

General Studies
Full Length Test
Test - 7 (GS - 3)
Test Code - A21053507

Evaluator Code:
Date of Assignment:
CQ:

NAME:

SRINJAY KUMAR

Time allowed: 3 Hours

STUDENT ID.:

Email:

UPSC ROLL NO.:

Submission
Date:

28/7/2025

MOBILE NO.:

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions:

There are **TWENTY** questions printed in **ENGLISH**. All the questions are compulsory.

The number of marks carried by a question/ part is indicated against it. Word limit in questions, wherever specified, should be adhered to. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

Q No.	Marks	Q No.	Marks	Q No.	Marks
Q1	/10	Q8	/10	Q15	/15
Q2	/10	Q9	/10	Q16	/15
Q3	/10	Q10	/10	Q17	/15
Q4	/10	Q11	/15	Q18	/15
Q5	/10	Q12	/15	Q19	/15
Q6	/10	Q13	/15	Q20	/15
Q7	/10	Q14	/15	Total	/250

Instructions:-

- Legible Scanning:** Exercise due diligence in scanning your scripts for clear legibility
- Submissions** marred by poor scanning, notably those with illegible sections or blackened pages due to improper scanning, risk being excluded from the evaluation process.
- Non-Adherence Consequences:** Failure to comply with the aforementioned instructions may lead to the disqualification of your submission.

For Student Only

Start Time - 3:40 PM

End Time - 6:40 PM

Mode of Examination ONLINE

Online Offline

Receiving date -

Dispatch date -

Parameters		Good	Average	Needs Improvement
Conceptual Understanding				
Understanding Demand of Question				
Structure	Introduction			
	Body			
	Conclusion			
Presentation-Illustrations, flowcharts, diagrams, etc.				
Language and Handwriting				
No. of Questions Attempted				
Adherence to Word Limit: Yes/No				

Mentor's Feedback

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Evaluator/Reviewer Suggestions



Evaluator/Reviewer Suggestions



(Answer questions in NOT MORE than the word limit specified for each in the parenthesis. Content of the answer is more important than its length.)

1. Despite the multidimensional nature of poverty in India, consumption expenditure continues to dominate its official measurement. Discuss the limitations of this approach and suggest alternative frameworks for designing inclusive welfare policies. (10 marks, 150 words)

Recently, based on the consumption expenditure WB estimated that more than 100 million Indians were left out of extreme poverty in last 5 years.

Consumption based measures in India -

- ① Tendulkar Poverty line
- ② Rangarajan poverty estimate

Limitation of consumption-based poverty estimate

- ① Does not take wealth inequality into account. e.g. Top 1% Indians own 41% of wealth.
- ② Does not take human capital formation into account. e.g. 33% children are stunted
- ③ Other deprivations not taken into account e.g. 20% Indians live in slums in

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urban areas

>10% villages lack electricity supply of more than 10 hours

- (12) Do not estimate ability to weather crisis.
e.g. Insurance ~~has~~ penetration ~4% in India.

Better measures to measure poverty

- (13) NITI's Multidimensional Poverty Index - using indicators like toilets; bank account etc.
- (14) SEI's - income ~~below~~ ^{below} 30% of median income defined as poor
- (15) Economic Survey's deprivation index

Poverty measurement is essential for identification & eradication of poverty which is essential for meeting SDG i.e.

No Poverty

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2. The 2025 Economic Survey has highlighted deregulation as a tool for financial deepening. In this context, enumerate the potential benefits and risks of deregulation in the financial services sector. (10 marks, 150 words)

Economic Survey 2025 highlight deregulation for consistent economic growth and India to become developed country by 2047

Benefits of deregulation in financial sector

- ① Would increase credit availability - lowering CRR & SLR would increase funds for lending with banks
- ② More competition would lead to better services. E.g. NBFCs & large corporate opening banks would improve competition in the sector
- ③ Product innovation - better products for investment like collateralized securities.
- ④ Would increase the money multiplier leading to higher consumption & economic growth
- ⑤ Inflow of foreign capital - by liberalising capital account convertibility norms - could

Help achieve investment (HF CF) ratio of 35 % - % of GDP.

Risks with respect to deregulation

- ① Banks becoming too big to fail - would lead to systemic risk in the economy -
- ② Complex instruments could be hidden from oversight creating macroeconomic risk.
e.g. ~~CB~~ CDS during 08 financial crisis.
- ③ Conflict of interest - by corporate's owned banks.
- ④ Full capital account ~~access~~ convertibility could lead to vulnerability & volatility in currency market e.g. 1997 Asian financial crisis.

