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GENERAL STUDIES (TEST CODE : 1419)

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Medium Eng./Hindi	ENGLISH	Registration Number	
Center	BENGALURU	Date	5/1/2021

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- 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.
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।
- Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar
Delhi- 110009

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.

4.

5.

6.

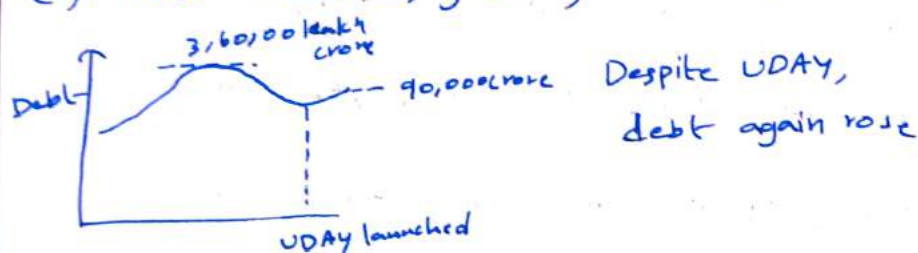
1. Highlighting the issues associated with power discoms in India, discuss whether privatizing discoms can help in this regard. (150 words) 10

भारत में विद्युत वितरण कंपनियों (डिस्कॉम्स) से जुड़े मुद्दों पर प्रकाश डालते हुए, चर्चा कीजिए कि क्या डिस्कॉम्स के निजीकरण से इस संबंध में सहायता मिल सकती है।

DISCOMM are entities, which are involved in distribution of power from GENCOMMS to customers

Issues associated

- (i) Poor finances, growing NPAs & debt



- (ii) Poor managerial and operational ability

Eg - low load factor, 23% Transmission loss (euphemism for theft), lack of metering

- (iii) Unreliable electricity, power cuts, high cost of power makes industry uncompetitive

- (iv) Misuse by states for populist policies like free electricity

Reform of privatizing discoms

- (i) Ministry under Aditya scheme, mooted this proposal
- (ii) Improve operational efficiency
Eg - Delhi Discoms after reforms
- (iii) Increase affordability, competition on the sector
- (iv) Better choice for customers
- (v) Reduce losses to tax payers money
- (vi) Other options like franchising have helped curtail losses for ORISSA

Thus, there is need for privatization of DISCOMS, which was the goal of electricity Act, 2003 to make 'One Nation one electricity Market'. DBT can be used for poor and vulnerable people

2. Harnessing Smart Agriculture can potentially be a game-changer for farm productivity in India. Discuss. (150 words) 10
स्मार्ट कृषि का दोहन संभवतः भारत में कृषि उत्पादकता के लिए निर्णायक सिद्ध हो सकता है। चर्चा कीजिए।

Smart Agriculture - use of modern technology like laser levelles, AI, cloud computing, Drone, Agribots etc for Agriculture

Game changer for farm productivity

(i) Laser levelley tractors can reduce water wastage and improve water-use-efficiency

(ii) New Generation - Precision Agriculture can upgrade Indian Agriculture on modern lines.

It involves

Nanobiosensors
for measuring
soil health &
lifestock health

Drones & Agribots
for spraying pesticides
& nutrients.

(iii) Smart Agriculture also uses cloud computing for sharing of data, better practices

Case study - Intello labs takes photos of various seeds, to assess quality (Deep learning)

(iv) It also improves sustainability of farming, by making it climate smart in terms of using Genetically modified seeds for Drought tolerance

Thus, there is a need for increasing R&D in Agriculture from present 0.8% Agriculture GDP to 3% and invest in extension measures, with greater private participation to take technology from lab to farms.

3. Rather than focusing solely on quantity, inclusive growth concerns itself with the quality of growth. Discuss. (150 words) 10

केवल परिमाण पर ध्यान केंद्रित करने के बजाय समावेशी विकास, संवृद्धि की गुणवत्ता के साथ भी अपना सरोकार रखता है। चर्चा कीजिए।

According to World Bank,
Inclusive growth is broad-
based, pro poor growth, in which
growth leads to development of even
the poorest of the poor.

>> Growth simply focus on Quantity,
measured through GDP figure, in
accessing the rate of development
>> It can hide the inequality,
in income, opportunities, resource access

whereas Inclusive Growth focuses on
quality of growth, which is

>> Investment in physical infrastructure.
like rural roads, electricity
connectivity,

connectivity of optical fibre

Eg- electricity connectivity lead to AMUL revolution

Internet - Tribal Art marketability
(ST entrepreneurship) Trited

>> Investment in social Infrastructure

for Equity, Social capital,

participation, Good Governance

>> Vaccination, drinking water, PHUs

can bring lot of qualitative
change to people

>> Women empowerment through access
to toilets, Skilling (USTAAD, Nai
Rashmi), NRLM

Thus, Growth should be
inclusive to make it more

sustainable, as well as promote

justice, as envisaged in Directive
principles of state policy.

