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(To be filled by candidate)

Name of Candidate : MD ASIM M

Roll No. : MT23RCA PA081

Registration Number : ..... Date of Examination : .....

Exam Centre : Old Rajinder Nagar ☐ Bhopal ☐ Online ☐

Test - 3

Code : TC705

RCA 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

Invigilator's Sign. : .....

[To be filled by the STUDENT]

Student's Queries for the Evaluator (if any write them below)

[To be filled by the EXAMINER]

Evaluator's response

(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.
3. Write legibly and neatly. Do not write in bad/illegible handwritings.
4. For rough notes or calculation, the last two blank pages of this booklet should be used. The rough notes should be crossed through afterwards.
5. If you wish to cancel any work, draw your pen through it or write "Cancelled" across it, otherwise it may be evaluated.
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Candidates must not write on this margin

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 Tax is a form of Tax revenue where in Government tax any unintended increase in profit of the corporation for wealth redistribution & preventing profit maximization

Windfall tax

1) Redistribution of wealth

1) corporate tax → accumulate around 8 lakh crore (Budget 2023) → helps Govt in Spending for benifit of many

2) Ease for common people

Increase Tax buyonay from corporate with excess profit → can relieve burden on middleclass

Candidates must not write on this margin

(b) Promote greater economic equality

(1) Oxfam report → 1% of India's population amass 60% of wealth
∴ may windfall tax to promote economic equality

(2) Ensure Inclusive Growth
Government can spend the amount for capital Infrastructure creation
Ex: Budget 2023 → 4.5% of GDP on Capex

Wayforward

(1) Balance should be made to ensure non coercive & ~~non~~ sustainable taxation

(2) Rangarajan Sir → Duty of government to spend it mindfully

∴ windfall taxes can help Govt to achieve its tax base (from 11% to 22%) as in OECD countries
increase

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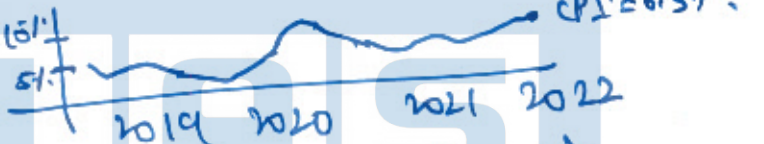
Q.2 नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने की कथित सफलताओं और चुनौतियों पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

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

RBI Act 1934 provided for Inflation targetting to RBI where in inflation should be within the range of 4±2% of CPI under MPC regime

Success

(1) Inflation has been under control Quality by Quality



(2) India performed fairly visavis USA(9%), UK, France wrt inflation

(3) India's post pandemic inflation recovery has been positive

(4) RBI recently kept accomodative stance to ensure Inflation stability (under MPC)

Candidates must not write on this margin

Yet challenges

① Global → (1) Supply chain crisis & supply chain disruption → challenging inflation targetting

② (2) Global oil price → cartelization giving cost push inflation.

② Domestic → (1) Climate change & ~~Core~~ Headline inflation → Tomato, Onion, wheat → difficult to maintain inflation

They RBI & Monetary Policy committee has been challenged by monsoon & unfavourable market condition

Way forward

① RBI mandate to be only inflation targetting & give PFMS power for rupee & govt debt

② More deliberation on MPC stance for controlling inflation

They inflation targetting has been prime concept for stable economic growth & Development of Nation

Candidates must not write on this margin

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

S. Jaishankar in G20 summit Mentioned about potential of Millets towards achieving Global food security & Sustainable Growth

Potential
Sustainable Growth

Temperature - 27-36°C
Soil - Black
Types ← Bajra, Jowar, Ragi

(1) Nutri cereal
can 'bridge gap of malnutrition and hunger

(2) Income of farmer
Growing in any area helps in doubling farmer income (Dr Ashok. Gulati)

(3) Environmental protection
- Millets reques 10 times less water than Rice & wheat (Yojana Magzine)
- Less carbon foot print (Methan, Co2)

(4) Ensure Improving soil fertility
Millets helps in regeneration of soil

Candidates must not write on this margin

nutrients, growth & farmer efficiency (early weeding)

Improve food security

① **Nutricereal**
Bring desired nutritional makeover for women (Anaemia), children (stunting, wasting)

② **Lead to commonmany staple food**
As affordable & ~~rich~~ cheap

③ **Ensure availability**
Grown in drought prone areas which increase availability for common many