Financial sector plays a crucial role in optimal allocation of funds. Any deregulation being done must have adequate oversight.

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3. Assess the impact of the revised MSME definitions on the growth and formalisation of micro and small enterprises. (10 marks, 150 words)

In the budget for FY 21, the definition for MSMEs was revised upwards with the limit being set up at 125 cr investment & 500 cr turnover for medium industries.

Contribution of MSME to economy

45% contribution to exports

30% to GDP

230 million non farm employment

Impact of revised definition on growth & formalisation of MSME

- ① Would help with growth & continued benefit - companies now have a higher limit for defined as MSME.
- ② Enhanced investment limit would lead to more demand for formal credit leading to formalisation. Currently, only 14% MSMEs access formal credit [via Finha Cont]

(iii) Larger employment would demand formalisation for availing EPFO benefits.
1- EPFO scheme for 1 month salary support by the government

(iv) Disincentivise dwarfism - incentive to grow because more investment & technology now permitted - 4- current - 95+.

(v) More competitive products - MSMEs are micro - due to larger factories & economies of scale.

(vi) Higher share of goods on Government e-Marketplace due to more companies now involved.

Small businesses are the lifeblood of our economy. They make our economy more resilient and reduce unemployment.

The revised definition would pave a path for them to achieve economies of scale.

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4. Evaluate the merits and demerits of maintaining rigid Priority Sector Lending (PSL) quotas versus adopting market-driven credit allocation mechanisms to achieve inclusive growth. (10 marks, 150 words)

PSL quotas are a measure being adopted by RBI to support credit creation in sectors like agriculture, MJMFs which may otherwise be unattended for

Merit of maintaining PSL vs market driven mechanism

- ① Inclusive growth - fulfil the socialist ideals for economic justice -
- ② Reduce informal credit in agriculture -
from 45% in 1950s to 60% in 2022 -
share of formal credit.
- ③ Increase financial inclusion - more than 80% of 50 crore Jan Dhan accounts in PSBs
- ④ Credit creation in vulnerable sectors - 9% more than 60% of MWDRA loans were availed by women.
- ⑤ Support microfinance & self help groups -

Through NABARD Bank Linkage Program

Demerits of PSU with market driven approach

- ① Against optimal allocation - i.e. financial sector is disincentivised from making the optimal allocation.
- ② Banks making substandard investment -
e.g. NPA in agriculture is higher at 1.2 compared 2-3% in other categories
- ③ Reduce fund availability for the corporate sector - reducing investment by them
- ④ Reduce rate cut opportunities being passed down to the end consumer. i.e. it reduces savings & disposable income

PSU quotas are a relic of the command economy. In the modern terms, institutions like NABARD, UCB, can share the burden of priority sector lending with the commercial banks.

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5. Analyse the regional shifts in the cropping patterns of India. Discuss the long-term implications of this shift on nutritional security and water sustainability.

(10 marks, 150 words)

Cropping pattern refers to the crops being planted in any area in a regular manner.

Regional shifts in cropping pattern in India

- ① Increased rice & wheat cultivation in North-West (Punjab & Haryana)
- ② Growing cultivation of crops like maize in states like Bihar.
- ③ Oil palm cultivation in NE & Eastern India.
- ④ Increase in pulses cultivation particularly gram & urad.

Implication of shift on nutritional security & water sustainability

- ① More water exploitation in states like Punjab & Haryana, s- already 12% of reservoirs are over exploited & 3-4% are critical

⑩ More maize cultivation would lead to lower cost of healthy feed boosting egg production & nutritional security.

⑪ Increasing oil palm cultivation would reduce ~~reduce~~ dependency from US+.
but would lead to deforestation in the North-East.

⑫ More pulses cultivation would lead to soil being replenished with nutrients & reduced water consumption.

⑬ Increased millet cultivation would lead to higher nutritional security.

Changing cropping patterns are a mixed bag - while some would lead to more availability of nutrients, some would lead to decline in ecological sustainability.

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6. Despite diversification, rural India faces economic stagnation. Discuss how value chain integration through food processing can revitalise the rural economy. (10 marks, 150 words)

Per family income of agricultural households is at ₹ 13,000 per month which is far lower compared to those in services or manufacturing sector.