4. In the backdrop of Atmanirbhar Bharat, discuss the core areas crucial in export promotion for India to become a manufacturing hub.

(150 words) 10

आत्मनिर्भर भारत की पृष्ठभूमि में, भारत के लिए एक विनिर्माण केंद्र बनने हेतु निर्यात संवर्धन में महत्वपूर्ण मुख्य क्षेत्रों (कोर एरिया) की विवेचना कीजिए।

Atmanirbhar Bharat is a motto,
promoted by Prime ministry to
increase self reliance (Atmashekli),
and promote decentralized localism
(vocal for local)

[Core areas]

<i> Textile and apparel manufacturing
has \$ 700 billion world market,
with India just \$20 billion market.

<ii> It is our comparative advantage,
with 80 times more labour intensive
than automobile.

cii) Footwear and leather area,

(iv) Toy making has \$200 billion market, with negligible market for India

(v) Kitchen ware like utensils, cookers.

(vi) 'Pharma manufacturing', India can build on strong domestic sector

(vii) 'Food processing' - sunrise sector, where India can act as Global food factory

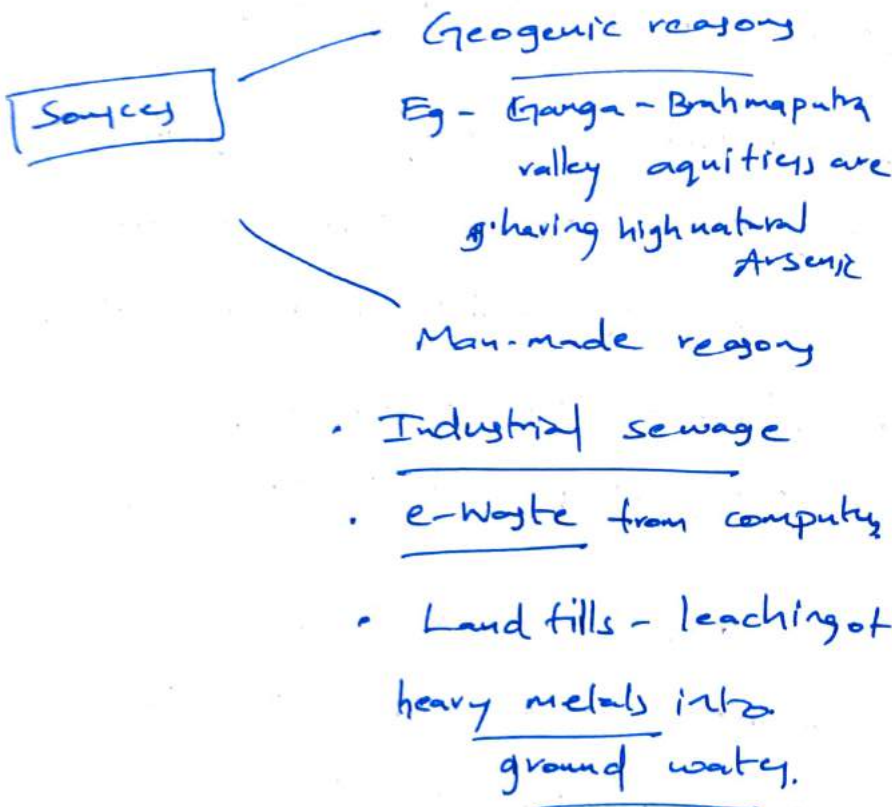
(viii) Assembly of Network products can create ~~5~~ 5 crore jobs by 2025 (Economic Survey)

For this India need to build on labour reforms, for greater land reforms, ease of doing business and trade liberalization and FTAs with EU, UK, Australia

5. Arsenic pollution is becoming a severe environmental issue in India. Enumerating its various sources, discuss the consequences and measures to tackle it. (150 words) 10

आर्सेनिक प्रदूषण भारत में एक गंभीर पर्यावरणीय मुद्दा बनता जा रहा है। इसके विभिन्न स्रोतों को सूचीबद्ध करते हुए, इसके परिणामों और इससे निपटने के उपायों पर चर्चा कीजिए।

Arsenic is heavy metal, has very high toxicity. According to CSE, India has severe ~~ext~~ Arsenic contamination



