

NEXT IAS

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NEXT IAS Roll No.: MT23FLTPA004 Date of Examination : 16.08.2023.

Exam Centre : Old Rajinder Nagar ☒ Bhopal ☐ Online ☐

Test Code : _____ Program : FLT ☐ FLT+ ☒

MAIN TEST SERIES 2023 (FULL LENGTH TEST-3)

GENERAL INSTRUCTIONS

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Question paper will be provided separately and can be taken by the candidates after conclusion of the exam.

SUBJECT/PAPER :
GENERAL STUDIES

Invigilator's Sign. :



(For filling by Examiners only)

Evaluator Code :

Q.No	Pg No.	Maximum Marks	Marks	Total
1	1			
2	3			
3	5			
4	7			
5	9			
6	11			
7	13			
8	15			
9	17			
10	19			
11	21			
12	24			
13	27			
14	30			
15	33			
16	36			
17	39			
18	42			
19	45			
20	48			
Grand Total				

Signature

MACRO COMMENTS



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2. Write your registration number and other particulars, in the space provided on the cover of QCA Booklet.
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Q.1

अप्रत्याशित कर (विंडफॉल टैक्स) से आप क्या समझते हैं? क्या आपको लगता है कि अप्रत्याशित करों से संपदा का प्रभावी ढंग से पुनर्वितरण हो सकता है और अधिक आर्थिक समानता को बढ़ावा मिल सकता है?

(150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Windfall tax? Do you think that windfall taxes can effectively redistribute wealth and promote greater economic equality?

(Answer in 150 words) 10 Marks

Windfall taxing refers to the phenomena of taxing enterprises who earn profit due to apparent change in global prices of commodities.

for-egs volatility in prices of crude oil leading to unexpected profit to oil companies.

Feature (windfall tax)

- (i) Not a sustainable source of revenue.
- (ii) Depend on global price movement.
- (iii) Not considered regular source of taxation by states.

Windfall tax can effectively redistribute wealth

- ① Given their momentarily/spontaneous nature they are less reliable as source of revenue

- (ii) Dependence factor - makes them unsustainable
- (iii) do not form a regular revenue source - so
cannot be considered as reliable earring for
redistribution.

Windfall taxes, due to their spontaneous
character cannot be considered an effective tool of
income redistribution.

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- Q.2. नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने की कथित सफलताओं और चुनौतियों पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Discuss the perceived successes and challenges of implementing inflation targeting under the new Monetary Policy Committee (MPC) regime. (Answer in 150 words) 10 Marks

The Monetary Policy Committee (MPC) regime was established by present government under RBI guidance for better inflation targeting and control.

So far its successes can be enumerated as :-

- ① Successful check on inflation in the range of $4\% \pm 2$ as mandated.
- ② Insulated domestic inflation from global recession of inflation during 2021, 2022.
- ③ Tight monetary policy during entire ^{post} COVID time to ensure manageable inflation.
- ④ Loose monetary policy during COVID period - Increased Repo Rate by 225 BPP.

Challenges in implementing inflation targeting:-

- ① Global return of inflation due to COVID and Ukraine - Russia war.
- ② Volatility in crude oil prices due to Russian sanctions.
- ③ Global slowdown of demand and hesitant macroeconomic stability.
- ④ Overdependence on imports for vital items such as edible oil, crude oil, pulses etc.

Way out : ① Insulating domestic inflation from international market by strengthening macro-economic indicators

- ② Decrease dependence on oil import by giving support to domestic palm oil manufacturers.
- ③ Maintaining optimum buffer of crude oil at strategic reserves eg. India.

A stable macro-economic framework is vital to ensure timely realisation of SDG economy.

Q.3 भारत में सतत कृषि को बढ़ावा देने और खाद्य सुरक्षा में सुधार के लिए मोटे अनाज उत्पादन की क्षमता का आकलन कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Assess the potential of millet production in promoting sustainable agriculture and improving food security in India. (Answer in 150 words) 10 Marks

UN-FAO has declared ~~with~~ 2023 - as International year of millets to increase awareness about the benefits of nutri-cereals eg. jowar, bajra etc

Millet - promoting sustainable agriculture

- (i) Decreased dependence of chemical fertilisers, pesticides, weedicides etc
- (ii) low demand of irrigation - can grow in arid, semi arid condition
- (iii) higher production - more profit to farmers
- (iv) maintain soil health - micro & macro nutrient profile.

Millet - potential to improve food security

- (i) They are rich in micro nutrients such as Zn, iron, calcium etc

- ① Higher productivity even in dry-and condition
- ② Available at much lower price than wheat, rice products
- ③ Readily cultivated in most part of India viz. western, southern, northern states

However, the success of Choranna agriculture is hindered by a few challenges :-

- ① Dependence on rice-wheat system
- ② Lack of awareness regarding benefits.
- ③ Confined to a few states viz. Rajasthan, Gujarat, Karnataka etc

Way Forward ① Ensure 2450% MSP formula for millets - jowar, boro etc

② Include them in MDM scheme.

③ Awareness about their benefits to coastal & western states farmers

Millets have capacity to ensure double farm income by 2025.

Q.4 जल जीवन मिशन में पेयजल की उपलब्धता और पेयजल तक पहुँच में क्षेत्रीय विषमता को समाप्त करने का सामर्थ्य है। मिशन के महत्त्व पर प्रकाश डालते हुए, वांछित उद्देश्यों की प्राप्ति में अंतर्निहित बाधाओं पर चर्चा कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Jal Jeevan Mission has the potential to end the regional disparity in the availability and accessibility of drinking water. Highlighting the significance of the mission, discuss the underlying impediments in achieving the desired objectives.

