NEXT IAS (Head Office) : 27-B, Pusa Road, Metro Pillar no. 118, Near Karol Bagh Metro, New Delhi-110060
Bhopal Centre: Plot No. 46, ZONE-2, M.P. Nagar, Bhopal-462011
Ph: 8081300200, 8827664612 | E-mail : mts@nextias.com | Web: www.nextias.com

(To be filled by candidate)

Name of Candidate : KRISHAN TIWARI

Roll No. : 6302355 (UPSC)

Registration Number : PTTP221317 Date of Examination : 17 Aug 2023

Exam Centre : Old Rajinder Nagar ☑ Bhopal ☐ Online ☐

Test - 3

Code : TC073

MTS IGP Batch 2023

GENERAL INSTRUCTIONS

This Question-cum Answer (QCA) Booklet contains 56 pages. Immediately on receipt of the booklet, please check that this QCA booklet does not have any misprint or torn or missing pages or items, etc. If so, get it replaced by a fresh QCA booklet.

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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

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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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6. Handover your QCA Booklet personally to the invigilator before leaving the examination hall.

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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

During the Russia-Ukrain war, the Indian oil companies were getting benefitted through the cheap Russian oil. The Government of India applied a windfall tax on them.

* Windfall tax :-
  - It is the taxation that a government applies on the gain accrued due to a sudden change in some external factor not related to some internal factor of company.
    - eg:- Quality improvement, marketing strategy etc.

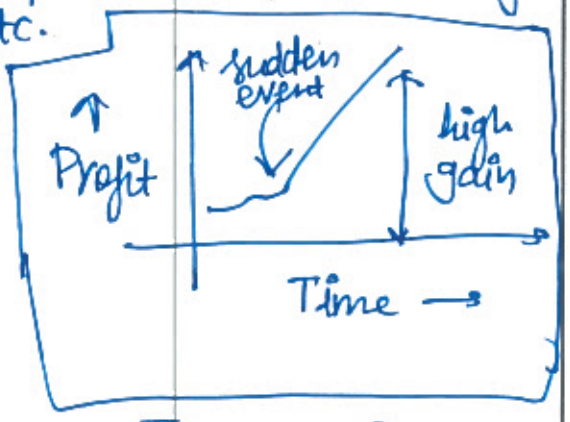


Fig:- Situation to apply windfall tax

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* Effectiveness of Windfall tax :-

(A) Redistributing wealth and promoting greater economic equality :-

(I) It provides the government with more funds :-

↳ can use in welfare schemes.

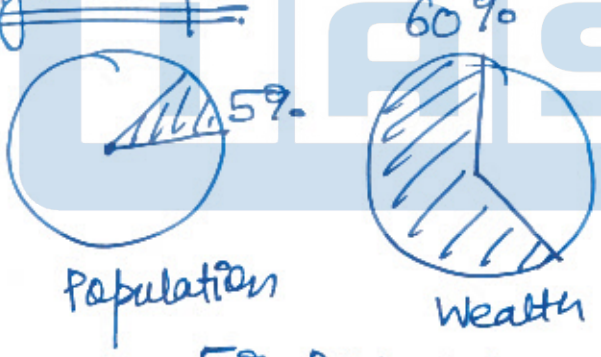
(Revenue expenditure

↳ education, health etc.

Shifting that profit to public ⇒ increasing their income or decreasing their Out of pocket expenditure.

(II) It provides decrease in wealth concentration :-

→ Oxfam report :-



5% Richest has 60% of wealth

(source :- Oxfam: Survival of Richest)

* Non effectiveness :-

① Discourages the company.

② Company may shift to tax havens.

③ Unpredictable tax regime.

Sol: Windfall taxes provide an opportunity to gain from an unpredictable larger gain to redistribute the gain among all.

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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

India should have the inflation between the 2% to 6% (Urjit patel committee) most optimum for it's growth. With this aim, the government had formed Monetary policy Committee (MPCs) with representatives both from the RBI and the Government.

→ MPC
- 6 members committee
  - RBI Governor (Chairman). → power of veto in case of tie.
  - 2 Deputy governors of RBI
  - 3 government representatives.