Why economic stagnation? — disguised unemployment & underemployment
agriculture — 46% labour force but only 16% of GDP
FPIs contribution — 13% to manufacturing GDP; 11% to agricultural GDP;
employment to 3 million with 77% in rural areas

value chain integration through FPI to help revitalise the rural economy

- ① would provide gainful employment round the year — 1- more than 30% in rural area.
- ② Reduce post harvest losses — currently ~30% of produce is wasted.
- ③ Reduce volatility in prices — FPIs can

provide assured price while buying the produce.
1. ITC buying wheat from MP farmers.

④ build link with FPOs to optimise procurement & provide extension services for better productivity. ~~of~~

⑤ Help with market expansion - 1-

FPOs can process agricultural goods for selling in cities / export.

⑥ More value addition would lead to more disposable income triggering a virtuous cycle.

Food processing industries can address the key problem of Indian agriculture is a disguised unemployment & lack of remunerative prices for Indian farmers.

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7. What is ground-level ozone pollution? How is it formed, and what are its effects on human health and the environment? In what way is it becoming a serious concern for Indian cities? (10 marks, 150 words)

Ground level ozone is formed due to reaction between various organic compounds in a sunny day in a polluted environment.

→ Ground level ozone is formed from organic compounds like PAH (peroxy acetyl nitrates)

Organic compounds sunlight O_3
(ground level)

Effect on human health

- ① Could cause skin irritation due to formation of radicals on the skin surface.
- ② Causes discolouration of nails & hair due to oxidation.
- ③ Causes nausea & can be fatal if exposed for a long time.
- ④ Damages the corneal arteries reducing eyesight.

Ground level ozone becoming a serious concern because

① Increasing pollution in Indian cities providing all the necessary conditions.

② Increased amount of particulate matter provides the reaction surface on which the reaction can take place.

③ Pollutants like NO_x & SO_x leads to more ozone being formed because nitrogen & sulphur are in high oxidation state.

④ Increased vehicle congestion boosts ozone formation at the ground level.

Ozone pollution is a consequence of the poor pollution control measures in Indian cities. Its remedy call for implementation of the NCAAP.

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8. Nanotechnology represents a paradigm shift from 'bigger is better' to 'smaller is smarter'. In this context, examine the transformative potential of nanotechnology in the fulfilment of India's environmental goals.

(10 marks, 150 words)

Nanotechnology refers to the study of particles with sizes between 1nm & 100nm. It is an emerging field with applications in various areas like environment, medicine etc.

Smaller is smarter

allows microtargeting -

better absorption

r-nano medicine for precise delivery.

↓ blunt force

- usage in defence

could be programmed for various uses

Transformative potential of nanotechnology in fulfilment of India's environmental goals

- ① Cleaning up pollution - nanoparticles can help in bio remediation because they have larger surface area to help with cleanup.

- ① Reducing particular chemical - with help of specifically designed nanoparticles
 - ② Making thermal energy more environment friendly - - nanoparticles could be employed to capture sulphur oxides to provide for cleaner energy
 - ③ Cleaning up oil spills - nanobots could engage in bio degradation of oil
 - ④ Boosting productivity of plants - would help with faster growth of carbon sink - help with bio-augmentation
- nanoparticles ^{can} help with controlling pollution & degrading pollutants but care must be taken to control their misuse & unintended leakage in the environment.

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9. What is 'Indirect Prompt Injection' in the context of AI chatbots? Examine its potential impact on the reliability of digital assistants and the privacy of end users. (10 marks, 150 words)

Indirect Prompt Injection - refers to the AI chatbots unintentionally / intentionally using the prompt data for model training. It could lead to ^{personal} data being used for training.

Impact on reliability of digital assistant & privacy of end user

- ① Hallucination of model - training with its own data could lead to hallucination down the line
- ② Incorrect responses - when any query response from the prompt is used for training.
- ③ Personal data used for training - would lead to reduced privacy as personal data could becoming part of training

dataset.

- ⑫ Increases vulnerability of the system as it could be exploited by bad-faith actors.
- ⑬ Reduced reliability of information - could be problematic as many users would not take care to verify the information.

AI chatbots are the latest ~~the~~ development in the field of machine learning. Their usage therefore needs to be taken care along with privacy & reliability of information.

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10. Analyse the major reasons for the spread and survival of Naxalism. What solutions do you suggest to curb it? (10 marks, 150 words)

Naxalism refers to the ideology which intends to overthrow the state by means of armed revolution & mass mobilisation.