(Answer in 150 words) 10 Marks

Jal Jeevan Mission (JSM) is a flagship scheme of Mo Jal Shakti to ensure 24x7 piped potable drinking water at rate of 55 L/person/day to every rural household by 2024.

Potential to end regional disparity

- ① Western & Central States are devoid of sustainable source of potable water
- ② Northern States villages are lack safe source of drinking water.
- ③ Women will used not to fetch water from ponds, wells in western states vs Haryana, etc

Significance — ① Fulfillment of Art. 21 — right to good health

- ① Easy access of water to marginalised poor and weaker sections.
- ② Saving of time by women - spent on fetching water from far off places
- ③ Ensure good health, women security and sustainable development

Impediments — ① Latest CAG report points only 60% completion till December 2022

- ① Disruption in supply chain due to COVID pandemic and instant lockdown
- ② Non-availability of critical material eg. pipes, iron rods etc due to global supply chain disruption — oil-Russia-Ukraine war
- ③ Non-availability of trained manpower to ensure timely construction targets.

Suggestions: ① Ensure smooth supply of critical materials eg. concrete, pipes

- ② Involve local representatives eg. MLA, Sampanch for timely completion

JTM is vital to ensure attainment of SDG-3 (Good health) by 2030.

- Q.5 बैटरी ऊर्जा भंडारण प्रणाली (बीईएसएस) से आप क्या समझते हैं? इसके अनुप्रयोगों पर चर्चा कीजिए और यह भारत के ऊर्जा कार्यक्रम में किस प्रकार क्रांतिकारी बदलाव ला सकता है। (150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Battery Energy Storage Systems (BESS)? Discuss its applications and how it can revolutionize the energy program of India. (Answer in 150 words) 10 Marks

Battery Energy Storage System refers to the infrastructure required to store the energy necessary to charge batteries such as Li-Ion as these used in EV (cars, scooters).

- Application
- ① Used to store energy required to recharge batteries
 - ② Used by EV such as scooters, cars, trucks, etc.
 - ③ Used to supply energy to light infrastructure such as street lighting
 - ④ Powers critical infrastructure protection centre controlled equipments e.g. pipelines.

BESS have capacity to revolutionize the energy programme of India

- ① Can readily contribute to Green Growth initiatives e.g. Green hydrogen production
- ② Can help decarbonise energy intensive sector e.g. transportation.
- ③ Can decrease import dependence of crude oil for energy requirements
- ④ Saves crucial forex spent on crude oil imports
- ⑤ Contribute to Panchamrit target — carbon neutral by 2070.

Given the importance of BESS, Budget 2023, also ~~made~~^{put} special focus and has allocated fund for installation of 4319WH capacity.

- Q.6 इसरो के गगनयान मिशन में हुए विकास और उपस्थित चुनौतियों पर संक्षिप्त चर्चा कीजिए। समाज के लिए मिशन के संभावित लाभ क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक

Discuss in brief developments and challenges in the Gaganyaan mission of ISRO. What are the possible benefits of the mission for the society? (Answer in 150 words) 10 Marks

Gaganyaan mission by ISRO is a manned space mission that aims to send 3 Indian astronauts into Lower Earth Orbit and bring them back successfully.

Development ① The crew of mission is being trained in Russia (6 selected astronauts)

② The mission will use LVM-III - India's heaviest and most advanced launch vehicle

③ The biological experiments are carried out by Bangalore based labs while launch related experiments at SHAR launch pad

Challenges: ① No prior experience in manned mission.

- ② Issue related to atmospheric re-entry most crucial part of manned space mission
- ③ logistical issues due to global supply chain disruption - mission pushed to 2024.

Possible Benefits for society :-

- ① Understanding of space ecosystem and experience on manned missions
- ② Readiness ISRO for future ambitious missions
e.g. Mars mission
- ③ Help in understanding the activities going on in LEO e.g. Kessler syndrome etc
- ④ Help ISRO prepare plans for sustainable solutions regarding space debris, etc

Gaganyaan mission is an ambitious space mission for India en-route the vision of developed nation status by 2047.

Q.7

“जलवायु परिवर्तन और प्रदूषण से निपटने की हमारी खोज में हरित हाइड्रोजन एक सरल और जादुई समाधान हो सकता है”। भारत के राष्ट्रीय हरित हाइड्रोजन मिशन के आलोक में कथन का आलोचनात्मक विश्लेषण कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

“Green hydrogen can be the silver bullet in our quest to tackle climate change and pollution”. Critically analyze the statement in light of India's National Green Hydrogen mission.

(Answer in 150 words) 10 Marks

Green Hydrogen refers to hydrogen obtained from electrolysis of water to separate hydrogen & oxygen using renewable energy e.g. solar & wind power.

India has launched dedicated Green H₂ mission to ensure optimum production of Green Hydrogen & ensure energy security.

Benefits :-

- ① Production of 500 MMT green hydrogen
- ② Generation of 120 MW of renewable energy
- ③ Boost to 50% share of renewable energy target under Panchamrit vision

(iv) Estimated employment generation - 6 lakh by 2030.

(v) Decarbonisation of several sectors eg. transportation, Industries etc.

However, green hydrogen is no panacea to climate change & pollution issue -

(i) Need of cheap electrolyser to carry out electrolysis of water

(ii) High cost of Green H₂ from electrolysis - 5 \$ against 2 \$ from Thermal power plant.

(iii) Lack of transitional capital & tech. know-how for industries to transition into green industry

Suggestion (i) Incentivise domestic manufacture of electrolyser by subsidy.