Consequencey

- Black foot diseasey
- Neurological disorders

Measures

- <i> Testing of Acquityy in valueable
regiony and prevent its usage.
- <ii> 'Circular economy' - recycling
, reuse, reduce of e-waste in cityy
Eg- Start up Infotrek in Bangalore
- <iii> Treatment of Industrial
sewage, to prevent contamination

SDG- 6 clean waty and
contamination requiry prevention of
contamination and pollution of
watyy

6. The Green Term Ahead Market (GTAM) can invigorate the renewable energy sector in India. Evaluate. **(150 words) 10**

ग्रीन टर्म अहेड मार्केट (GTAM) भारत में नवीकरणीय ऊर्जा क्षेत्र को सुदृढ़ बना सकता है।
मूल्यांकन कीजिए।

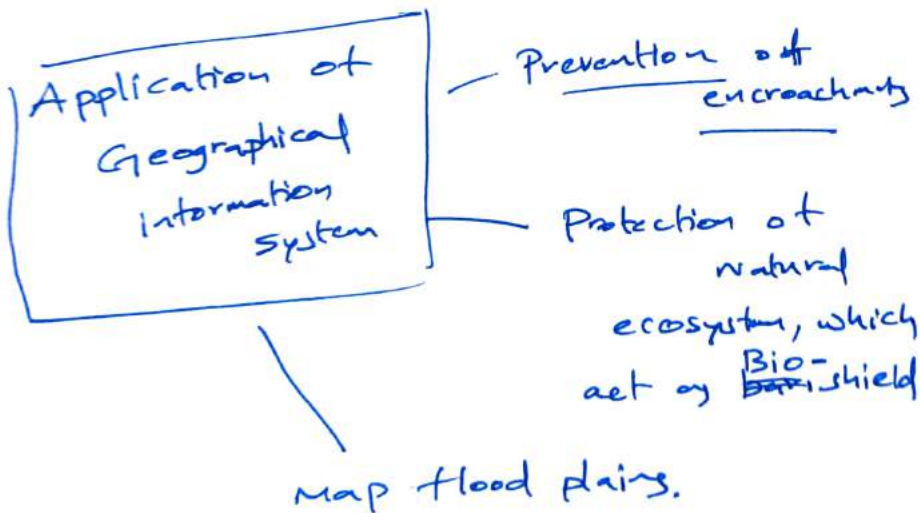
7. In context of the increasing importance of technology for disaster management, throw some light on the application of GIS and Remote Sensing in disaster management with specific examples from India.

(150 words) 10

आपदा प्रबंधन के लिए प्रौद्योगिकी के बढ़ते महत्व के संदर्भ में, भारत से विशिष्ट उदाहरणों को प्रस्तुत करते हुए आपदा प्रबंधन में जी.आई.एस. और सुदूर संवेदन के अनुप्रयोग पर कुछ प्रकाश डालिए।

Technology plays crucial
role in disaster risk reduction
and preparation.

Eg- Brenno Aires uses sensors in
canals, to assess flood situation



Application of Remote sensing

Hazard Risk vulnerability assessment

zoning of risky area helping developing insurance market-

Early warning on movement of cyclone

Disaster management studies on plate movement, mapping of plates, faults

8. The CRISPR/Cas9 genetic scissors have revolutionized the genome editing technique with applications in various areas. Discuss. (150 words) 10
- क्रिस्पर/कैस9 (CRISPR/Cas9) आनुवंशिक कैंची द्वारा विभिन्न क्षेत्रों में अनुप्रयोगों के साथ जीनोम संपादन तकनीक में क्रांतिकारी परिवर्तन का संचार किया गया है। चर्चा कीजिए।

CRISPR - clustered regularly

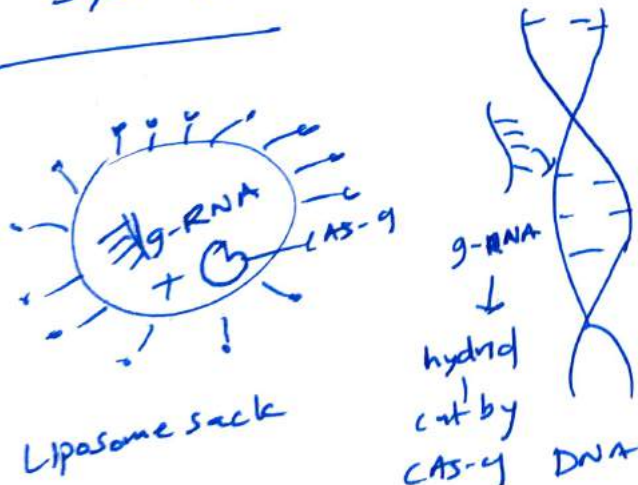
interspaced short palandromic repeats

— CAS9 (CRISPR) associated system.