Major reasons for spread & survival of naxalism

- ① Inequitable land distribution - major reason for its growth in Bengal & Bihar.
- ② Poor Forest Rights Act Implementation - only 50% claims have been accepted.
- ③ Increased displacement without rehab - Tribals comprise only 8% of population but 50% of displaced population.
- ④ Lack of development - e.g. Dantewada till few ~~dec~~ years back had 2% houses with drinking water.
- ⑤ Administrative deficit in the trijunction areas, e.g. had chivdi in Maharashtra; Bastar in Chhattisgarh.

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Curbing Maoist ideology & Naxalism

- ① Provisionary for other sources of revenue.
↳ Bamboo Chicken in Chhattisgarh.
- ② Development measures to overcome administrative deficit.
↳ POTA cabins for students
- ③ Dedicated forces for combating naxals.
↳ Greyhounds in AP & CGO in Maharashtra
- ④ General surrender & rehabilitation policy.
- ⑤ schemes for tribal welfare - PM JAN MAAN
DAJGVA.
- ⑥ Targeting the top leadership of naxals.
↳ Basavaraj was killed in 2025

In the past 12 years there has been a
decline in incidents & 90% decline
in deaths. The carrot & stick policy
followed by the Indian govt has
curbed naxal influence in the country.

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11. "Non-tariff measures have become a key instrument of economic diplomacy and protectionism in the post-globalisation era." Evaluate how India can balance compliance with global trade rules while safeguarding its economic interests. (15 marks, 250 words)

Measures like anti-dumping duty, quality control orders etc. comprise the tools of economic diplomacy when non-tariff measures are concerned.

NTMs becoming a key instrument of economic diplomacy

- ① Phytosanitary barriers - used by developed countries to limit agri export. eg - mangoes from India to - pesticide content
- ② Quality control order - to protect domestic industry; it mandates import of only higher quality of product.
- ③ Genetic crops - eg - EU banning GM crops from countries like the US
- ④ Anti dumping & countervailing duty - to protect domestic producer from being undercut by foreign producers. eg - China

CVD on steel imposed by India

- ① Export / import quota - to limit fluctuation in domestic market. \rightarrow India doing it for sugar / rice.

How can India use it to comply with global trade while safeguarding economic interests

- ① Judicious usage - to limit over reaction by the trade partners.
- ② Can use these measures for negotiation during trade agreements
- \rightarrow India - UK - India allowed import of whiskey with reduced tariffs.
- UK - exempts Indian textile from tariffs, environmental conditions.
- ③ as a reciprocal measure - \rightarrow against EU's CBA
- ④ Boost investment domestically. \rightarrow EU import allowed only on conditionality of

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certain domestic value addition

NAFTA - no import if 75% value addition within 3 countries.

- ① would help with localization of supply chains - e- electronics manufacturing in the country

In the era of rising protectionism and globalization in reverse, non tariff measures can effectively complement tariff measures for India to increase economic growth & investment.

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12. Discuss the macroeconomic risks posed by unregulated Virtual Digital Assets. How can India reconcile its financial stability objectives with the opportunities offered by blockchain innovation? (15 marks, 250 words)

Virtual Digital Assets refer to investments with cryptography on the technology behind them. They can be of various forms like stable coins, NFTs etc

Macroeconomic risks posed by unregulated VDA's

- ① Could lead to dollarisation of the economy - would lead to RBI not being able to influence monetary policy.
- ② Increased ~~volatility~~ volatility - could threaten savings of investors - e.g. Bitcoin falling to \$60,000 before recovering.
- ③ Scams can cause wealth erosion - e.g. FTX - \$10B dollars lost.
- ④ Volatility could lead to sudden changes in balance sheets of banks causing

currency issues

- ① Chances of hacking - could threaten the entire system - e.g. Recent Coin DLT hack
- ② Pump & dump schemes - could lead to trust erosion. e.g. - Squid Game coin plummeted more than 99%.
- ③ NFTs & many coins based solely on speculation

Reconciling opportunities of innovation with financial stability

- ④ Investor education - by agencies like SEBI - would lead to people understanding risk that is at play.
- ⑤ Treating it as a separate class - e.g. - govt applying 30% tax on VDFs
- ⑥ Reducing speculation - e.g. - govt imposing 1% TDS on any transaction involving cryptocurrency.
- ⑦ RBI backed e-RUPI - for all features

cryptocurrency but with increased trust.