(ii) No mandatory adoption of Green Hydrogen by Industries

(iii) Technological upgradation of coal based power plants to bring down cost of power.

Green hydrogen is a futuristic solution for climate change ills and tool to achieve SDG-13.

Q.8

हाल ही में जोशीमठ, उत्तराखंड में आई आपदा के आलोक में, हिमालय क्षेत्र में आपदा प्रबंधन और पर्यावरण संरक्षण के लिए मुख्य सबक क्या हैं?

(150 शब्दों में उत्तर दीजिए) 10 अंक

What are the key lessons for disaster management and environmental conservation in the Himalayan region, in light of the recent disaster in Joshimath, Uttarakhand? (Answer in 150 words) 10 Marks

Disaster management Act, 2005 defines disaster management as those measures deployed in preparedness, mitigation and risk reduction related to disaster such as land slides, floods, earthquakes etc

Key lessons for disaster management & environmental conservation in Himalayas in light of recent disaster in Joshimath:—

- ① Adoption of Green Growth — a policy which affects environment at least level
- ② Fellw committee reports — before commencing any project eg Rancho Committee, Kasturba Committee

- ③ Involve locals in EIA - before commencing any ~~the~~ big infrastructure project.
- ④ multi-stakeholder approach regarding developmental plans and infrastructure projects
- ⑤ Integrating disaster management plans in district development plans
- ⑥ Sustainable tourism promotion in ecologically fragile ecosystem & region

India must follow Sendai framework in letter and spirit to ensure preparedness & mitigation of disaster in post.

Q.9

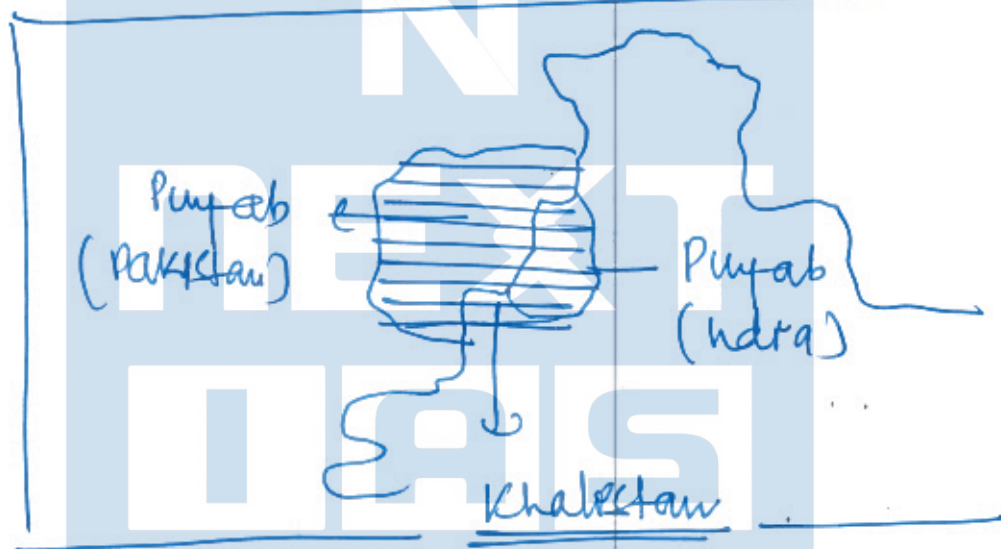
"पंजाब में हालिया कट्टरपंथी रुझानों से पता चलता है कि खालिस्तान का मुद्दा अभी भी उबल रहा है।" हालिया घटनाक्रम के संबंध में कथन पर चर्चा कीजिए और इससे निपटने के उपाय सुझाएँ।

(150 शब्दों में उत्तर दीजिए) 10 अंक

"The recent radical trends in Punjab show that the Khalistan issue is still simmering." Discuss the statement with respect to recent developments and suggest measures to handle it.

(Answer in 150 words) 10 Marks

Khalistan refers to a hypothetical parcel of land that includes Indian & Pakistan part of Punjab as a Sikh dominated land



Recent trends showing Khalistan issue is still simmering:

① The repeated attacks on Indian embassies of Canada, Australia & UK by Khalistan sympathisers.

- ① the case of Nabalpreet Singh and Ambitpal Singh - promoting Sikhism in Punjab
- ② Desecration of Indian Flag & Hindu Temples in US & Canada
- ③ Procession glorifying Indira Gandhi assassination in Canada.

How to deal :-

- ① Strong disapproval acknowledgments with governments of UK, Canada etc
- ② Diplomatic pressure to curb the Khalistan outfits in those countries
- ③ Trade Sanctions if failed to comply.

NSA Doral says - ability to become a strong nation includes ability to effectively tackle internal security issues as well.

- Q.10 ड्रोन संचालन में आसानी और साथ ही इसके संचालक की अनामिता, भारत की सीमा सुरक्षा की चुनौतियों में वृद्धि करती है। विस्तारपूर्वक वर्णन कीजिए और सीमावर्ती क्षेत्रों में ड्रोन समस्या से निपटने के लिए सुझाव दीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

The anonymity and ease of drone operation contribute to the challenges of India's border security. Elaborate and give suggestions to tackle the drone problem in border areas.