④ **storage** → longer shelf life → long term availibility to common many for food security

challenge from wheat

Acceptability

challenges → only grown in few regions

Poor R&D

steps

① Go millet promotion

② National millet initiative

③ odisha → Millet in MDMeals

Millets can help in bringing "realisation of SDG-1, SDG-2 for ending Hunger & poverty

Candidates must not write on this margin

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 is a flagship mission of Jal Shakti ministry with aim for National campaign for water conservation

Potential

(1) Regional disparity

(a) Availability of drinking water through Functional Household tap water for all Rural & Urban area

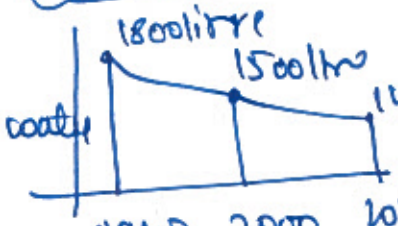
2) 24x7 availibity of water to all

(2) Accessibility

(a) 55 litre per person of potable household drinking water to be accesible to all by 2022

Candidates must not write on this margin

① water availibility | significance | ④ Accelerate irrigation → benifit for farmers



equitable access of water

② Access to all regions → Maharashtra Hyderabad Karnataka region

③ vulnerable section → women, children, elderly → WASH

Impediments → ① Incompletion → less than 70% of people recieve timely water

② COVID 19 → further delayed the project.

③ High cost of infrastructure → poor budgetary availibility

④ water quality → still water has harmful chemicles

Steps → ① faster completion of project

① Ensure last mile connectivity

③ Promote Domestic water harvesting

④ Install Water Treatment plants like in Karnataka → 20 litre bottle for 10 Rs.

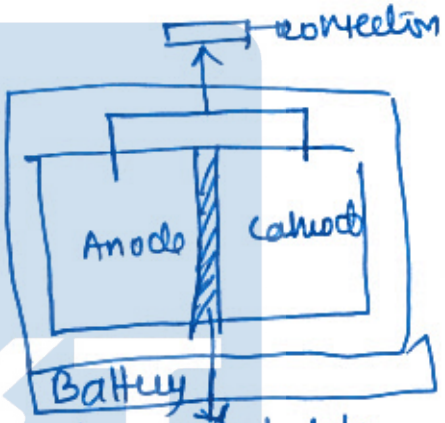
They aceer of clean water under Jalsheevan Mission can help India to achieve SDG-6.3 for Inclusive growth

Candidates must not write on this margin

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 is a mechanism where in the energy generated from various sources like Hydrogen, Methanol, solar can be stored & transferred for usage



Application

(1) Energy storage
Help loss of generated energy (India loose 30% of total energy generated)

(2) Transfer
Easy transfer to rural area where electric poles are not available Ex:- Himachal, North East

(3) Boost Electric mobility
NITI → Battery swap system
↳ Battery energy storage in cars

Candidates must not write on this margin

(4) Boost Innovations

Fast charge system → more economical
↳ help achieve target of 10% oil dependency reduction

Restructuring energy programme

(C) Methanol economy → energy generated could be stored

(2) Hydrogen energy plants can be stored & connected to Grid for power transfer

(3) Boost Net metering → helps in bridging power deficit for DESCOMs

(4) Help realise Panchamrit target of 45% Renewable energy by 2030

(5) Target of 300 GW by 2030 from Renewable energy can be boosted

Thus Battery energy storage system can be a boon for Fast Energy transition to ensure energy availibity for all

Candidates must not write on this margin

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

on ~~4th July, 2:55 pm~~ India's Gaganyan mission is the India's premium 6 days mission for 1st ever Human space flight to the outer space from Indian soil

Developments

① → (rewomodule → for human condition for mission) optimized

→ propeller → to navigate crew module.

② **Training**

3 Austranauts (from IAF & common public) are trained for space mission in Russia

③ **Pre mission**

2 Gaganyan missions without Human presence & robotic Vyommitra to be sent for checking safety

Candidates must not write on this margin

(4) India succesfully developed the crew ~~returning~~ reentry orbital and landed recently.

Challenges

(1) Maintaining optimum condition for austronauts → major challenge.