- ⑦ Regulatory sandbox by RBI to encourage innovation in the crypto domain.
- ⑧ ~~State~~ State-backed crypto project like - Pharosi land portal in Telangana; ~~Andhra~~ Coffee Board tracing coffee supply chain
- ⑨ Bringing VDA within the ambit of the PMVA - for prosecution of crimes
- ⑩ KYC for wallets to ensure traceability

Blockchain can lead a revolution by way of decentralized finance and other applications; but its risks for the economy need to be understood & dealt with.

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13. Despite progressive measures, gender budgeting in India has not translated into substantial gender equity." Discuss the major bottlenecks in its implementation and suggest government measures to make it more impactful.

(15 marks, 250 words)

Gender Budgeting has reached a new high of 8.8% in budget for FY 2020.
Gender budgeting is budget for schemes predominantly for women welfare.

Not translated into substantial gender equity

- ① only 16% women in C-suite positions
- ② crimes against women rose 4% according to NCRB.
- ③ only 17% women legislators in lok Sabha.
- ④ More than 50% women are anaemic [NFHS 5]

Major bottlenecks in implementation of gender budgeting

- ① Funds being spent for tokenism - 1- more than 70% of funds for Beti Bachao Beti Padhao scheme is spent for adverts.
- ② Facility implementation - 1 only 20%.

connection in cases of rape according to NCRB.

⑩ Pilferage & Corruption - faulty pipes installed in JSM leading to clogging.

⑪ Lack of women in leadership leading to faulty design of many schemes without ground level realities.

⑫ Patriarchy in society - 1- women eating last - reason for high anaemia.

⑬ Poor designation for gender budgeting - through changing heads without any substantial change.

Government measures to make it more impactful

① Involving more women for policy design & implementation - 1- MWRA - more than 60% loans given out to women

② Identifying goals to be fulfilled - 1- SBM -

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goal to achieve 100% ODF status.

(iii) Involving self help groups - s- programs like lakshmi didi & Prone didi provide income source to women boosting their agency.

(iv) Increasing asset base of women-g- houses
o under PMAY registered under women head of the family.

Gender budgeting is crucial for fulfilling SDG 5 i.e. reduced gender inequalities.

Improvement & reevaluation of gendered schemes would help in this regard.

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14. What is a Regenerative Blue Economy? How does it differ from conventional blue growth models? Highlight the role of the Regenerative Blue Economy in mitigating climate change and halting biodiversity loss.

(15 marks, 250 words)

Regenerative blue economy refers to self-generating marine economy. It refers to exploitation of marine resource with due regard for sustainability & continued regard for survival of the species.

Difference with conventional blue growth model

Regenerative blue economy

- ① Focus on sustainability
- ② Practices to ensure sustainable.
↳ by-pass hatches to allow small fish to pass through

Conventional blue growth

- ① Focus on growth at any cost.
- ② Practices like bottom trawling, net with by-pass hatches are employed.

Regenerative

- ⑩ Allows for the recovery of marine population e.g. lobster fishing off Maine is regulated.
- ⑪ Well regulated activity

conventional

- ⑫ Could lead to environmental degradation e.g. in area between India & Sri Lanka
- ⑬ Unregulated & at times illegal e.g. Chinese fishing fleets in the high seas

Role of regenerative Blue economy in mitigating climate change / halting biodiversity loss

- ⑭ Maintain sustainability of oceanic ecosystem - ocean captures 80% of excess heat; hence global warming is reduced.
- ⑮ Provide habitat for diverse fauna. e.g. corals provide habitat for 25% of marine fauna & flora.
- ⑯ More biodiversity - increases carbon

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fertilisation in the ocean reducing CO_2 in the atmosphere.

- ⑭ Allowing time for regeneration helps populations of organisms to recover in form of their population
- ⑮ Minimises environmental pollution in the oceans which reduces ~~is~~ reduces environmental fluctuation

Regenerative Blue economy is essential for maintaining the continued existence of our oceans & rivers as a public good. It also helps fulfil SDG 14 i.e. life below water .



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15. Do you think India's ethanol blending programme can significantly enhance energy security in the coming decade? Justify your answer.

(15 marks, 250 words)

Ethanol Blending Program targeted to achieve 20% blending in petrol by 2025.

Its main aim wants to reduce oil import dependency which is currently at 85% of our consumption.

Ethanol blending - primarily from rice, maize & sugarcane.