(Answer in 150 words) 10 Marks

India's border security is done by Border Guarding Forces viz. BSF, ITBP, AR, SSF etc

① Indo-Pakistan by BSF

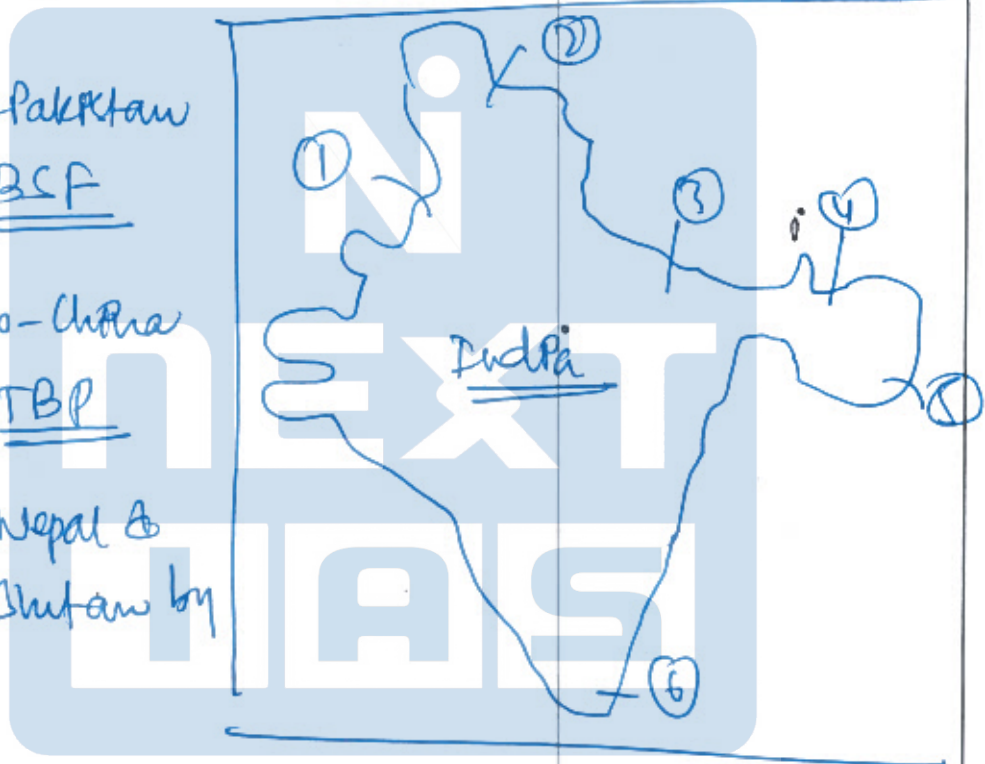
② Indo-China by ITBP

③ Indo-Nepal & Indo-Bhutan by SSF

④ Indo-Myanmar by Assam Rifles

⑤ Indo-Bangladesh by BSF

⑥ Maritime boundary by Navy & Coast Guard



Challenges pertaining to drones —

- ① Operated easily from cross-border into India e.g. Pok camps deploy drones into Kathua, R.S. Pura Jammu etc
- ② No chance of detection — due to operational anonymity & geographical anonymity
- ③ Used to drop drugs, weapons, IEDs etc near LoC villages & in Punjab.

Suggestion to tackle : —

- ① Strong radar network to detect & neutralise well outside Indian space
- ② Synergy among NTRD & Defense Intelligence for timely detection and coordinated approach.
- ③ Strong A-SAT weapon system e.g. S-400 triumph to destroy enemy drones.

Technological upgrades can help strengthen our border security.

- Q.11 विद्युत संशोधन विधेयक, 2022 उपभोक्ताओं, डिस्कॉम के साथ-साथ पर्यावरण के लिए कई लाभ प्रस्तुत करता है। सविस्तार वर्णन कीजिए। साथ ही इसकी कमियों को भी सूचीबद्ध कीजिए और उन्हें दूर करने के लिए कुछ उपायों का भी सुझाव दीजिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

Electricity Amendment Bill, 2022 brings several advantages for consumers, DISCOMs as well as the environment. Elaborate. Also, list out its shortcomings and suggest some measures to overcome them.
(Answer in 250 words) 15 Marks

Electricity Amendment Bill, 2022 is an improvement over Electricity Act, 2003 to streamline the entire electricity supply and demand chain.

It brings advantages to consumers, DISCOMs and environment alike:

- ① Option to choose among four DISCOMs - boost competitiveness
- ② Installation of smart meters at every consumer house
- ③ Saving of electricity due to smart metering
- ④ Electricity on user charges - back the incharge and use - not hinders electricity theft.

- DISCOMs**
- (i) Smart metering can help them boost their revenue
 - (ii) Discourages electricity theft — increased efficiency
 - (iii) Help them come out of financial troubles
 - (iv) Obligation to use certain % of Renewable energy.

- Environment**
- (i) Impetus to Green Growth
 - (ii) Decreased GHG emission due to shift on renewables (Solar, Wind)
 - (iii) Sustainable development of electricity sector — good for environment

Yet there remain certain issues with bills

- (i) Obligation to use RE by DISCOMs may not be economically viable
- (ii) Mandatory use of certain power share from renewables — uneconomical for industries

⑫ No exclusive focus on ending Thermal
power share in total power

⑬ No exclusive policy on A&T losses to DISCOMs

Suggestions:-

① Increased incentives to renewable energy
players to bring down power cost

e.g. 1 MW power from nuclear power plant
cost 15¢ against 4¢ from TPR.

② Exclusive policy on A&T losses by DISCOMs

③ Encouraging industries to embrace renewables
through subsidies

④ Implement vehicle scrappage policy strictly to
ensure adoption of more EVs.

