challenges you foresee in its implementation? (Answer in 250 words) 15

Climate reparations were raised in COP 27 under the Loss and Damages fund. It refers to the compensation that developing countries deserve for the irreversible damages already done by part by developed countries.

It is thus aligned with the idea of "common but differentiated responsibilities" and thus is at the center of the climate justice debate.

Need in the present context

① Realisation of irreversible damage

→ IPCC :  $1.8^{\circ}\text{C}$  rise by 2100 even in the best-case scenario.



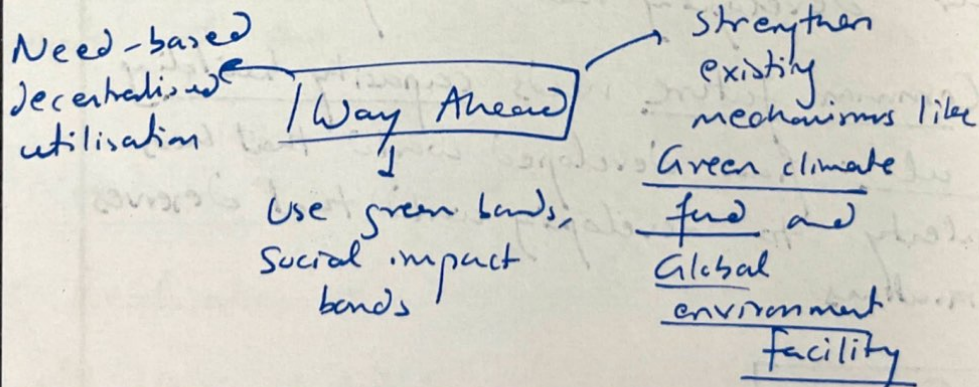
- ② Existential threat to countries like the small island states (AOSIS) due to rising sea levels.
- ③ Need for finances and technology by the developed world to mitigate against climate change.  
⇒ Shift to renewable energy.
- ④ Developmental rights of developing countries. ⇒ India's pitch in 2009 COP when idea of BRIC was raised.
- ⑤ Climate justice as an accepted international law norm.  
⇒ Kyoto protocol's diverged goals for developing and developed world.
- ⑥ Common future needs capacity building of all: from developed world that has plenty to developing world that deserves reparations.

### 1 Concerns

- ① Lack of global consensus: as was seen in COP-26 as well.



- (2) Green-washing as a means to escape real-life changes  
 ⇒ Joint-implementation used as an excuse to prevent transfer of technology.
- (3) Limited government funding worldwide  
 ⇒ promised \$100 billion has still not been delivered since 2009.
- (4) Limited incentive of powerful corporates to contribute with easy access to fossil-fuel based energy sources.
- (5) Undemocratic international institutions like P-5 veto makes the developing world more dominant.



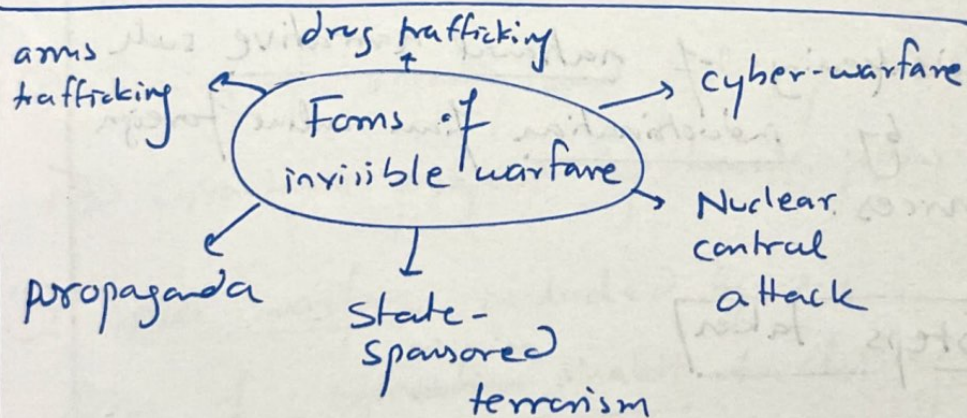
"There is co-existence or no existence".