* Perceived Successes :-

① Contribution of both the RBI and the Government in targeting inflation

② The committee is accountable

i.e. If it is not able to target

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the Inflation ⇒ Give a written reply to government.
- ① Reason for Non Achievement
- ② Further steps it is taking to target inflation.

* Challenges:-

① Interference from government which generally want to spend much on it's schemes.
- leads to more money in market → higher inflation.

② RBI acting as both
- Banker-financier of government
- Inflation manager.

• Sometimes there occurs conflict of interest.

③ RBI Monetary Policy Committee ~~&~~ target the inflation through methods of → Reporate, reverse reporate which many a times do not translate into Bank rates as bank has enough resources.

Monetary policy committee is an effective org. body to tackle inflation but every sector needs to contribute

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Q.3 भारत में सतत् 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

Millets are called Shree Anna in recent budget speech by the hon'ble finance minister. This year of 2023 has been announced as International Year of Millets by the UNGA.

* Millets → Coarse Cereals.
  → eg:- Bajra, Jowar, Ragi etc.

* Potential of Millet in Sustainable Agriculture

① Requirement of Water:- → Very less.
→ Can be grown in semi arid or Arid areas of Rajasthan, Bundelkhand region of U.P, M.P etc.
→ less depletion of Ground water (as occurred due to paddy cultivation during green revolution).

② Soil:- → Does not require very fertile & Alluvial soil.

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→ Can grow in sandy soil.

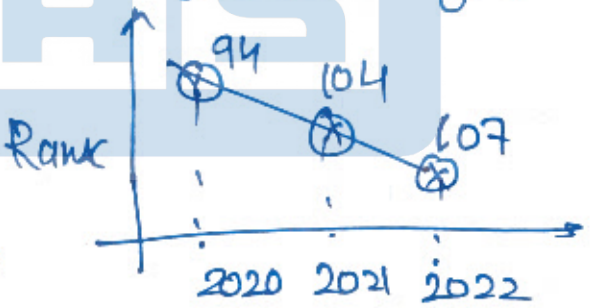
③ Less requirement of fertilizers :- → Requirement of fertilizer is zero to Negligible.

④ Improve soil fertility :- → Processes like N_2 fixation improves the fertility of soil.

* Potential for improving food security in India :-

① Nutrient rich :- → Rich in micro nutrient like Iron, zinc, selenium etc.
↳ Remove hidden hunger.

NFHS-5 : 35% Stunting in Indian children.



Global Hunger Index – India's Rank.

② largely Grown :- → Come under MSP regime (Jowar, Bajra, Ragi etc.)

③ Tribal Cuisine

④ Wide area of coverage.

So, Millets have high potential for sustainability and food security. There is need to make it available to all of people for taste & betterment.

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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

Government of India has a mission to make drinking tap water connections available to each household by 2023. This is to be achieved through Jal Jeevan Mission.

* Significance of mission:-

(1) Availability of water to rural households.
(2) Quality water.
(3) Contribute in sanitation and health.
(4) Reduce poverty time of women ⇒ spend on going far to collect water.
(5) Children can focus on education ⇒ Girl literacy will improve.
⇒ Women → Power to, Power with, Power within.
(6) Women safety.
(7) Community participation in management of water resources.
(8) Recycling of Gray water ⇒ ODF+ status

Candidates must not write on this margin

Will improve.

* Underlying Impediments.

(1) Decreased groundwater levels.

(2) lack of reach of electricity and electric pumps to far off regions.

(3) Community participation :- Indiscrimination on basis of caste and religion.

(4) Impediments in recycling of water.

Jal jeevan mission will certainly help India in achieving various SDGs be it Reducing poverty, hunger, increasing in health, education (SDG 1) (SDG 2) (SDG 3) (SDG 4) & Gender equality (SDG 5) and Sustainable Water resources.