Streamlining electricity sector is vital to
ensure good health of DISCOMs as well as
environment

- Q.12 भारतीय प्रतिभूति एवं विनियम बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्वपूर्ण भूमिका निभाता है। दिये गए कथन के आलोक में, सेबी के समक्ष आने वाली चुनौतियों पर प्रकाश डालिए और इस संबंध में सुधारों का सुझाव दीजिये। (250 शब्दों में उत्तर दीजिए) 15 अंक

Securities and Exchange Board of India (SEBI) plays an important role in the regulation of the share market and safeguarding the interests of investors. In the light of given statement, highlight the challenges faced by the SEBI and suggest reforms in this regard. (Answer in 250 words) 15 Marks

SEBI is an independent market regulator established in 1988 to regulate share market and protect investor's rights. It got statutory status by SEBI Act 1992.

Role in regulation of share market :-

- (i) Ensure effective implementation of SEBI Act, securities Act etc
- (ii) frame rules and regulation to ensure markets don't monopolise business
- (iii) Take judicial actions against predatory business policies eg SAHARA Group case

Safeguarding Interest of Investors

- ① Promotes Investor Education through Investor education and protection fund.
- ② Bringing out reports, journals, pamphlets etc to sensitise investors about market policies.
- ③ Register FII's and through them ensure smooth functioning of promissory notes.
- ④ Promote Investor Charter - suggested in Budget (2021)

Challenges faced by SEBI :-

- ① Domination of big corporates in market and associated impact of ~~the~~ vested interests.
- ② Lack of effective manpower - Only has 800 staff for all national activities.

- ③ No policy on aftermath of any scam
related schemes e.g. CANARA consumers
left high & dry for their funds.
- ④ No effective accountability or proper parliamentary
oversight on its working
- ⑤ Role of vested interests in influencing policies
made by SEBI.

Suggestions :-

- ① Proper parliamentary oversight through
DRSC (Finance) under Lok Sabha
- ② Damodaran Committee report on working of
Regulatory bodies need implementation
- ③ Globally, regulation followed by OECD
can be emulated by SEBI
- ④ More staff and resources for independent &
efficient functioning.

SEBI is important to ensure economic justice
as enshrined in Art 38 (DPSP).

- Q.13 भारतीय अर्थव्यवस्था में एक प्रमुख योगदानकर्ता होने के बावजूद, कृषि क्षेत्र कई बाधाओं से ग्रस्त है जो इसकी वृद्धि और विकास में बाधा डालते हैं। इन बाधाओं पर काबू पाने में प्रौद्योगिकी की भूमिका पर चर्चा कीजिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

Despite being a major contributor to the Indian economy, the agriculture sector is plagued by several constraints that impede its growth and development. Discuss the role of technology in overcoming these constraints.
(Answer in 250 words) 15 Marks

Agriculture sector deploys 45% of total Indian workforce and contribute to close to 20% of its total GVA. (Budget, 2023)

Despite such importance, it is plagued by myriad issues — thwarting its development

- Issues**
- ① Overdependence on wheat-rice system
 - ② MSP issues — not yet follow up on C2+50% formula by Swaminathan
 - ③ Overlance of monsoon — 70% agri-area is still rain fed
 - ④ 85% of farmers are small and marginal — scalability & profitability issue
 - ⑤ Not using obsolete technologies & equipment by tractor, oxen etc

- Issues
- (VI) No widespread adoption of precision or integrated farming.
 - (VII) Overdependence on chemical fertilizers and pesticides.
 - (VIII) No concept of agro-biodiversity - promoted aggressively by FAO.

These issues can be handled easily by assimilating technological solutions such as

- (I) Use of precision farming - deploy technology for optimum irrigation & seed dispersal
- (II) Sprinkler & drip irrigation - to optimize the use of water in water guzzling of area.
- (III) KISAN phone - for sprinkling pesticides and prognosis of crop health
- (IV) Organic farming - using organic manure and its derivatives for farming of Sikkim model.

- ⑤ Coverage Kutsh Vagyaan Kendra - for sensitizing farmers on latest tech. inputs
- ⑥ Synergy among KVK and Agric-University for disseminating diversal farming techniques
- ⑦ SUAMITVA - for scientific measurement of lands and land title recognition
- ⑧ Soil health card - about soil nutrient profile - & related intervention of nutrient.

Scientific improvements in agriculture domain is vital to ensure nutritional security and doubling of farm income.

Q.14 पर्यावरण एवं प्राकृतिक संसाधनों पर सिंचाई के प्रभाव का मूल्यांकन कीजिए, और कृषि में सिंचाई पद्धतियों की संधारणीयता और समता सुनिश्चित करने के लिए उपाय सुझाएँ। (250 शब्दों में उत्तर दीजिए) 15 अंक

Evaluate the impact of irrigation on the environment and natural resources, and suggest measures to ensure the sustainability and equity of irrigation practices in agriculture.

(Answer in 250 words) 15 Marks

According to UN-FAO data, India uses 6 times more water to produce same amount of cereals as produced by China, US and Israel.

75% of Indian agriculture is water-fed and that makes Indian farmers the largest user of ground water across the globe.

Impact of Irrigation:-

- Environment
- ① water table degradation and permanent depletion of soil nutrient profile
 - ② salinization of soil due to excessive leaching of nutrients
 - ③ decrease in micro-nutrient such as Zn, Cu, Mn, nickel etc from soil.

- Natural resources — ① Depletion of water level
in ponds, lakes, rivers
- ② Affects bio-diversity of the region
- ③ Affects flora & fauna diversity eg.
gradual disappearance of sparrows.
- ④ Over-stress on ground aquifers.

Measures to ensure sustainable irrigation: —

- ① Linking project of rivers should be done
on priority basis eg. Par-Tapi-Narmada
- ② Deploy precision farming techniques to
optimize the use of water requirement
- ③ Mass awareness on deep percolation and
spreader system of irrigation.