Endonuclease to cut RNA
— DNA hybrid

>> It is a molecular scissor which
offers simple, cheaper, efficient
gene editing

>> Inspired from Bacterial immune
system



- » It can do more than cutting
- » Replace new Gene (Gene insertion)
- » Add fluorescent protein, inactivate Gene, mutate a base

Application

- » Treat Gene disease like Cardiac Hypertrophy, Sick cell cell ^{anemia}, Thalassemia
- » Immunotherapy for cancer treatment
- » GM-organism ——— seeds
— Animals like transgenic cows, sheeps
- » Advanced vaccines, diagnostics
- » GM-chicken can lay therapeutic proteins

9. Bring out the role played by Financial Action Task Force in tackling the menace of money laundering. (150 words) 10
धन-शोधन के खतरे से निपटने में वित्तीय कार्रवाई कार्य बल द्वारा निभाई गई भूमिका को स्पष्ट कीजिए।

Financial Action Task Force is a multilateral agency established to prevent money laundering and funding to terrorism. It seeks to maintain financial integrity in the Banking system.

Role played by FATF

- (i) Arrange conference for member countries to discuss the best practices
- (ii) Recommend member states to adopt legislation and prevent loopholes in legal jurisdiction
Eg — India adopted standalone Prevention of money laundering (PMLA) Act, 2005

on FATF advice

(3) Can put countries under black list, Grey list for failing to meet steps

Iran - Black list; Pakistan - Grey list
North Korea

(4) If countries are in blacklist, their financial system will be isolated from Globalized Banking system

(5) This act as check against country
{accountability}

Eg- Pakistan at least superficially trying to meet FATF norms

Thus, FATF filled global institutional vacuum to tackle the menace of money laundering, affecting many countries

10. Discuss the recent reforms that have been undertaken in the National Security Architecture of India. (150 words) 10
भारत की राष्ट्रीय सुरक्षा संरचना में हाल ही में किए गए सुधारों की विवेचना कीजिए।

National Security Architecture
relates to institutional structure
and systems, chain of command for
safeguarding National security.

Recent Reforms

- (CDS)
ci) Chief of Defence Staff to increase
interoperability between various forces and
provide single point military advice.
/ heading Department of military affairs
- (ii) He will head the Nuclear
Command and proposed cyber command
- (iii) National security Adviser (NSA)
role has been increased and
his rank was made equivalent to
Cabinet minister

(iv) National security board and council, to act as think (~~an~~) tank and advisory body to the government

(v) Enlargement of Chinese study group (CSG) to act as policy advisor on china issues

Further more, we need to enact reforms like Defense university, premier technical intelligence body (combining NTRO + Aviation research) as recommended by Dr. K. Subramanyam committee (Father of Indian nuclear doctrine)

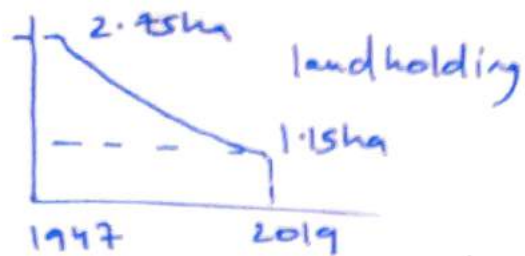
11. Bring out the key hurdles that are being faced in accomplishing land reforms in India. Also, discuss the advantages which can be reaped by accomplishing them in contemporary times. (250 words) 15

भारत में भूमि सुधारों को पूरा करने में सामना की जा रही प्रमुख बाधाओं को स्पष्ट कीजिए। साथ ही, समकालीन समय में इन्हें पूरा करने से होने वाले लाभों की भी विवेचना कीजिए।

Land reforms are policy intended to improve the land management system, ownership issues, consolidation to improve productivity and modernization of records.

Key hurdles in accomplishing land reforms

- (i) Poor land records, post independence land records are not given due weightage
- (ii) Lack of conclusive land titles, is leading to litigation and hurdles in land acquisition
- (iii) Extreme land fragmentation, leads to large number of stakeholders to deal with.