(2) Health of Austronauts → 1) Solar Flare
2) Absence of Gravity

(3) Succesful crew reentry orbital is a challenge

(4) Ensure extra cautions if ~~optimum~~ time period of the mission gets delayed in space

Steps → (1) International collaboration like with Russia to make it more succesful

(2) Private participation to improve efficiency & technical knowhow

Gaganyan along with Chandrayan will help India to democratise space for Human Use in future

Candidates must not write on this margin

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

"ElonMusk mentioned that green hydrogen is the fuel of the future". In this backdrop India launched Green Hydrogen mission in Budget 2023

Green hydrogen as silver Bullet

(1) Climate change

① Green energy → as Hydrogen generated from water breakdown through Renewable source

② No radioactive elements → like Nuclear

③ No harmful effect like green house gas emission

④ Absence of emission after using in vehicles

Candidates must not write on this margin

② Pollution

① Air pollution → do not release PM10, PM2.5 CO_2, CO, H_2S etc

② Water pollution → Does not have negative impact on stream

③ Ozone depletion → Does not boost Polar stratospheric clouds for ozone depletion

Yet challenges

storage issue → Notable to have sustainable storage

challenges → Require large water body for electrolysis

leakage into environment can cause hazard to life & property

end cycle can be harmful for environment.

Steps → ① Green Hydrogen mission → 5mmT of hydrogen by 2030

② storage infrastructure → NITI @75

③ promoting private participation in Green hydrogen

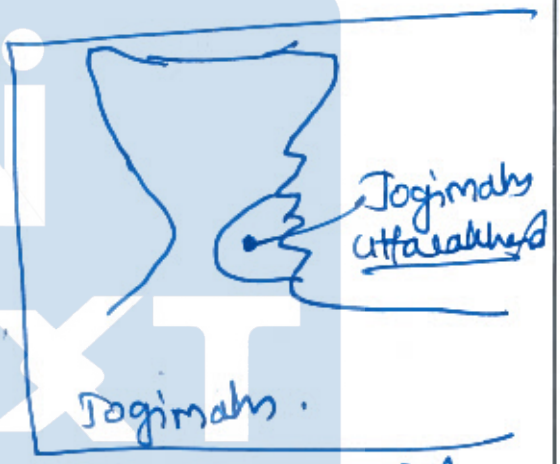
Thus Green hydrogen can help India to achieve Self sustainability & pm Modis vision of "Just Energy Transition"

Candidates must not write on this margin

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

Joshimath land subsidence is considered one of the most horrific upcoming disaster as per GSI



Joshimath.

Key lessons

(i) Disaster management

① ~~Prepare~~ Prevention → Any human habitation require proper EIA (Mishra committe pointed lapse in EIA)

② Preparedness

poor disaster preparedness → poor drainage & irrigation system

→ well connect drainage system is required in all Himalayan State

Candidates must not write on this margin

(D) Environmental conservation

(1) Improve Afforestation
(2) Promote Sustainable Tourism
(3) Prevent Deforesting & ecology & carrying capacity
(4) Ensure No. over construction in Himalayan region
(5) Proper urban planning → Drainage & water connectivity to prevent Disaster

way forward

(C) Promoting small Hydroelectric project against Big Tapon HEP
(V) Community engagement → prevent illegal construction
(2) Ensure follow of NDMA Guidline on Cloudburst, Landslide before habitation
(4) Rehabitation from overexploited area

They following CDRI & sendai framework in Human habitation can help in sustainable livelihood

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

Punjab is the simmering point of Federal, Security, ethnic and National Interest of India (Indira Gandhi)

History

(1) Khalistani movement
(2) India → Operation Blue star in 1970's to condoon sessionism
(3) Reduction in Khalistani movement till 2020's

Recent trend

(1) Increase Khalistani movement with rise of New elements
(2) Nascent state government inadequately handling issue

Candidates must not write on this margin

③ Foreign challenge

↳ 1) United Kingdom - High Comissioner of India surrounded

↳ 2) Canada → Protest & Drama by Khalistani support

This is a concerning point for India as it is threatening Unity & Integrity & Sovereignty

Steps

① Domestic → ① Stiff action using UAPA against terrorist

② Capacity Building of police with modern technology (Army)

③ Promote trust among people and gain legitimacy

② External → ① Demonstrate against foreign support

India opposed Canada's support for Khalistan issue

② Use of Interpol to curb anti-Khalistani movement

Thus by emphasising on stiff action, India can maintain Sovereignty, & security of nation