- ④ Crop rotation - from water guzzlers to low water profile crops eg pulses, gram.
- ⑤ Awareness about millets - are water optimiser and also ensure food security.
- ⑥ Study Israel model of irrigation and emulate that in India with suitable modification.
- ⑦ Evolution of Agro-bb-droscopy to decrease dependence of agro-output.

Optimization of ~~agricultural~~ irrigation practices
in view of optimum ground water level
and timely attainment of SPG (14).

- Q.15 परमाणु ऊर्जा और अंतरिक्ष प्रौद्योगिकी के क्षेत्र में क्रमशः डॉ. होमी जहाँगीर भाभा और डॉ. विक्रम अंबालाल साराभाई के योगदान से भारत को रणनीतिक रूप से किस प्रकार लाभ हुआ? (250 शब्दों में उत्तर दीजिए) 15 अंक

How India benefitted strategically from the contributions of Dr. Homi Jehangir Bhabha and Dr. Vikram Ambalal Sarabhai in the fields of atomic energy and space technology respectively?

(Answer in 250 words) 15 Marks

Dr. H. J. Bhabha and Dr. V. A. Sarabhai are the two pioneer experts steering the atomic policy and space policy respectively during 1950s and 1960s.

Contributions of Dr. Bhabha :-

- ① Help in establishment of Bhabha Atomic Research Centre (BARC).
- ② Pioneer in steering atomic energy policy in India.
- ③ Gave the idea of generation of clean energy from atomic fusion of D-T.
- ④ led to establishment of Nuclear Thermal Power Plants (Tarapur).

Benefits to India

- ① Operation Pekham and Sunary Buddha
Made India a Nuclear state
- ② Realisation of NTPP - 5th largest source
of energy (7 GW. in 2022)
- ③ Establishment of indigenous nuclear reactors
at most NTPPs.

Contributions of Dr. Sarabhai :-

- ① Gave the idea of starting own space
policy & programme in 1960s
- ② Instrumental in establishment of ISRO
in 1969
- ③ Pivotal role in launch of India's maiden
satellite - Aryabhata & Rohini
- ④ Mentor to Prof. Satish Dhawan and
Dr. A.P.J. Abdul Kalam

Benefits :- ① Launched series of satellites

e.g. INSAT, GSAT, EMISAT etc

② Produced our own launch vehicle e.g.

~~PCHA~~ PSLV, GSLV etc

③ His vision resulted in strategic
response of today viz. MOM, Chandrayaan
1 & 2, 3, Gaganyaan etc

④ Testing of our Anti-Satellite weapon (ASAT)
(Mission Shakti).

The vision of these two stalwarts has
put India firmly on the road to becoming
a developed nation by 2047.

- Q.16 जेनरेटिव एआई निकट भविष्य में नवाचार की सीमाओं को आगे बढ़ाने का सामर्थ्य रखता है, फिर भी इसका सामाजिक प्रभाव पर्याप्त चुनौतियाँ खड़ी करता है। सविस्तार उत्तर दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Generative AI holds the potential to push the boundaries of innovation in the near future, yet its societal impact raises substantial challenges. Elaborate. (Answer in 250 words) 15 Marks

Generative AI refers to artificial contents generated by using Machine Learning and AI with various applications both positive & negative e.g. Deep fakes (negative) Chat Gpt (positive).

Generative AI - potential to push innovation boundaries

- ① Help in discovery of many new health related solutions e.g. CAR-T-cell therapy for cancer
- ② Increases the scope & boundaries of human knowledge e.g. Meta Verse, etc
- ③ Help bring ICT revolution in the form of AR, VR, Meta world, Web-3.0.

- ④ Eases day to day lives of common people
eg. Chat GPT used for routine office work
- ⑤ Generative AI being used as humanoid
robots eg new anchors USA -

However, apart from immense potential it holds, it also brings novel challenges —

- ① Proliferation of fake news, fake narratives etc
 - ② Deep fake narratives — putting people in embarrassing situations
eg. Rane Ayyub case
- Societal challenges
- ③ Used for cyber warfare — deployed for spreading fake agenda by terror groups eg ISIS, JM etc
 - ④ Risk of digital frauds, cyber crime
eg. UK Energy forum lost 2B\$ due to fake voice authorising payment

Suggestions :-

- ① Strong regulatory regime to deal with negative elements
! (Characterisation of reporting
Generative AI without ~~the~~ watermark can be
amulated)
- ② Digital Literacy - among masses to make them less vulnerable to subversive activities
- ③ Self-regulation - by individual & organisation & use it ethically.
- ④ Strengthening CERT-In - with adequate staff and resources to deal with negative threats.
- ⑤ Chief Info. Protection Officer - in all govt. departments to ensure timely GRM.

Generative AI is latest offshoot to IR 4.0
and it needs multi-pronged approach for
effective use of regulation.