85% farmers,
small & medium
($< 2\text{ha}$)

(iv) Fear of land grab and state acquisition is making retorny like consolidation, cooperative farming, land leasing difficult)

(v) Due to political issues, Land acquisition is made further difficult under Land acquisition Act, 2013

Advantages, that can be repend

(i) Model land leasing Act, can benefit sub-tenants as they will have assured contract and help in accessing credit

(ii) Land digitalization can reduce civil litigation and help

in easy monetization of land

(iii) Land Banks and easy land conversion can help in Industrialization, Urbanization and Affordable rental Housing

(iv) Farmers under Farmer Production organization (FPO) can organize as joint stock company (cooperative farming)

(v) This can help in utilization of 'Economics of scale' and improve farm income

In this regard, Government recently launched PM SVAMITA, this need to be properly implemented to ~~make~~ adopt world's best practices.

12. India needs to accord more significance to nutritional security than food security. Comment. In this context, suggest a framework that should be adopted by the government to achieve nutritional self-reliance.

(250 words) 15

भारत को खाद्य सुरक्षा की तुलना में पोषण सुरक्षा को अधिक महत्व देने की आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में, वह रूपरेखा भी बताइए जिसे सरकार द्वारा पोषण संबंधी आत्मनिर्भरता प्राप्त करने के लिए अपनाया जाना चाहिए।

According to recent NFHS-5, India's nutritional security is problematic. 52% women are anaemic, 32% children stunted, 33% children wasted.

>> Children from 6 months - 12 months, only 10% are receiving perfect diet.

This shows the glaring "Hidden hunger".

More significance to nutritional security
than food security

(i) After Green revolution, with rise of rice and wheat, production India achieved Food security and self reliance.

(iv) It is in the area of nutritional security that, India lacks.

(iii) Protein and vitamin rich food like milk, meat, pulses, oil seeds are still inaccessible for majority of poor population.

Frame work for Nutritional self-reliance

(i) MSP system should be reformed.

(ii) As Dr. Swaminathan says, MSP needs to consider the social costs of crop. Pulses, oil seeds score high

(iii) Diversification of PDS, where state should be given priority to purchase local pulses, Millets

(iv) Decrease informational asymmetry on nutrition (AASHAs can be utilised for Jan - Andolan)

(v) 'Nutritious' can be adopted in tribal areas, which have severe malnutrition

(vi) Intervention like Deworming, Iron-folic acid, Iodized salt, can be increased

(vii) Sustain open defecation free state (Swachh Bharat — Swasth Bharat), as it reduces contamination

(viii) Improve Immunization coverage, to prevent disease (Mission Indrakshi)

Thus, our food security policy need to be upgraded to New generation, nutrition centric strategy

13. Private investments are key for India to move into a high growth trajectory. Discuss. Also highlight the steps taken by the government in recent times to address the fall in private investments. (250 words) 15

निजी निवेश भारत के लिए उच्च संवृद्धि पथ पर आगे बढ़ने हेतु महत्वपूर्ण हैं। चर्चा कीजिए। साथ ही, निजी निवेश में गिरावट को दूर करने के लिए हाल के दिनों में सरकार द्वारा उठाए गए कदमों को भी रेखांकित कीजिए।

According to (Private) Economic survey, Private investment is one way to tackle both demand, as well as, supply side issue and revive animal spirits to India

Importance of Private Investment

(i) Today's investment is tomorrow growth.

(ii) They can improve technology aspect of the production and make goods more competitive

(iii) Increase exports, employment, wealth creation (as all are intelylinked)



low demand
poor supply

Investment →



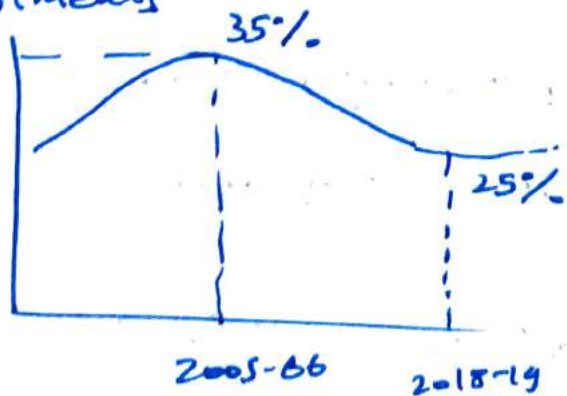
high demand
high supply
, IPRs

» Economy of East Asia (Japan, Korea)
Tiger economy of south ~~As~~ East
Asian are driven by Private investment.