India's ethanol blending enhancing energy security

- ① Would help reduce total dependence on oil imports.
- ② Reduce pollution - ethanol does not give out any sulphur/nitrogen oxides which would be present in petrol.
- ③ Ethanol production - can be enhanced by using genetically engineered algae.
- ④ Flex fuel - engines can even designed

to run 100% on ethanol.

- ① Diversity of production sources for ethanol would help limit vulnerability to supply chain fluctuation.

Challenges with respect to ethanol blending

- ① Increased price of com affecting sectors like poultry - making eggs more expensive
- ② Sugarcane & rice are water heavy crops. Thus, it leads to overall reduction in water which is a more precious resource.
- ③ Diversion of sugarcane - could lead to supply challenges for sugar
- ④ Crude oil is much cheaper - at \$60/barrel making overall gains non-existent
- ⑤ Importance of GM corn from US would lead to concerns about genetic contamination.

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⊖ engine efficiency suffers due to blended petrol limiting the lifetime of the engine.

vii) ~~Petrol~~^{oil} still required for producing diesel which is much more polluting.

Ethanol blending is a noble step towards reducing oil import but it has caused unforeseen challenge in other sectors like poultry. A re-evaluation of this step is required if burning water in place of oil is justified.

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16. The coexistence of physical and economic water scarcity in Indian agriculture reflects a deeper crisis in water governance. Examine the factors contributing to this and suggest reforms to make irrigation more equitable and sustainable. (15 marks, 250 words)

India accounts for 17% of the world's population & 4% of the world's fresh water resources - India is already water stressed country at 1731 cu.m/capita according to Falkenmark index.

Physical & economic scarcity in water governance

- only 55% area covered by irrigation
- 17% ground water overexploited
- farmer unable to afford electricity leading to subsidy.
- Punjab spending 15% of revenue on electricity subsidy.

Factors contributing to physical & economic scarcity

① continued cultivation of water intensive crops in water stressed areas -

↳ sugarcane in Maharashtra & rice in Punjab.

② lack of water being treated as a factor

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production which can be charged. s. farmer own the groundwater under the Environment Act of 1812.

(ii) Lack of efficient irrigation. s. rice primarily irrigated through flood irrigation which is inefficient.

(iii) Lack of water retention structures - leads to most of the water being wasted.

(iv) Electricity subsidies in most states - leading to over drawing of groundwater. s. 18% extraction of groundwater in India

Reforms to make irrigation more equitable & sustainable

(i) Increasing water use efficiency & with the help of micro-irrigation practices

(ii) Using more optimal methods of cultivation
s. Direct Seeded Rice could cut water usage by 20-30%.

(iii) Irrigation coverage can be expanded by

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measures like Link & Interbanking.

↳ Ken Bekua link for Bundelkhand region.

④ Moving away from water intensive crops in water scarce areas. ↳

Mera Paani Meri Virasat scheme in

Haryana to farmer - ₹ 8000/ hectare to skip planting rule

⑤ IIT to help with optimal irrigation.

↳ Madhav Fasal from Bengaluru to help with water saving practices.

⑥ Mehar Shah Comm - Unify ~~CHWB~~ CHWB & CWA to form Central Water Authority

With increasing water stress in the country, its high we pivoted away from supply augmentation towards demand management.

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17. The absolute monopoly of Indian Railways has constrained its capacity for modernisation and efficiency. In this context, do you agree that privatisation is a viable solution? Substantiate your answer.

(15 marks, 250 words)

Indian Railways is the 4th largest network in the world with route length of more than 7000 km. It carries more than 10 million passengers every day.

Absolute monopoly constraining modernisation & efficiency

- ① Meagre route addition after independence.
In 1948 - it was already more than 45k km.
- ② High operating ratio (>98%)
- ③ High utilisation constraining efficiency -
↳ more than 90% routes have more than 100% utilisation
- ④ Low speed - 1- freight speed currently < 35 km/hr average - It increases logistics cost.

Privatisation being a viable solution

- ① Would help with much needed capital infusion.
- ② Could help with reducing costs - employee costs > 40% of total revenue
- ③ successful examples globally - 1 - Japan
Railway privatisation in 1980s & 1990s
- ④ Could help with better utilisation of railway land boosting revenues.
- ⑤ Bibek Debroy cont - ancillary activities like manufacturing / coaches, running hospitals could be privatised.
- ⑥ Tejas express being run by IRCC - good occupancy & passenger experience.