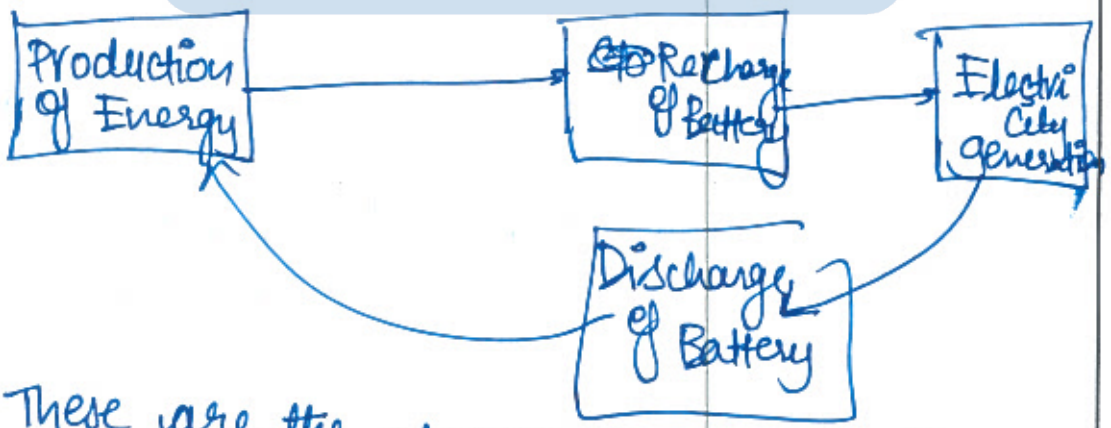
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Q.5 बैटरी ऊर्जा भंडारण प्रणाली (बीईएसएस) से आप क्या समझते हैं? इसके अनुप्रयोगों पर चर्चा कीजिए और यह भारत के ऊर्जा कार्यक्रम में किस प्रकार क्रांतिकारी बदलाव ला सकता है। (150 शब्दों में उत्तर दीजिए) 10 अंक

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

India is moving towards the renewable energy as per it's goal of 50% of Renewable energy by 2030 and net zero emission by 2070. But a basic challenge in renewable energy ecosystem is it's round the clock availability and uniformity leading to increased importance of Battery Energy Storage Systems (BESS).

* Battery Energy Storage Systems:-



These are the electrolytic combination which converts to one form on supply of energy and return back to initial form as

Candidates must not write on this margin

the electricity supply is stopped to give back the electrical energy.

eg:- Lithium battery, hydrogen cell, Iron battery etc

* Applications:-

(1) Store the Renewable energy to use later.

(2) Temporal variation of energy availability

eg:- Solar energy → available only during day time

↓

Battery store it → Provide energy during Night time / weathery condition

(3) Non uniform supply of energy.

eg:- Wind mills → depends on the speed on wind. ⇒ do non uniform supply.

So battery can store them to provide a uniform supply.

(4) Avoid energy wastage:- eg:- Wind mills.

* Revolutionise energy programme:-

(1) FAME India programme → electricity mobility

(2) KUSUM yojana → Storing energy of Solar Pumps for farmers

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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

India has a plan of sending a manned mission to space in Amrit Kaal of completing 75 years of Indian Independence known as Gaganyaan mission.

* Developments:-

① France → helping in space medicine

② Russia → helping in training our astronauts

③ Space reentry vehicle + launch has been successfull and it has reentered the earth with safety.

* Challenges:-

① Lot mission:- → India has lack of experience in manned missions.

② High costs.

③ Unavailability of various facilities :- → like

Candidates must not write on this margin

training centres, space medical units etc.

④ lack of temperature control system,

⑤ Pressure of safety of human life.

* Possible benefits for the Society:-

① Scientific researches:- biological = Growth and Various interactions in space will be studied.

② Experience in sending manned missions will be gained for future missions.

③ Increase in confidence for the scientific community and common man.

"To not think small" is the exceptionalism of Indian society. To go for "Gaganyaan" mission in space and "Samudrayaan" mission in deep sea is ~~one~~ two of the examples of this spirit.

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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

The world community has a target of limiting the rise of atmospheric temperature of 1.5°C. For this it is important that we use the fuels that do not generate green house gases.