Candidates must not write on this margin

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

Drones are the future of Next generation warfare, where in Ukraine war position has been changed in favour of Ukrain due to drones

Drones
positive
- Service delivery → Meghalaya
- Agriculture → Mapping

Yet challenges to security

Anonymity

1. No registration to less than 25 kg
2. Can operate by anyone from any where
3. Difficult to trace back

↓

misuse by Terrorist / Anti national elements against security of India

Candidates must not write on this margin

Ecue of operation

① Beyond Border → 300 AK-47 dropped across border from pakistan

② Left wing extremist → used drones for Bullsapal strategy & massacre (2012)

③ Surveillance + Chinese drones have been surveing Indian territories for Indian troops position

④ Social → used to spy women and other vulnerable section

security challenge for India

Steps

① Drone regulation → via Drone policy of MoCivil Aviation

② Capture → Harpoon capture, Netcapture to make them defunct

③ strengthening own capability → India-USA agreement June 2023 for advance drones

④ Domestic manufacturing → PLI scheme

They Drone could be bane or a boon. minimising security challenge & maximise boon to ensure security for Nation.

Candidates must not write on this margin

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 was brought in to bring reforms in Electricity sector, which form key component of growing Nation (8 core industry)

Electricity Amendment Bill 2022

① Consumers
- ① Opportunity to diversify electricity purchase
- ② choice - can purchase from multiple Generators and DISCOMS
- ③ sell excess electricity through the integrated grid system being installed

DISCOMS
- ① multiple discoms can participate in an area
  It can improve competitiveness

Candidates must not write on this margin

and technical Innovations

(2) Emphasis on uniform Gas Grid can help in efficient transmission

(3) Improving infrastructure → by special funds
↳ helps in A&T losses (presently 22%)

(4) Leading to ensuring ~~defaul~~ sustained energy incoming
↳ provision of Renewable energy & Net metering

(5) Government cannot retract from Power Purchase Agreements

Environment

(1) Emphasis on Renewable energy source
↳ Faster implementation of Panchamrita target of 500GW of electricity from non fossil fuel source

(2) Reduce A&TC loss
↳ Beneficial for environment as less GHG emission, more energy efficiency

(3) Increase democratization of energy
↳ Last mile connectivity will ensure

Candidates must not write on this margin

common people will use sustainable source against unsustainable source

Shortcomings	measures
① competition among Discom ↳ may lead to losses ↳ may lead to monopolization	① Harmonization Bring interoperability among discom, to maximise productivity
② Government not able to maintain agreements Ex: AP cancelled the SUP agreement	② Government must uspect power sharing Agreement
③ Federal challenges States oppose unilateral changes against federal spirit	③ Concensus based Approach Use Inter state council for concensus

Electricity Amendment ~~Bill~~ 2023 will usher reforms in Electricity generation promoting "Sustainable Growth"

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 statuary body established under Security and Exchange Board Act 1949 with primary goal to promote level playing field in Bond market

Role of SEBI

(1) Regulation of share market
   (i) Promoting level playing field in share market → demote monopolization
   (ii) Check for irregularity
      Ex:- Insider Trading
      Dabba Trading
      Algo Trading
   (3) Investigate any discrepancy
      Ex:- Investigating Adani Shares on accusation of Hindenburg report

Candidates must not write on this margin

(4) Promote innovation
Ex:= Digitization of share market.
↳ Demat account

Safeguard interest of investors

(1) Prevent frauds
T+1 mechanism to minimize frauds

(2) Ensure democratic setup
↳ All equal opportunity to buy market shares
↳ end monopolies of "Dalals" / Brokers

(3) ~~Instr~~ Reforms
on finding challenges → bring reforms
Ex:- Harshad Mehta scam lead to linking of Pan Card

(4) Safety of consumers
ABSA → In P-Notes or other mechanism, mechanism consumer amount stored in ABSA until all shares are transfered to him → to protect consumer

Candidates must not write on this margin

Challenges

(1) Regulatory challenges → Not able to regulate emerging threats → short selling & market manipulation

(2) Poor vigilance
Yes Bank shady, PNB shady along with major bank fraudy could not be prevented

(3) NBFC → Using High Networth shady may be harmful for economy
But not able to protect & control NBFC (IL&FS case)

(4) Fraudy → Harshad Mehta, Bubble burst
Paytm along with Nyaaag share manipulation → SEBI not taken vigilance