» Great private investment, better
creative destruction, use of resources

» It also shows the dynamism and
entrepreneurship of the economy

In Recent past, India has seen decrease
in investment, mainly driven by private
investments



Recent steps by Government

- <i> i) Insolvency and Bankruptcy code to tackle the growing NPAs (recognize, resolve, recapitalize, reform Banking sector)
 - <ii> Liquidity Injection into NBFCs
 - <iii> RBI has decreased repo rate to 4% (easing of monetary policy)
 - <iv> Liberalization of FDI in sectors like Defence, space, infrastructure etc
 - <iv> Under National Infrastructure pipeline, government plans \$1.4 trillion investments in next five years
 - <vi> Reforms in Agriculture sector to boost private investment in marketing
 - <vi> Improved ease of doing business, labour reforms, GST, Direct tax code
 - <vii> Corporate tax / 22%, 15% for new ^{company}
- Thus, private investment need to be revived with policy consistency and better contract enforcement.

India's geographical diversity and varied terrain necessitate a targeted region specific action plan to ensure a minimum acceptable level of prosperity. Elaborate. (250 words) 15

भारत की भौगोलिक विविधता और विभिन्न क्षेत्रों में विकास के भिन्न-भिन्न स्तर समृद्धि के एक न्यूनतम स्वीकार्य स्तर को सुनिश्चित करने के लिए एक लक्षित क्षेत्र विशिष्ट कार्य योजना को आवश्यक बनाते हैं। सविस्तार वर्णन कीजिए।

India's geography is diverse with various topographic features like Mountains, Deserts, islands, plains, plateaus, coasts etc.

Variable levels of development

<i>i> North East contributes just 2% to GDP with vast per-capita difference

Sikkim - 2,33,000 +

Manipur - 55,736

<i>ii> Rain shadow regions like Rayalseema, Vidarbha has low levels of irrigation facilities, reflected in its development

<i>iii> Mountain region suffers due to lack of connectivity

<iv> Plains, coasts are more prosperous
due to better Agriculture and commerce

<v> India also East-west divide
in terms of development. (Not North
- south divide as popularly accepted)

This calls for the specific action
plan, for minimum levels of development

<i> This is reflected in the asymmetric
federalism of India.

Eg - (a) Special status to hilly states, which
get better central funds.

(b) Schedule 6 areas of North East
for autonomy in governance

<ii> Planning commissions. Backward
district programmes, remodelled into
Aspiration district programmes by
NITI Aayog.

<iii> It has element of cooperation,
competition

<iv> Some of the constitutional Articles also mandate specific regional boards for development & equitable distribution

Eg- Vidharbha. board of Maharashtra

Thus, Region specific plan helps in development in bottom up approach and promote Inclusive growth.

ensuring the farmers by ensuring barrier-free trade in the agriculture produce is critical in doubling their incomes. Enumerating the existing bottlenecks, discuss how the recent legislations can help in overcoming them.

(250 words) 15

कृषि दाम का निर्बाध व्यापार सुनिश्चित करके किसानों का सजनीकरण करना उनकी आय दोगुनी करने में महत्वपूर्ण है। वर्तमान बाधाओं का उल्लेख करते हुए, चर्चा कीजिए कि इन पर नियंत्रण घटाने में हालिया अधिनियम कैसे सहायता कर सकते हैं।

Economist Bhagwati stated

that state is the biggest problem in Agriculture, which has created barriers under the guise of protection.

This was reiterated by Ashok Dalwai committee for Doubling of farm income.

Existing bottlenecks

<i>(i)</i> Policy inconsistency on exports

Eg - In last 4 years, onion export policy changed 23 times, making it difficult to access world markets

<i>(ii)</i> Restrictive APMC, which act as 'Monopsony' and fragment market -

- <iii> Essential commodities Act, put arbitrary restriction. This inhibited investment into storage, transportation
- <iv> Lack of contract farming framework, resulted in middlemen between retailers and farmers
- <v> Extreme price wedges and market fluctuation
- <vi> Lack of New technology adoption and diversification into high value horticulture, animal rearing, pisciculture etc

Role of recent legislation (hailed as 1991 - Agriculture moment)

- <i> Monopsony of APMC removed, this can increase competition and better price discovery to farmers
- <ii> Contract farming - direct contract between farmers and retail

, hedge risk to farmers and increase investment, better seeds.

<iii> Amendment Essential commodities Act,
reducing the restriction on stocking for
exporters, processors, retailers etc. This can
improve storage investment and stabilize
prices.

Furthermore, Government should
utilize Agriculture Infrastructure
fund (₹ 1 lakh crore) for better marketing
Infrastructure. Allows options of
commodity trading, futures. This can
help in not only spatial, but
also temporal integration of markets.