→ National Green Hydrogen mission is an initiative (6 Nam) launched by Government of India to develop

① Green hydrogen as a source of energy. (Sustainable)

* ② NGHM to tackle climate change and pollution :-

① Non usage of Fossil Fuels :-

→ Green hydrogen does not use fossil fuel to generate hydrogen unlike Grey hydrogen, black hydrogen etc.

Candidates must not write on this margin

② Non emission of Green house gases:-

→ $2H_2 + O_2 \longrightarrow 2H_2O$ ⇒ So end product is water which has less Global warming potential.

③ Renewability :-

→ (1) Water is plentifully available plenty on earth. So, H_2 gas an energy can be considered Renewable source of energy.

* Limitations of NGHM :-

① Unavailibility of technology.

② Available technology are
- Costly.
- leads to emission of Green house gases in production of H_2.

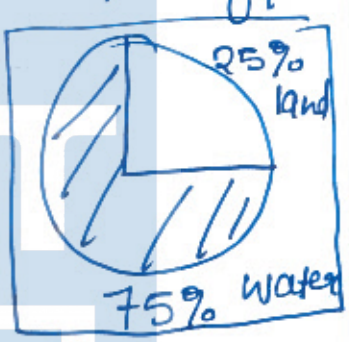


Fig:- Earth's composition.

③ Storage issue

④ Safety issue.

⑤ Financial Constrained in funding.

Government of India has recently come up with subsidy schemes on renewable vehicles and battery storage system.

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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

Uttarakhand recently observed the subsiding of the land in areas of joshimath leading to shifting of the people from the place.

* Key lessons for disaster management and environmental conservation :-

(1) Development projects on the cost of environment :- → National thermal Power corporation (NTPC) power plant

(2) Tourism unsustainable to environment

→ Various tourist destinations and Hotels development.

These both led to :- → massive mountain cuttings.

→ massive deforestations.

Candidates must not write on this margin

→ local sponges removed ⇒ Floods.

③ Carrying capacity of environment:-

→ to be observed while ┌ city planning
                       └ tourism planning

④ New methods of disaster preparedness :..

→ unconventional disasters like land subsidence appearing.

So, the recent event in Joshimath was a warning of nature and an opportunity for us to think beyond GDP into GEP (Gross Environmental Product).

Candidates must not write on this margin

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

India has restored normalcy in disturbed punjab of 1980s through multiple efforts. But recent incident where the mob attacking the police station to free some convicts of disturbing.

* Recent development:-

(1) Appearance of a new leader:-

→ In form of Amritpal Singh also known as New bhindranwale

→ believe in khalistani cause.

(2) Appearance of training camps:-

→ Videos of training camps appeared in punjab.

→ Recruitment in the guise of Drug rehabilitation centre.

Candidates must not write on this margin

(3) External support:-
- Pakistani ISI's hand in training Amrit-pal Singh.
- Khalistani sympathisers in Canada, Australia, U.S.A and U.K.

* Measures to Handle it :-

(1) Solving the Genuine Grievances of people:-
- This act as Opportunity to put Radicalisation in youth.

Need to work on:-
(1) Drug issue of punjab
(2) Sacrilineage of Sikh religious symbols.
(3) Development.

(2) Remove the external interference in Punjab's security :-
- Pakistan's drug peddling network.
- Khalistan sympathisers from Abroad.

(3) Use diplomatic strength capital of India to end khalistan movement's relevance.

(4) Promote Social Harmony.

(5) Nip off in bud any attempt to destroy established peace in country.

India is a melting pot of various cultures. So, such pockets of violence appear but the values of people and vigilance of security agencies can handle it

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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

Recently Women BSF force shoot down the ISI drone carrying drug in Amritsar punjab. this is one incident of multiple occurrence.

* Drone problem in border Area :-

(A) Aggressors :-

(1) Use by Non state Actors :-

→ Recently Advisor to Pak PM Shahbaz Sharif accepted in media that pakistan's drug mafias are using drone to deliver drugs in India

(2) Use by state Actors :-

→ Anonymity, ease of operation, capability of not coming in Radar of India and zero risk of loss of life make state actors to deliver weapons, drugs across border.

Candidates must not write on this margin

(B) Drones are use to:-

① Deliver drugs and narcotics → Easy money ⇓ terror financing
→ Youth destruction ⇒ India's demographic dividend turned into time bomb
→ law and order problems.