Thus, funding is to be prioritised for mitigation and adaptation.



17. अदृश्य युद्ध (इनविजिबल वारफेयर) क्या है? भारत की सुरक्षा के समक्ष उत्पन्न होने वाली चुनौतियों को ध्यान में रखते हुए, अदृश्य युद्ध के खतरे से निपटने के लिए उठाए गए कदमों पर चर्चा कीजिए।  
What is invisible warfare? Keeping in view the challenges it poses to India's security, discuss the steps that have been taken to tackle the menace of invisible warfare. (Answer in 250 words) 15

The war-zone has shifted from the physical to digital and mental spaces. This is known as invisible warfare where traditional fighting of soldiers may not be evident but attacks on critical infrastructure and propaganda is made.



### Challenges to India security

- ① Threats to its critical infrastructure on the digital front  
 ↳ Financial system, Air-traffic, power-sector.



- ② Data-theft : Individuals as well as state secrets.
- ③ Proxy war : supporting insurgencies in J&K or north-east.
- ④ Control of crimes : such as arms and drug trafficking.
- ⑤ Consequent loss to exchequer in the form of black money, fake currencies etc.
- ⑥ Weakening of national narrative such as by indoctrination from online foreign sources.

### Steps taken

- ① Policy framework : National cybersecurity policy of 2013 for a concerted national approach.
- ② Institutional foundation such as CERT-IN and ITC.



### ③ Legislative safeguards

key) Personal Data protection bill and the IT Act, 2000.

### ④ Collaboration with international bodies like INTERPOL to check safe border movement.

### ⑤ Counter-narrative: India's efforts for a comprehensive anti-terrorism pact in the United Nations, along with 1566 resolution on terrorism.

### ⑥ Training of security and police personnel key) Cyberdome project by Kerala police.

### ⑦ Space-warfare included by the likes of <sup>Mission</sup> ~~Operation~~ Shakti to destroy anti-satellite attempts.

"Eternal vigilance is the cost of freedom."

- Thomas Jefferson.

In order to maintain our sovereignty and integrity we need to be prepared on the invisible warfare front too.



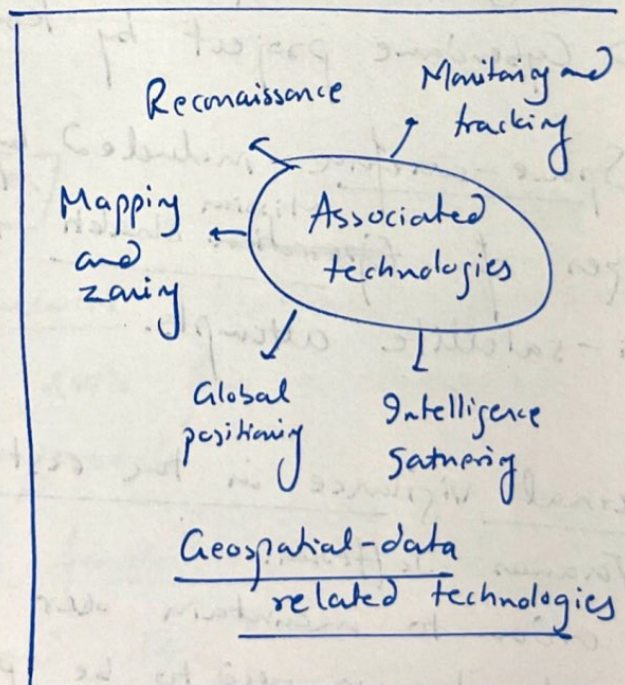
18. भारत की राष्ट्रीय सुरक्षा को बनाए रखने में भू-स्थानिक डेटा और संबद्ध तकनीकों के महत्व पर चर्चा कीजिए।

Discuss the significance of geospatial data and associated technologies in safeguarding the national security of India. (Answer in 250 words) 15.