16. The reasons for recurring floods in the regions of Eastern India such as Bihar and Assam go far beyond their topography. Discuss. Also, suggest measures to control this menace. (250 words) 15
- बिहार और असम जैसे पूर्वी भारत के क्षेत्रों में बार-बार आने वाली बाढ़ के लिए केवल उनकी स्थलाकृति उत्तरदायी नहीं हैं। चर्चा कीजिए। साथ ही, इस खतरे को नियंत्रण में लाने के उपायों का भी सुझाव दीजिए।

According to Central water commission, there wasn't a single year, when some or other parts of Bihar, Assam faced floods

Reasons

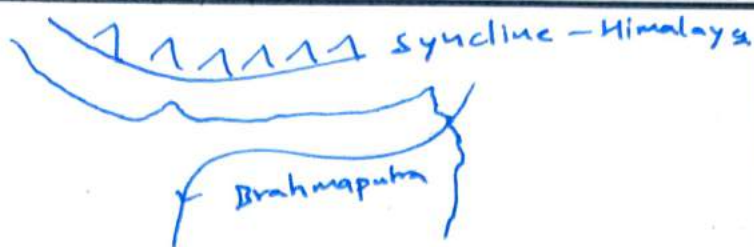
<i> <u>topography</u>

Assam - faces Brahmaputra river with high sedimentation in the region

Bihar - Kosi river (sorrow of Bihar) passes through Bihar plains.

<ii> 'Syncline' barriers, shifts

Brahmaputra flow perpendicularly, this act as flow rate retards, increasing floods



(iii) Seismic activity - leads to change of course in this rivers

(iv) Increased population density, lead to encroachment of flood plains, further increasing vulnerability

(v) Man-made reasons like Farakka Barrage has increased the flood affected region in Bihar

(vi) According to many Hydrologists, it is heavily silted, lead to Back water floods.

(vii) Climate change leading to greater melting of glaciers. (Himalayas - are source of this rivers)

Measures to control this menace

<i> i) Better embankments and dykes
in highly vulnerable areas

<ii> Prevent encroachment into
Hood plains

<iii> Greater Afforestation measures
upstream (Watershed management) to
prevent soil erosion

<iv> River Basin management can
offer holistic approach in dealing
with floods

<v> Periodic desiltation measures by
Dam

<vi> traditional knowledge like Bamboo
house can also be utilised to adapt
to floods

Thus, better Disaster risk
reduction approach should be adopted
by better planning, to increase resilience

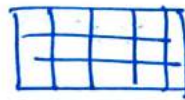
17. How can 5G technology potentially bring about a digital revolution in India? Identify the challenges in adoption of 5G technology in India.

(250 words) 15

5G प्रौद्योगिकी संभावित रूप से भारत में एक डिजिटल क्रांति कैसे ला सकती है? भारत में 5जी प्रौद्योगिकी को अपनाने में आने वाली चुनौतियों की पहचान कीजिए।

5G - is next ~~tech~~ Generation cellular technology, which has ultra low latency. It is intact combination of technologies like.

- (i) mm Waves (micro)
- (ii) Multi Input - multi output
- (iii) Multi division of packets



It offers 100x 4G speed, better quality streaming, support high density

Importance of 5G in Digital revolution

>> According to TRAI, it can add \$1.3 trillion to Indian economy

>> Offers high data speed to support mobile or hand held computers with

8K movie videos

- » Back bone of new technology like Algorithm trading, Driverless cars, telesurgery, Internet of things (IoT)
 - » Increase the usage of Digital services like cloud computing, internet protocol television, telephone
 - » Support 3D-games, planned by Google like Project Stadia
 - » Increase the access to digital financial services, making them more secure
- Challenges in adoption

<i> Huawei, ZTE are facing global backlash, as their devices are alleged to have backdoors for Cyber espionage

<ii> Geo techno competition between
U.S.A and china

<iii> U.S.A adopted Clean telecos
alliance

<iv> Great spectrum costs in India,
highest in the world. As a result
40% ~~5G~~^{4G} is still unutilised.

<v> Many Telecomms companies are
yet to utilise. the revenue potential
potential of 4G

<vi> Telecom sector is reeling under
NIPAs, with debt burden of ₹4.6
lakh crore

<vii> Policy inconsistency - Retrospective
taxation of Vodafone.

India needs to form
alliance with other like minded
country, for faster, safer adoption
of 5G technology

18. Besides computing, quantum technology has potential applications in various areas. Discuss. What are the challenges which lie ahead for effective utilization of quantum technology? (250 words) 15

संगणना के अतिरिक्त, क्वांटम प्रौद्योगिकी के विभिन्न क्षेत्रों में संभाव्य अनुप्रयोग हैं। चर्चा कीजिए। क्वांटम प्रौद्योगिकी के प्रभावी उपयोग के समझ आने वाली चुनौतियाँ क्या हैं?