② Delivery of weapons to
→ Insurgents in northeast
→ Naxals
→ militants.

③ Spying:- → Critical areas
→ Army establishments
→ Spying for enemy

* Suggests to tackle it :-

① Anti drone radar.

② Following National Drone policy in spirit : i.e. to shoot it if found near Critical areas.

③ Catching beneficiaries within the country of these drugs and weapons.

④ Border development which too include development of people.

⑤ comprehensive, Border Management system. [Integrated]

India is on risk of 2½ front warfare where ½ denotes these non conventional ways to tackle.

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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 sector is in crisis in India with many DISCOMs facing financial burden. Electricity Amendment Bill 2022 is a step forward in this regard.

* Advantages:-

(I) Consumers :-
- (1) Smart metering → prepaid payment of electricity bill
- (2) Option to choose between multiple DISCOMs.

(II) DISCOMS :-
- (1) UDAY scheme to transferring their financial burden.
- (2) State government will not ask to provide subsidized electricity
- (3) Credit help.

Candidates must not write on this margin

(III) Environment:-

(1) Effective usage of fly ash.

(2) Market mechanism for Renewable power certificates.

(3) Healthy mixture of Renewable energy usage.

(4) Inclusion of Residential buildings too on following on Green buildings rating.

* Shortcomings of Electricity Amendment Bill 2022.

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Candidates must not write on this margin

Q.12 भारतीय प्रतिभूति एवं विनिमय बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्त्वपूर्ण 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 a statutory body formed provided ~~Constitutional~~ Statutory status through ~~Securities~~ SEBI Act, 1992. It is the prime regulator body of securities market of India.

* Challenges faced by SEBI :-

(1)

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Candidates must not write on this margin



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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

Indian agriculture contribute to 16% of GDP and 49% of employment in India.

* Impediments in growth and development of Indian agriculture :-

(1) Fragmented land :- → Small Farms and Small farmers.
↓
lack of mechanisation and lack of economy of scale.

Technology help :- (1) Mechanisation through various machines → Gram Yantra, Krishi Unnati Yojana (Custom Hiring Centres)

(2)

(2) lack of irrigation :-

→ Ground water level falling

→ Only 50% of Indian agricultural land

Candidates must not write on this margin

is irrigated.

Use of Technology:
- → Sprinkler Irrigation system.
- → precision agriculture (Israel technology)

③ Excessive use of fertilizer.

Use of technology:-
- → Nano urea
- → Neem coated urea.
- → Bt. Crops.
- → Social health card schemes
- → Vermiculture
- → Zero Budget Natural Farming by Subhash Palekar.

④ lack of market and remunerative pricing:-

→ Average Income of an agricultural farmer is Rs 10,000/month. (Agriculture Census)

Use of Technology:- → e NAM portal.

⑤ Post Harvest lost: ⇒ Stress selling.

Technology:-
1. Cold chain
2. Warehouse facilities
3. Kisan Rail.

Candidates must not write on this margin

⑥ Lack of food processing sectors

Use of technology :- Food parks (Cog and Wheel arrangement)

⑦ Development of Allied sectors of Agriculture.

(A) use of technology :-
- Apiculture
- Lac culture
- Aquaculture
- Pisciculture
- Prawn culture.

So, India has an aim of doubling it's farmer's income (Ashok Dalwai committee) Use of technology will certainly help in stressed Agriculture.

Candidates must not write on this margin

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

Irrigation involves providing sufficient availability of water to crops growing.

* Impact on environment and natural Resources:-

① Decrease in Groend Water:-

L "Green revolution is victim of it's own Successes" – Eco survey 2015.

→ Punjab has lowest ground water level in country.

② Increased in Salinity:-

→ The irrigated water get evaporated living behind the dissolved salt in it.

③ Drainage to nearby water body

→ lead to Carrying of fertilizers with it ⇒ Eutrophication ⇒ death of fauna under water.

Candidates must not write on this margin

(4) Emission of methane:-

→ Water submergance eg:- Flood cropping of Rice.