India has embarked on project like IRNSS to ensure sovereign reliable geospatial data. This is on account of the centrality of it and associated technologies to ensure preparedness towards any developments affecting our national security.

### Significance

- ① Central to intelligence gathering of developments in the neighbourhood  
→ Track deployment near borders.





② Understanding of plans and strategies of other countries

⇒ Village development by China in border areas under salary slicing.

③ Useful in hazard risk vulnerability and capabilities assessment.

⇒ Geospatial plan of India's existing infrastructure.

④ Communication over satellite networks:

- secure
- in times of disasters.

⑤ Carry out tactical elimination missions against threats

⇒ Uri strike using geospatial positioning.

⑥ Data sovereignty by own robust network like IRNSS, as against dependence on external sources like USA's GPS.



- ⑦ International collaboration opened at the same time through information exchange with converging interests.
- Key → GSOMIA and BECA military agreements of India-USA.
- ⑧ 24\*7 watchfulness on threats
- Key → EUNAVFOR and India's INCOIS against piracy.
- ⑨ Preparedness against threat fallout through rapid response of monitoring.
- ⑩ Check emerging threats of invisible warfare like cybercrime through a robust technological infrastructure.

Digital space is the new zone of contention. Using these technologies is inevitable to ensure a safe and secure environment for all.



19. शिक्षा में कृत्रिम बुद्धिमत्ता (AI) का अनुप्रयोग पारंपरिक शिक्षण विधियों में कैसे क्रांति ला सकता है और छात्रों के लर्निंग आउटकम्स में सुधार कर सकता है? व्याख्या कीजिए।

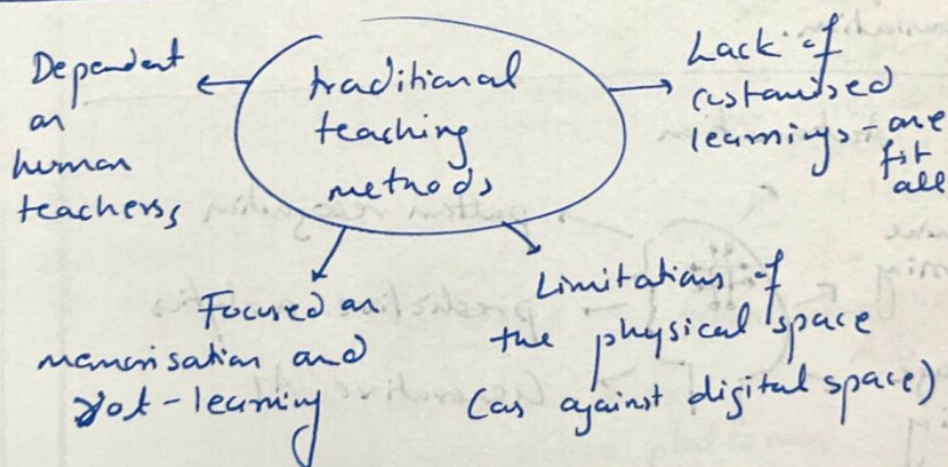
How can the application of artificial intelligence (AI) in education revolutionize traditional teaching methods and improve student-learning outcomes? Explain. (Answer in 250 words) 15

"Science is the magic that works"

- Kurt Vonnegut.

AI is one such example that has given machines cognitive powers of reasoning, problem solving, decision making and learning.