- Q.17 नवंबर 2022 में मिस्र में COP27 संयुक्त राष्ट्र जलवायु परिवर्तन सम्मेलन में लॉन्च किये गए "जलवायु के लिए मैंग्रोव गठबंधन" के उद्देश्य को स्पष्ट कीजिए। उष्णकटिबंधीय देशों की तटीय पारिस्थितिकी को बनाए रखने में मैंग्रोव के महत्व पर विस्तार से प्रकाश डालिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Explain the purpose of the "Mangrove Alliance for Climate" launched at the COP27 UN Climate Change Conference in Egypt in November 2022. Elaborate on the importance of mangroves in maintaining the coastal ecology of tropical nations. (Answer in 250 words) 15 Marks

Mangrove Alliance for Climate (MAC) was jointly launched by UAE and Indonesia to increase awareness about potential benefits of mangroves in fighting climate change

- Purpose (MAC)
- ① Sensitize coastal population about importance of mangroves
 - ② To generate global awareness about potential of mangroves in protecting coastal ecosystem
 - ③ To bring concerned stakeholders together to work jointly on issue
 - ④ To mitigate impact of climate change specially for coastal towns & people

Mangroves are vital component of coastal ecosystem with myriad benefits in maintaining coastal ecology —

Importance :-

- ① Act as first line of defence against any cyclone or storm surge.
- ② Host rich biodiversity of plants and aquatic animals e.g. Sundari mangroves.
- ③ Rich fishing ground for coastal population.
- ④ Thwart coastal erosion and degradation of coastal ecosystem.
- ⑤ Sustain coastal population with supplies such as timber forest produce, woods etc.
- ⑥ Support coastal fauna such as fishery lake, Royal Bengal tigers. etc.

Threat to mangroves:-

- ① Clearance for construction activities
- ② Climate change and change in ecology
- ③ Ocean acidification due to climate change
- ④ Eutrophication due to effluent discharge
- ⑤ Ocean pollution due to garbage dumping

Suggestion ① MISHM - scheme announced in
Budget 2023 need proper implementation

- ② more wetlands to become part of Mangrove Alliance for Climate (India-party)
- ③ Coastal Community involved in maintaining mangrove ecosystem
- ④ Strict implementation of CRZ rules.

Mangroves are vital to safeguard coastal ecology and coastal population.

Q.18

आपदा प्रतिरोधी बुनियादी ढाँचे के लिए गठबंधन का गठन भारत में आपदा प्रबंधन दृष्टिकोण को और अधिक मजबूती प्रदान करता है। टिप्पणी कीजिए। भारत में आपदाओं से निपटने के लिए एक नई रणनीति की आवश्यकता के औचित्य सिद्ध कीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

The Formation of the Coalition for Disaster Resilient Infrastructure brings more robustness to the Disaster Management approach in India. Comment and justify the need for a new strategy to tackle Disasters in India. (Answer in 250 words) 15 Marks

Coalition for Disaster Resilient Infrastructure

(CDRI) is a global initiative launched by India towards disaster risk reduction (DRR) framework of Sandar Framework.

Brings robustness to Disaster management:

- ① In line with Disaster management plan adopted in 2016.
- ② Puts more focus on preparedness and mitigation than rescue & rehabilitation.
- ③ Reinforce Disaster management planning at district level & integration of disaster management in overall development plans.

④ Put more focus on resilient Infrastructure such as robust Building code, (fire proof).

⑤ Dedicated budget allocation for preparedness initiatives eg construction of quake-resistant buildings Zone IV & V

This new approach is needed in the changing times and due to climate change associated risks & impact as —

① Most of India falls in BS zone IV & V of earthquake hazard zonation map eg. entire Himalayan belt, Delhi, Bihar etc

② Half of country is witnessing intermittent floods eg Delhi floods (2023) Chennai floods (2020), Kerala floods (2021) etc

- (ii) 40% of districts are witnessing swamp-
problem as per CEEW report - flood affected
regions are seeing drought & vice-versa
- (iv) Industrial and biological hazards has
also increased in last decade e.g. Shivakasi
Industrial fire
- (v) Frequent landslides in North East, Himalayan
Belt and western Ghats demand for resilient
infrastructure.

Given the need for disaster resilient infrastructure
the formation of CDRI is a right step to
ensure DRR under Sendai Framework.

- Q.19 महत्वपूर्ण बुनियादी ढाँचे (क्रिटिकल इंफ्रास्ट्रक्चर) और प्रमुख निगमों को लक्षित करने वाले रैंसमवेयर हमलों में हुई हालिया वृद्धि ने मजबूत साइबर सुरक्षा उपायों और नीतियों की तत्काल आवश्यकता पर प्रकाश डाला है। इस प्रवृत्ति में योगदान देने वाले प्रमुख कारकों पर चर्चा करते हुए, विभिन्न क्षेत्रों पर इन हमलों के प्रभाव का विश्लेषण कीजिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

The recent rise in ransomware attacks targeting critical infrastructure and major corporations has highlighted the urgent need for stronger cybersecurity measures and policies. Discussing the key factors contributing to this trend, analyze the impact of these attacks on various sectors.

(Answer in 250 words) 15 Marks

Ransomware are latest form of cyber-security

threat targeting critical infrastructure
such as digital key infrastructure, oil and
gas pipelines and major corporations,
eg Stuxnet - attacking Iran's Nuclear plants

Key factor contributing to rising trend
in ransomware attacks ←

- ① Increased push for digitalisation
by various governments of Digital India
- ② Security vulnerability of digital
infrastructures - eg. not strong enough
anti-virus.

- (iii) Constant evolution in ICT and sophisticated attacks — going hard to be detected
- (iv) No global treaty or convergence on the menace of harmware issue — legislative vacuum
- (v) Anonymous attacks — hard to detect the geographical location — easy to get away.