Challenges with respect to railway privatisation

- ① Railway fulfils a social obligation in the country by providing cheaper mode of transport
- ② Could create issues of liability during

accidents:

- ⑫ Questions related to mode of privatisation - whether only trains or along with tracks.
- ⑬ Privatisation of railway failed in UK requiring re nationalisation.

Way forward

- ① Ancillary functions can be run on PPP mode
↳ Alstom & Siemens locomotives plants
in Madhepura & Marhaurah
- ② Better track expansion - through DFC & MANOR
- ③ Cutting operating costs through better utilisation of trains

Railways fulfil an important social service in the country; hence any step towards privatisation would need to take inclusivity & reliability of the service into account.

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18. What is Near Field Communication (NFC) technology, and how is it enabling tap-to-pay transactions? Highlight its benefits and limitations? Does it carry any potential risks? (15 marks, 250 words)

NFC refers to transfer of data between 2 devices with the help of electromagnetic waves (primarily radio waves).

NFC enabling tap to pay transactions

- ① Through securely transmitting authenticating data of any debit/credit card to the POS machine.
- ② Requires being close for the waves to be transmitted without interference & attenuation.
- ③ Also requires the payee to having enabled transactions on the card.

Benefits & limitations of NFC

Benefits

- ① Convenient - increases efficiency in business

Limitations

- ① Could seem untrustworthy to non-tech savvy people

Benefit

- ① Does away with the requirement of card swiping (reduces threat of card skimming)
- ② Reduces other threats like card cloning & details being stolen.

Limitation

- ① Need to be in close range without any interference being present.
- ② Not all devices support NFC
- ③ Not all cards support this mode of payment

Potential risks associated with NFC

- ① The signal from the device could be cloned & then used for fraudulent transaction.
- ② Higher amount could be charged due to reduced need for physical verification of amount being deducted.
- ③ Signal can be jammed preventing NFC

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communication

① Hacking mobile phone would help anyone access financial account as well

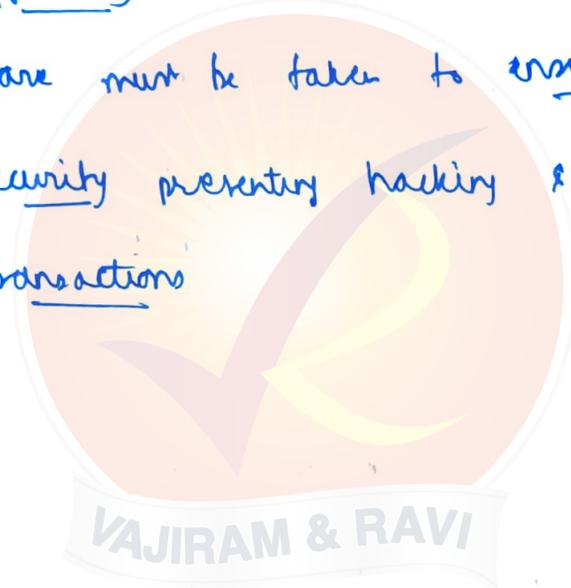
NFC aims to increase convenience &

efficiency but at the same time

care must be taken to ensure optimal

security preventing hacking & fraudulent

transactions



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19. Discuss how the shift from cash-based transactions to digital financial networks in drug trafficking and money laundering poses new challenges for enforcement agencies. What countermeasures should be taken to prevent the same?

(15 marks, 250 words)

Drug trafficking refers to illicit transport of drugs & psychotropic substances. Money laundering refers to concealment of proceeds of crime to make them appear legitimate.

Shift to digital financial networks happening due -

- ① new technologies like cryptocurrency
- ② ebanking being able to move enormous sums quickly.

new challenge for enforcement agencies due to shift to digital networks

- ① Reduced traceability - s- cryptocurrency makes source of funds nearly impossible to track.
- ② rather reintegration into formal economy.
f- MSBC laundering Mexican drug cartel money.
- ③ Difficult for law enforcement to seize

Proceeding of the crime :- because it could be easily transferred from one jurisdiction to another.

⑫ Payment convenience - increasing demand & circulation :- People buying jewellery from sites like The Silk Road.

⑬ Easy to reintegrate even very large sums of money - could be done through multiple accounts :- diversity demonetisation - multiple accounts were used for depositing money

Measures that could be taken to prevent ML & drug trafficking

① Adopting Vienna Convention - would help each country create framework laws against money laundering.