↓

Methane emission.

⇓

Green house gas.

(5) Impact monsoon through differential heating and cooling of land.

(6) Soil erosion and Gully formation

(7) Microfauna of the soil eg:- Ants, frogs etc.

* Measures to ensure Sustainability:-

(1) Precision agricultural practices in Irrigation, Per drop more crop

(2) Zero Budget natural farming

(3) Growing non water intensive crops eg:- Millets.

(4) Modifying MSP regime on Water intensive crops like Rice,

Candidates must not write on this margin

(5) Practicing good practices like Below sea level farming of Kuttanad (GIAHS, FAO), Koraput traditional farming of agriculture.

(6) Bund formation to avoid soil erosion.

(7) Practices like Dry Rice cultivation.

(8) Using Gray water and Rain water harvesting practices.

- Jabrad practices of storing rain water in field.
- Ahar-pyne system of Magadh district of Bihar.

* Measures to ensure equity :-

(1) Water pumps to poor marginal farmers
eg:- KUSUM scheme.

(2) Panchayat formation

(3) Farmer Producer Organisations, Cooperative formations, Self help group formation

(4) Schemes like Pradhanmantri Krishi Sinchai yojana.

India has a high population to feed and also to export the grain to world. So, it is needed that our agricultural practices also be smart.

Candidates must not write on this margin

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

When India was in its infantile stage just after Independence, our great scientists gave us foundation leading to today we have one of most successful space programme and India a nuclear power country.

* Contribution of Dr. Homi Jehangir Bhabha :-

(1) Started nuclear programme for India.
- enrichment of uranium.
- Thorium usage as raw material as uranium is not widely available in India &

(2) India toward nuclear weapons as a strategy of Deterrance was his vision.

Candidates must not write on this margin

(3) Nuclear technology for Civil use:-

- Bhabha Atomic centre (BARC).
  - Radionuclides for
    - Investigations: X rays, CT Scans
    - Treatments:- Radiotherapy.
    - Radioscanning: PET Scan.

* Contribution of Dr. Vikram Ambalal Sarabhai :-

→ Established the India's first Space Centre → ~~SPARC~~. INCOSPAR.
  - first from a remove in his house.

→ launched first rocket of India satellite Aryabhatt.

(lot missile carried on Bullock Cart and cycle!).

Candidates must not write on this margin

Candidates must not write on this margin

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

Genreative 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

Recently Microsoft has launched ChatGPT as it's AI tool.

* Generative AI potential to push boundaries of innovation in near future.

(1) Provide ready made data ...
  - eg:- Supreme Court made software to use it in providing case judgements → SUPACE
  - SUVAS → translating judgement in regional languages.

(2) Power to link and diagnose with accuracy:-
  - → diagnosing histopathological slides.

(3) Transportation:- → Driverless cars..
  - Automatic Scatters.

(4) Communication to humans
  - eg:- Alexa, Siri.

Candidates must not write on this margin

* Societal Impact:-

(1) Snatching the jobs:-

→ AI has potential to decrease the jobs.

(2) Promoting Racism:-

→ Recent Google AI software, posted Racial content on twitter when Asked to do so post.

(3) Pomoting Inequity:-

→ between technology containing nation and technology deficit nations.

→ Between Rich and poor.

(4) Against Privacy:-

→ AI could be used to do data leaks.

Candidates must not write on this margin

- Identity issues :- eg :- LGBTQ community
  HIV +ve patients
- Whistle blowers, journalists
- financial issues :- Phishing, Credit card data leak etc.

Science without conscience is a sin. So, to develop the Artificial Intelligence is a boon for society until it did not pose crises on it's existence.

Candidates must not write on this margin

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 महत्त्व 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

Recent Sharm-El Sheikh UNFCCC COP27 saw the formation of "Mangroove Alliance for Climate".

* Purpose:-
  - To promote Mangroove Wetlands across the World
  - To strengthen the RAMSAR Convention
  - To spread the awareness about Importance of Mangroves

* Importance of mangroves in maintaining the costal ecology of tropical nations

1. Act as Shock absorbers to various disasters
   eg:- Tsunamis, Cyclones

Candidates must not write on this margin

② Prevent Ingress of Saline water into land ecosystem.