Steps

(1) Improve vigilance
i) Use of Digital Technologies
ii) Human resource

(2) Promo cooperation
Use RBI help in mangi's market fluctuation

(3) Regulatory power
i) Promote more power for emerging threats

SEBI can help in bringing a bond market to its potential. The Unified Bond market is a positive step for future

Candidates must not write on this margin

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 sector contribute for 14% of GDP, 45% of workforce and strong backbone to other sector like food processing industries

Major contributor to economy

① Agri export
$50 bn → more than 10% of total exports of nation

② Employment Generation
Rural economy → majorly engaged in agriculture

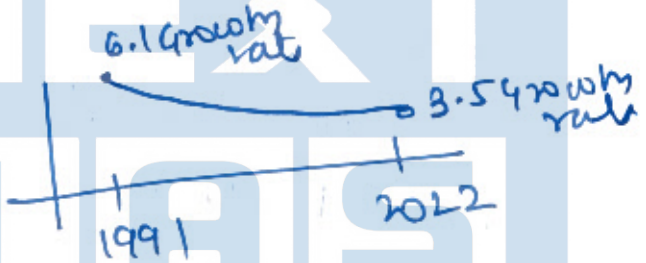
③ women labor force
women account for 55% of work force contributing 70% of total agriculture output

Candidates must not write on this margin

(4) Food security
- India → largest producer of rice
  - 12th largest producer of wheat
  - 5th producer of Fish
  - largest producer of milk.

(5) Industrial Growth
- 2nd largest silk producer
- 2nd cotton production → Textile Industry
- other Food processing, pharma and major industries

Constraints
(1) Stagnation →



(2) income
NSSO report → more than 80% farmers are earning less than 8000 per Annum

(3) Disguised employment

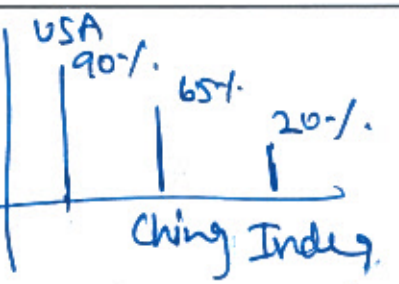
(4) Land
- Fragmentation.
- poor productivity
- Poor land reforms

(5) crop failures → Tomato, potato inflation (August 2023)

Candidates must not write on this margin

(6) Poor farm mechanization

(7) Input → poor input: seed replacement ration



Role of Technologies

(1) Drone → SWAMITVA scheme → for mapping of land
↳ Proper credit availibility

(2) Kisan credit card & soil Health card
↳ provide soil Health feature to improve productivity

(3) Nano technologies
Nano fertilizer → to improve crop output
Hitech Nanofertilizer = 100 kg bags of fertilizer

(4) Space
↳ Bhuvan space satellite ↳ extension services
↳ monsoon predictions
↳ crop managent

(5) Biotechnology
GM crop → to improve yield

Thus use of technologies can help India to achieve the motto of "Jai Jawan Jai Kisan, Jai Vigan"

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

India's total irrigation architecture is 46% of all crop produced & Rest 54% is Rainfed in nature.

Impact of irrigation

① Environment

① Water consumption

India is the largest water user for agriculture (30% = 226 km^3) → Help redue water consumption

↙ Drip ↘ Sprinkle

② Targetted delivery

Fertilizers input can help in reducing soil enrichment & soil pollution

③ Promoting productivity

Targetted roots delivery can help in

Candidates must not write on this margin

ensuring crop growth & productivity

(12) Promote sustainability
Prevent Groundwater pollution, River pollution

Natural Resource

(1) Reduce pressure on water bodies
(2) Prevent soil erosion due to flooding } wales
(3) Crop diversification → mixed cropping
(4) Reduce Human Resource → Require less labour availibility

challenges

(1) high installation cost
(2) High maintainance cost → breakage
(3) Evaporation → crop failure
(4) soil salinity
Ex:- Drip irrigation leads to soil salinity
(5) only affordable by Bullock capitalist
India has 85% small & medium farmers

Candidates must not write on this margin

measures

① sustainibility

(1) micro irrigation → promoting microirrigation technologies ← Drip, sprinkler

(2) Rain water harvesting → at farmers land ↳ ponds/wells → for water sustainibility

(3) R&D → to provide polymer revolution to reduce maintainance & installation cost

equity

(1) Promoting Farmer producer organization ↳To ensure All farmers can access it.