Impact on various sectors

- (i) Economy :
 - (i) Destabilisation of macroeconomic framework
 - (ii) Harms & disrupts banking ecosystem
 - (iii) Economic loss due to disruption
- (ii) Corporations :
 - (i) Prone to attacks due to insignificant protection
 - (ii) Loss of business & revenue
 - (iii) Loss of market share / public trust.
- (iii) Individual —
 - (i) Breach of Privacy.
 - (ii) Embarrassment e.g. Gad Gadot case

Strong policy measure needed :-

- ① Effective Implementation of IT Act 2008
and periodic updation of Act.
- ② CERT-In - need enough resources and
staff to thwart such attacks
- ③ Public Info. Officer - In each govt and
private department to ensure security
- ④ Enough R&D allocation for cyber security
related sectors eg PRDO, NTRO etc
- ⑤ Robust Intelligence Coordination among all
agencies eg. NTRO, MAL, CERT-In, CIIRC etc

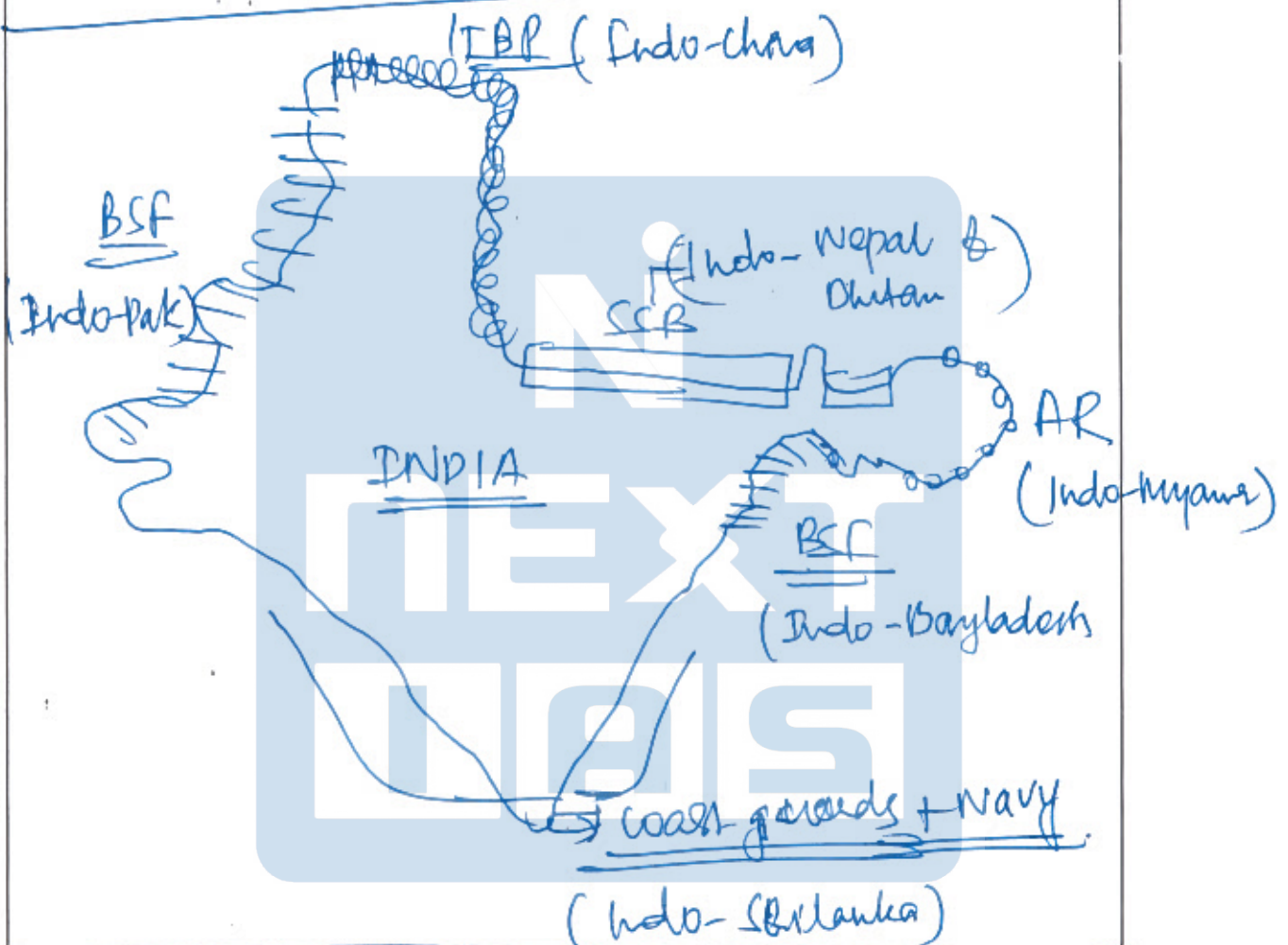
A strong nation needs strong ability to
deal with unfavourable cyber threats too.

Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(250 शब्दों में उत्तर दीजिए) 15 अंक

In the context of border security, how can cooperation and coordination between different security agencies be improved to ensure effective and efficient management of coastal and terrestrial borders?

(Answer in 250 words) 15 Marks



India Border Guarding force consist of
above shown forces guarding land and
maritime border of India

Ways to Improve Cooperation and Coordination among various BAFs —

- ① Enact the concept of - One Border One force
- ② Common service standards and composite border outposts along all frontiers
- ③ Cross deployment of jawans & Commandants eg AR → ITBP & ITBP → BSF etc
- ④ Resumption of CAPF Commandants at light post of various battalions in place of IPS.
- ⑤ Centralized command for BSF at New Delhi - headed by Common Commandant of ~~the~~ Lt. General rank
- ⑥ Improving the basic facilities on border outposts.

This can help in effective management
of both coastal and territorial frontiers

- (i) Each CAPP will get to know about others
specialty & operational tactics
- (ii) Improved interoperability among ITBP
& AR for manning tough mountain
frontiers
- (iii) Better management of inter border
& coastal maritime boundary.

The idea of One border One force
need to be employed gradually to ensure
consistency & coordination.

Space for Rough Work

Candidates must not
write on this margin