Quantum technology use
principle of quantum mechanics
for application

Eg- Quantum computing uses
Qubits, instead of bits (0, 1)
used by Normal computing



Other Applications

(i) Quantum cryptography - for
secured communication between
defence devices

Eg- China recently used this
in satellite, for Quantum
communication.

<ii> Quantum entanglement - If one proton spin changes, then others spin also changes.



This helps in preventing forgery,
duplication

<iii> New material and form of
matter

Eg- Bose-Einstein condensate

<iv> Deep understanding of Quantum
phenomenon, as well as, cosmic
body

Challenges

<i> Highly cost intensive

<ii> Requires extremely high
skilled human capital.

(iii) Uncertainty in usage, inhibits usage.

(iv) Requires lot of data

(v) Quantum coherence is difficult to stabilize

(vi) Requires huge amount of precious metals

India recently announced National Quantum computing mission, with outlay of ₹ 80000 crore, necessary infrastructure, human capital, international collaboration is needed to stay relevant with changing technology.

19. While most insurgent groups in North-East India have signed peace accords and are engaged in peace talks with the government, a number of issues could create hurdles in the future. Discuss. (250 words) 15
जहाँ पूर्वोत्तर भारत में अधिकांश विद्रोही गुटों ने हथियार छोड़ दी है और सरकार के साथ शांति वार्ता में संलग्न हैं, वहीं अनेक ऐसे मुद्दे हैं जो भविष्य में बाधाएं उत्पन्न कर सकते हैं। चर्चा कीजिए।

North East India is called

'land of thousand militancy', with various insurgent groups, with different and conflicting goals. As time passed, many gave up violence and engaged in peace talks.

(i) Assam peace Accord in 1984, act as dampener in violent Assam Agitation

(ii) Groups like Assam Gana Parishad, All Assam Student Union, engaged in peace talks

(iii) Mizo peace accords - lead to harmony & in Mizoram, to some extent

<iv> 16-point agreement and Shillong agreement lead to many Naga groups, joining mainstream

<v> 1997 - cease fire and Naga peace talks with various Naga political action groups

<vi> Third Bodo peace Accord - tripartite between Union, Assam, NBLF.

<vi> Many factions of National Tripura liberation front gave up Arms.

Many issues could create hurdles

<i> Naga peace pact is seen as sensitive, across neighbouring states affecting their territory and peace process

<ii> Minorities in District council, have grievances like Discrimination

and violence. against Non-tribal,
(As highlighted by Bhuria committee)

(iii) Border issues between various
states

(iv) Bmpeace process is causing tension
in Tripura.

(v) Failed NRC in Assam and delay
in sec 6 ~~of~~ of Assam Accord,
implementation

Thus, resolve these issues

need great political will and statecraft.

Added to it, North-East needed to
be better integrated into the economy,
through connectivity projects, Horticulture
(Organic farming), Encouragement of
Tourism.

20. Identifying the key vulnerabilities in India's cyberspace, discuss the framework which should be adopted in the envisaged new cyber security policy in India. (250 words) 15

भारत के साइबर जगत में प्रमुख सुभेद्यताओं की पहचान करते हुए, उस रूपरेखा पर चर्चा कीजिए, जिसे भारत में परिकल्पित नई साइबर सुरक्षा नीति में अपनाया जाना चाहिए।

According to ITU, Global cyberspace Index India rank fell from 23rd to 43rd, due to increased vulnerabilities. India is loosing \$20 billion per annum due to cyber security weakness.

Key vulnerabilities

<i> Increased ^{smart} mobile coverage ~ 700 million, added to Digital illiteracy leading to high cyber crime OTP, ATM PIN related

<ii> Attitudinal issues like weak protection measures and use of pirated software

- <iii> Recent Kandakulam plant cyber attack showed the vulnerabilities of our critical infrastructure
- <iv> Poor cyber ecosystem - startups, cyber security agencies
- <v> Use of imported substandard devices like from Huawei
- <vi> Low R&D spending, poor human capital.
- <vii> loopholes in technological regime, IT Act is slightly outdated

Framework for New cyber security Policy

- <i> Invest in R&D infrastructure, with PPP ecosystem
- <ii> Better testing ecosystem for devices.

(iii) International collaboration for best practices

Eg - India - U.S.A
India - Japan Cyber framework

(iv) Creation of Cyber command, cyber warfare tools, digital Armed forces, Doctrines into cyberspace

(v) Improve coordination between different agencies

(vi) Increase the capacity building of cyber policy ~~po~~ station, for better conviction rate.

Thus, policy should strive to make Cyber space more safe, secure, user friendly, democratic and promote 'Digital Peace' and protect 'Digital Sovereignty'