(2) Accelerated Irrigation Benefit Programmes to ensure equitable access

(3) Credit availibity → subsidized rates to small & medium farmers

Thus Irrigation can help in bringing improved agriproductivity for doubling farmers income by 2023

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

India Atomic energy & space technology is the footnote of Homi & Vikram & Pandit Nehru

Dr. Homi Jehangir Bhabha

(1) Promoted Atomic research
(2) called for establishment of Nuclear reactors
(3) Founded India's 1st earliest Nuclear reactor @ Kaiga & Tarapor Nuclear
(4) Help Institutionalised BARC (Bhabha atomic research center)
(5) India has presently 22 Nuclear reactors due to the contribution of Dr. Homi Bhabha

Candidates must not write on this margin

(6) India's share of 7GW of Nuclear energy from Total energy mix can be attributed to him

(7) ~~India~~ Strategic

(1) India's 1974 Nuclear test was vision ~~brain child~~ of Dr Homie bhabha

(2) On his proposal, India went for operational Smiling Buddha which lead to India becoming Nuclear power in 1999 → Balance of power vis a vis China & Pakistan

Dr. Vikram Ambalal Sarabhai

(1) Founded ISRO's precursor

&

(2) lead to establishment of Rocket launch vehicle at Thumba & Sriharikota

Candidates must not write on this margin

③ Pioneered PSLV launch velocity

④ Strategic

① India's Anti satellite Missile system can be attributed to him

② India's deep space exploration is due to his thrust research & Developed

Gaganyan

Chandrayan

~~③ Indian rocket lab~~

Thus Dr Homie Bhabha & Dr Vikram Sarabhai helped India leap forward in ~~Space~~ Nuclear & space which form base for India's "Developed Nation" status by 2047

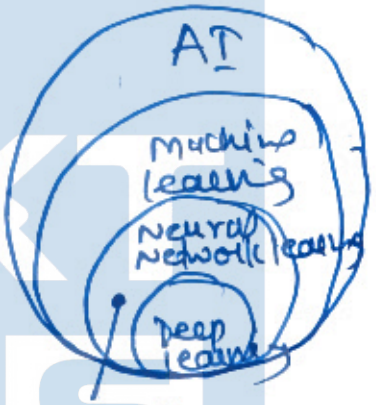
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Q.16 जेनरेटिव एआई निकट भविष्य में नवाचार की सीमाओं को आगे बढ़ाने का सामर्थ्य रखता है, फिर भी इसका सामाजिक प्रभाव पर्याप्त चुनौतियाँ खड़ी करता है। सविस्तार उत्तर दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

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

Generative AI is a Neural Network based machine learning programs with ability to generate texts, poetry, Human interaction through learning

potential to push the boundaries of Innovation



(1) Coding

(1) New innovative system coding for computers

Ex :- Hydeerabad IT company used Generative AI to dieselope coding for Staff mangement

(2) Poetry

Can bring new Gulzar, Iqbal and Shakespheer → beauty of language

Candidates must not write on this margin

③ Education

Children can use GPT for Conceptual clearity

Ex:- Command to explain 3 Stage Nuclear reactor for 10th student

↓

explain very simple

④ Healthcare

Government using ChatGPT to integrate with scheme

Command issue → it give details of scheme → better information accuracy in ChatGPT

Yet social impact is challenge

① Curb human innovation

mimicking poetry → challenge to human cognition

② Relationship

Use of ChatGPT to generate chats online & manipulation of relationship

③ Children

engaging in plagiarism → against moral development

Candidates must not write on this margin

④ misuse
used to generate malicious mails.
↳ Robbery, fraud → impact society

⑤ Deep fake
use of GPT to generate deep fake messages
[Ex: Ex Chief Election commission
deep fake to spread misinformation
regarding EVM]

Steps
① Proper regulation → Need a policy akin to Nation AI strategy 2020
② Ethical AI can be promoted
↳ prevent plagiarism
③ Ensure complement Human Intelligence
④ Promote welfare { Farmer → information symmetry
PwD / Vulnerable → get updated information, reduce work load

AI is the beginning of end of humankind (Stephen Hawkin). Making it humane to cohabit with each other

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

Mangroves are the coastal ecosystems of tropical regions which have special features of salt tolerance, viviparity, making them most important aspect of coastal ecosystem