② Banning evant websites selling questionable materials :- The Silk Road

③ Increased global collaboration through

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institutions like PATF & NMET.

⑦ Increased collaboration in ~~int~~ intelligence & fugitives through agencies like Interpol.

⑧ Government being watchful of drug trafficking - 1. 21000 more drug haul at Mundra Port in 2021

⑨ Successful prosecution of money laundering cases - current CR. cases under PMLA have reached conclusion.

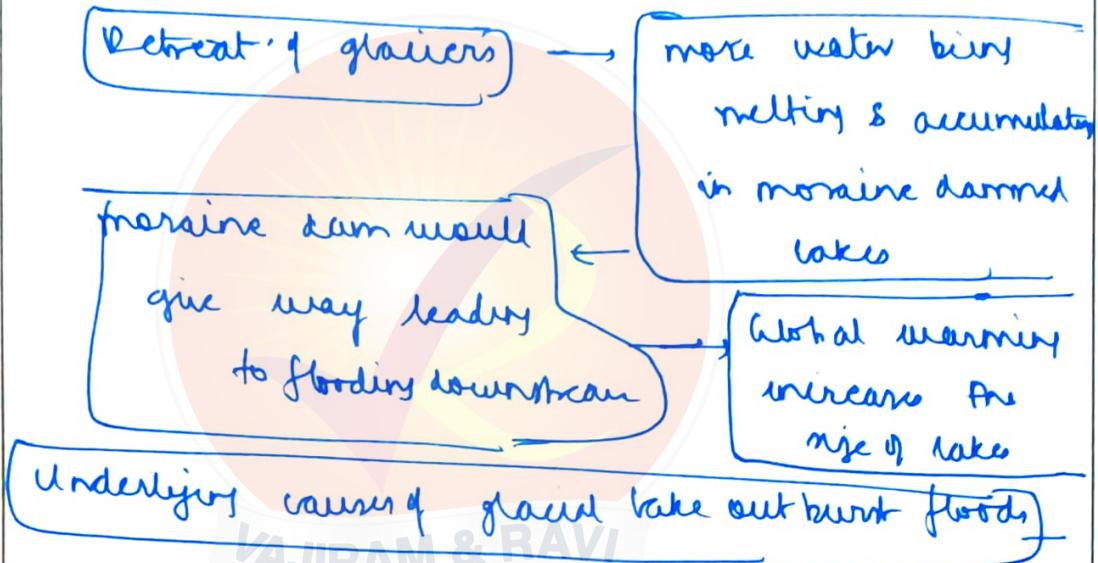
Money laundering & drug trafficking are twin agents of macro economic & social chaos. Governments need to devise a whole of the world approach to combat these twin challenges.

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20. The retreat of Himalayan glaciers, driven by global warming, has increased the frequency and intensity of Glacial Lake Outburst Floods. Discuss the underlying causes of Glacial Lake Outburst Floods and recommend adaptive strategies to manage such disasters effectively.

(15 marks, 250 words)

A glacial lake outburst flood was said to be main reason behind the Kedarnath disaster in 2013 which led to the death of thousands



Underlying causes of glacial lake outburst floods

- ① expansion beyond capacity of moraine dam - would lead to water leaking out raising water level downstream
- ② underground aquifer being punctured
 - 1- in Tapovan - Vishnugad hydropower project in 2021 - led to flooding

- ⑫ Increasing rain - 1- Kedarnath 2013.
- ⑬ Earthquakes ~~causing~~ causing liquefaction causing walls to collapse & water to leak
- ⑭ Global warming increasing size of glacial lakes - 1- glacial lakes in Tibet have expanded by 40% in the last decade
- ⑮ With increase in global warming, more & larger glacial lakes are being formed increasing both frequency & intensity of glots

Adaptive strategies that could be taken

- ① Monitoring the level of water in any lake - 1- in South Uthorak lake in Sikkim
- ② Taking discriminatory measures through infrastructure - 1- creating tunnels in the lake to reduce water level gradually
- ③ Stabilization of walls of the dam - to increase strength & reduce chances of

total collapse of the wall at once.

- ⑫ Satellite monitoring of vulnerabilities.
- ⑬ Monitoring of water in downstream water bodies - would help give advance warning if required.
- ⑭ to orderly relocation from the most vulnerable areas if required.

Glacial lake outburst floods would increase with the increase in global warming. These measures need to be taken for both adaptation & mitigation.

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