It has potential to change existing education :

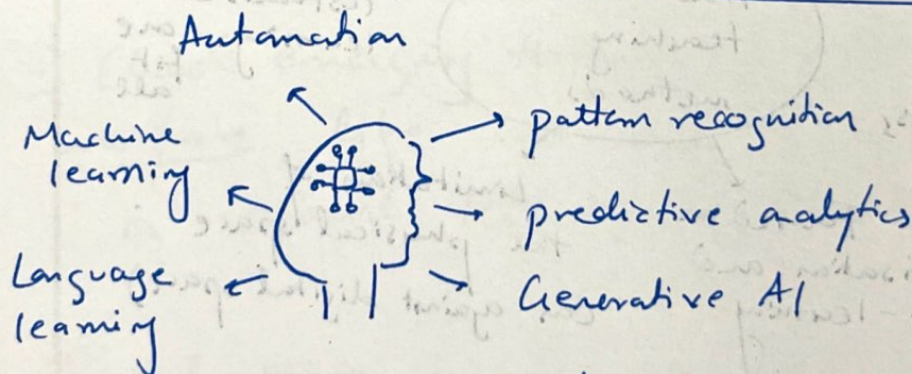


AI → Revolutionise education

- ① Use of big-data analytics to assess current status through pattern recognition.



- ② Creating a futuristic pedagogy and syllabus through predictive analytics  
 (ex) Skill requirements of the future market trends.
- ③ Interactive teaching through generative AI  
 (ex) Chatbots for doubt solving
- ④ Customised courses from personal data analytics
- ⑤ Local level learnings such as through speech recognition and translation.



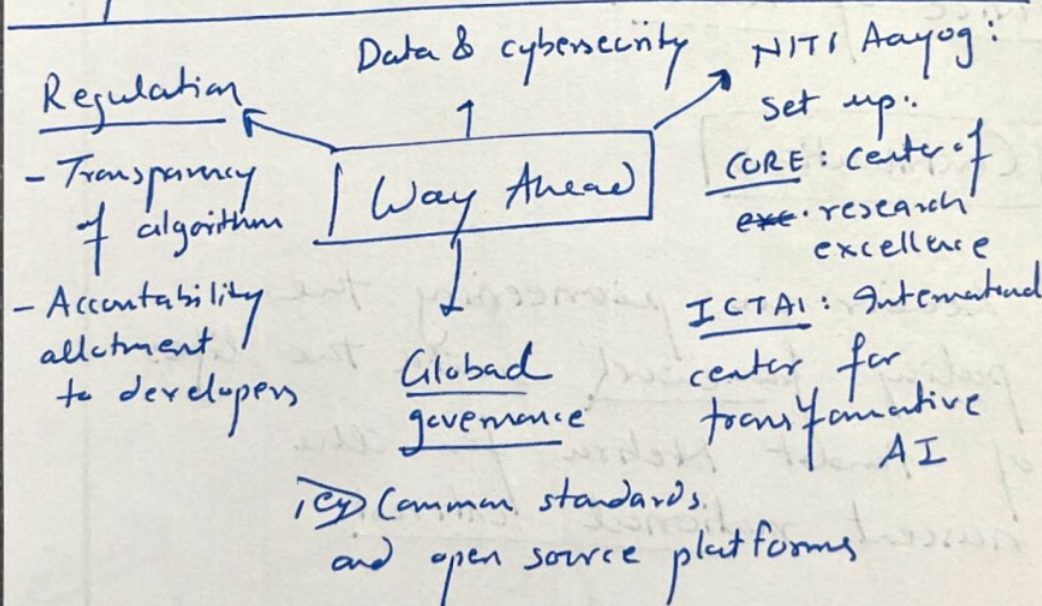
### AI applications

This will then significantly improve learning-outcomes :

- ① Culturally congruent learning (ex) in mother tongue



- ② Settle attention to each child  
iep AI amplification feature as  
against human teachers.
- ③ Market-oriented skill and vocational  
training for settle employability  
outcomes from learnings.
- ④ Timely update of syllabus to meet  
the individual, social and market  
demands.
- ⑤ Adaptive pedagogy based on the reception  
of children.



Despite the nascent developments, AI holds huge potential to create an inclusive and vibrant society through education. It is aligned with the NEP, 2020 National Education technology forum.