Mangrove Alliance for Future

(1) Conservation of mangroves
(2) Increase plantation → Increase Global presence
(3) Promote community led preservation of mangroves
(4) Ensure budgetary Allowances
(5) Support Initiatives such as Mangroves for the future of UNEP

Candidates must not write on this margin

Importance of mangroves

(1) 1st line of defence
can bear strike of cyclones, Tsunami's
Ex:- Odisha mangroves took the
might of cyclone Amphan

(2) Biodiversity
Most important biodiversity like Bengal
Tiger, fishing cats thrive in mangrove
areas

(3) Ecosystem service
(1) carbon sequestration
(2) Promoting clean water by absorbing
heavy metals
(3)

(4) Human
(1) livelyhood in mangrove areas
(Odisha Tribes)
(2) wood, livestock and food
(3) Minor forest produce for
selling to TRIFED/ markets

Candidates must not write on this margin

(5) Health

Medicinal plants → for disease like Ulcer, Kidney stones, Heart disease

(6) Agriculture

Marine agriculture in Mangrove area

Challenges

(1) Destruction → 40% mangrove destroyed in Andhra

(2) Over exploitation → Clearing for Agriculture

(3) Climate change → Changing water composition → leads to killing

(4) Global warming affect viviparity

Steps:

(1) Global → Mangrove for the Future

(2) India → (1) MISHTI project

(2) special budgetary allocation for mangrove

(3) Community participation

Odisha Tribals taking care mangrove

Mangrove can help in realising the goal of people, planet and progress for all

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

India launched the CDRI at United nation Climate Action summit 2020 for robust disaster management a

Robustness

(1) Increase disaster preparedness

(2) International collaboration → More than 100 countries joined & USA showed interest

(3) Secretiat established in Delhi

(4) More funding for disaster mitigation & Adoptions India provided $500mn

(5) special assistance for vulnerable & least developing countries like Maldives

(6) Ensure Climate Justice → hope for vulnerable

Candidates must not write on this margin

Need

① Increase instance of disaster
For Ex → S'Asia → more than 100 heat wave from 2015-2023

② Death
① Every year more than 50000 people die due to Disaster

③ Underpreparedness
more than 2/3 countries does not have proper Early warning systems

④ Technology Transfer
CDRI will work for Technological & knowledge along with Best practice among the member and other

⑤ Ensure Global Governance
A body to look after Global Disaster & Democratization / Disaster relief

Candidates must not write on this margin

For India

(1) Reduce Risk & vulnerability → by preparedness and awareness (people & administration

(2) Technologies India installed India Quake App, ~~Land slide Early warning~~ (Sikkim) Tsunami Early warning system (for Indian ocean countries)

(3) Preventing mortality and death (more than 100 people died in July 2023 floods)

(4) Ensure proper implementation of NDMA, NDMA guidelines

(5) Hazard Risk ~~Zonation~~, vulnerability & mitigation

Thus CDRI can be a good success to Sendai framework for ensuring Hazard risk mitigation & maximum safety

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

Meity in its annual report mentioned about more than 2lakh cyber attack per day to major critical & corporation across India

Urgent Need

1) India rank 50/80 in cybersecurity index
2) Increase Attack
   1) Critical Infrastructure
      1) Nuclear power plant → Kudan kulam
      2) Mumbai Blackout
      3) Yes bank facility compromised
      4) AIIMS Delhi ransomware → blocked for 5 days

Candidates must not write on this margin

Corporations

(1) Zomato data hacked → critical information stolen

(2)

~~Urgent need for cybersecurity~~

Factors contributing

(1) Poor cyber security infrastructure

(2) Poor public awareness
↳ many use pirated softwares

(3) Outdated cyber security policy

(4) Human resource
India lack trained anti-hackers

(5) Government infrastructure
↳ most vulnerable as lack advanced Technologies

Impact

(1) Data leakage & misuse

(2) Vulnerability
↳ women targetted
(2) Recent Judges was robbed/extracted money by fraud

(3) Hamper public service
↳ Health crash common people in AIIMS jeopardised

(4) Sovereignty
Government gets paralysed.