③ Provide rich biodiversity :-

Mangroves Are having edge effect

→ has biodiversity of both land and oceans and it's own unique flora and fauna.

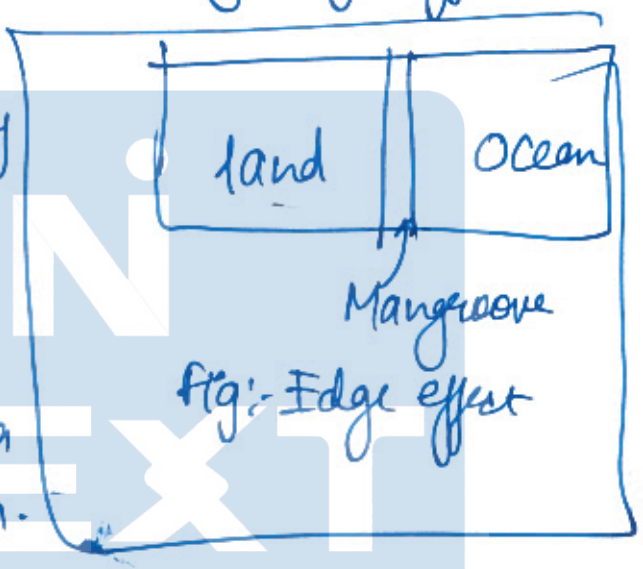


fig:- Edge effect

④ Prevent Ocean pollution by absorbing toxic chemicals coming from River.

⑤ Provide rich ground for Agriculture
eg:- kuttanad below sea level farming.

⑥ Provide livelihood opportunities
eg:- Prawn Culture

Candidates must not write on this margin

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Candidates must not write on this margin

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 an PM modi led initiative at United nation.

→ IRIS (Initiative for Resilient Infrastructure of Island States) is a recent EU initiative under it.

* Formation of CDRI Advantages:-

① In Sync with Other Disaster Initiatives.

eg:- Hyogo framework (till 2015)
Sendai framework (current).

② It is helpful as mitigation strategy.

Candidates must not write on this margin

(3) lead to less damage of life, livelihood and shelter.

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Candidates must not write on this margin

Q.19 महत्त्वपूर्ण 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

Recently AIIMS Software was attacked by Cyber hackers leading to discontinuity in Services provided in India's premier hospital.

* Key factors contributing to this trend:

(1) Rising dependence on digital infrastructure
eg:- DIGITAL India

(2) Ability of doing wide effect
through very less effort
eg:- AIIMS cyberattack.

(3) Create problems to Public
& fear among public

Candidates must not write on this margin

(4) Can obtain strategic information

eg:- Attack on Kudankalam nuclear facility

- India's naval ship data leakage case.

(5) Can blackmail people and ask for easy money or Honeytrap etc.

* Impact on various sectors:-

(1) Health sector:- → Digital services to patients and Healthcare Workers.

eg:- AIIMS registration, Reports portal.

→ Sensitive data of patient

eg:- HIV reports, MTP reports, Rape investigation reports.

Candidates must not write on this margin

(2) Defence sector:- → Leakage of Sensitive Information
↳ Control of our weapons in Other's hand.

(3) Space sector:- → Satellite malfunctioning
- Rocket launching deviating the path.

(4) Financial Sector:- → Losing hard earned money of people.

(5) Security market:- → Market volatility
→ Undue advantage to some.

Candidates must not write on this margin

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

Indian border consists of International borders, LOC with Pakistan, Actual Ground position in Siachin and LAC with China. Under the policy of "One Border ONE FORCE", various paramilitary forces guard them with Indian Army at sensitive positions.

* Improving cooperation and coordination:

(1) Single ministry:- Currently some border forces like ~~Bsf~~ under control of Ministry of Defence and some with Ministry of Home affairs.

Candidates must not write on this margin

② Leadership from Same Services :-

→ Many paramilitary services are headed by IPS (Indian Police Service) officers ~~who~~ who have to coordinate with Army officers during operations

③

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Space for Rough Work