20. भारत में परमाणु प्रौद्योगिकी के विकास में होमी जहांगीर भाभा का योगदान क्या है? क्या आपको लगता है कि भारत को अपनी ऊर्जा सुरक्षा सुनिश्चित करने के लिए परमाणु ऊर्जा के विकास को प्राथमिकता देनी चाहिए?

What are the contributions of Homi Jahangir Bhabha in the development of nuclear technology in India? Do you think India should prioritise the development of nuclear energy to ensure its energy security? (Answer in 250 words) 15

Homi Jahangir Bhabha is known as the father of India's nuclear program. He is central in the vision of the Department of Atomic energy - Atoms in the service of nation.

### Contributions

- ① Leader in pioneering the policy framework with the likes of Pandit Nehru for the nascent national interest.
- ② Brought technological expertise after his studies in the USA.
- ③ Was instrumental in setting up of



the precursors of what was to later develop into BARC (Bhabha Atomic research center).

- ④ Also played a role in negotiating international cooperation for India's 1<sup>st</sup> reactor : Apsara in Trombay.
- ⑤ Gave the 3-stages of our nuclear power :

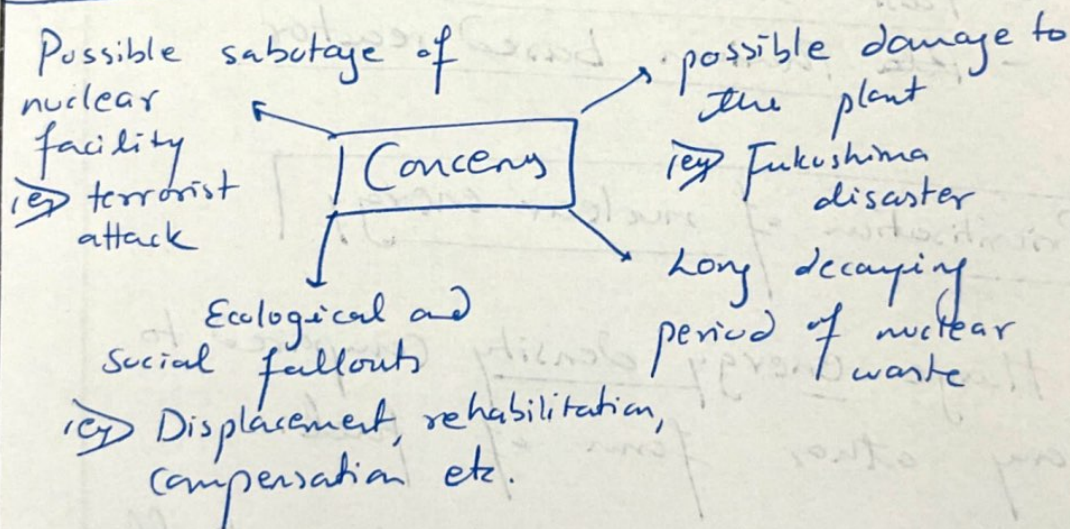
- Pressurised heavy water stage
- Fast breeder reactor
- ~~Plu~~ Thorium based reactor

### Prioritisation of nuclear energy

- ① Huge energy density compared to any other form of fuel.
- ② Renewable source with theoretically non ending availability for human energy needs.
- ③ Does not contribute in global warming unlike fossil fuels.



- ④ Technological progress has made the source financially viable.
- ⑤ Thorium reserves in India : estimated 25% of the world.
- ⑥ Hybrid energy opportunities  
 i.e. Pink hydrogen using nuclear power.
- ⑦ Import dependence : over 80% of oil is imported.  
 However, certain concerns remain:



Hence, safe practices like the Alara principles as seen in Kudankulam plant are to be applied. Along with other ~~nuclear~~ renewable power sources, India's energy needs are to be fulfilled satisfactorily.