Candidates must not write on this margin

(5) lead to loss of wealth

Ransomware accounted for USA to pay $900 million against Reddot Network

Steps

Structural

(1) New cyber security policy

(2) More digital cells like Hyderabad cyber security cell

(3) Human resource to be trained → ethical Hacking

(4) Government infrastructure to be made
- Robust (CertIn, CertFin, NCCCC)

Non structural

(1) Make people more aware about Not using pirated softwares

(2) cyber security programme to check for ransomware

(3) Ensure decentralized Network → Web 3.0 for better cyber security architecture

Need of hour is to follow & Join Budapest convention for robust cyber security Infrastructure

Candidates must not write on this margin

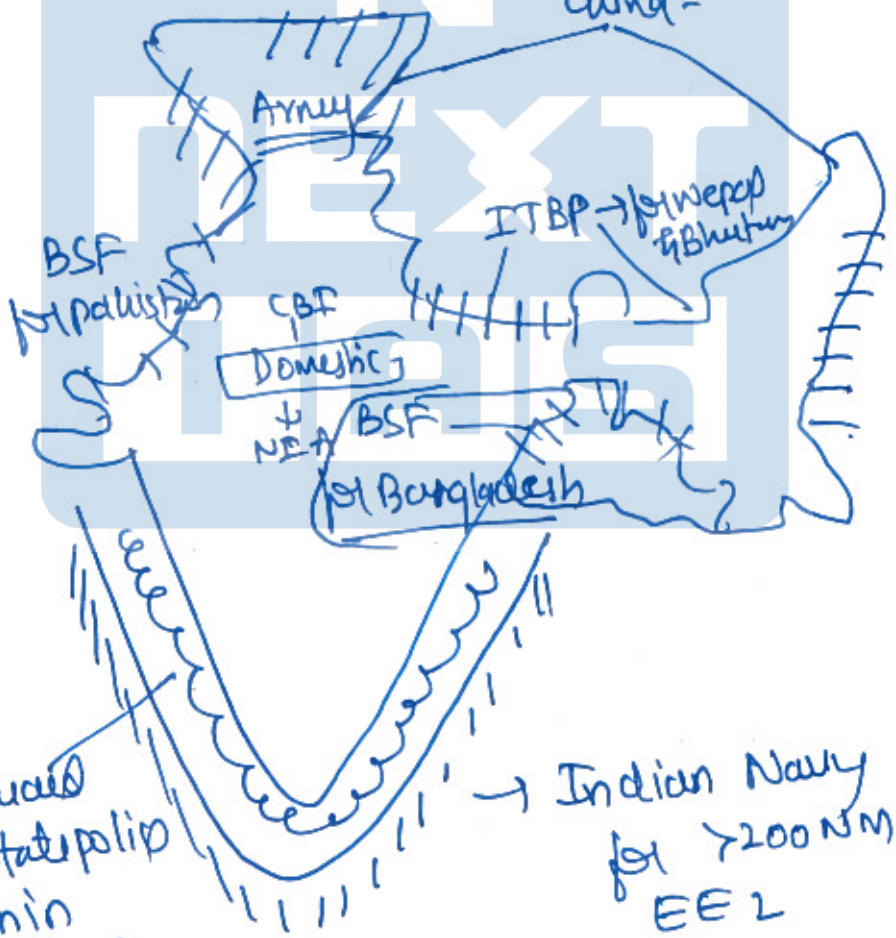
Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(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

India has 15000km of landborder and 7500km of coastal borders having multiple agencies for Border management



Coastguard & State police within EEZ & State Jetty

→ Indian Navy for >200 NM EEZ

Candidates must not write on this margin

Challenges

1. fragmented approach
2. Poor interagency coordination
3. Duplication of efforts
4. Poor Border management
   - Infiltration
   - Illegal migration

Steps to cooperate

1. cooperate
   1) NATGRID → can share information for better border management
   2) Human resource
      Integration & cosspollination of Human resource → for Building Trust

2. Coordination
   1. Integrated theatre commond
      - where in all 3 force can

Candidates must not write on this margin

Coordinate for better border management

- West command against Pakistan
- Northern command against China
- A&N command for Indian Ocean
- Main land command

(2) Procedure for appointment of Chief of Defence staff → which can coordinate among multiple agency & bring efficiency

(3) one Nation one Border policy
It will prevent clashes & competition across border force, promoting better coordination

(4) Technology → CBIMS & BOLD QIT can bring synergy among force

Following Madhukar Gupta committee recommendations like Resource management, Joint drills can further strengthen border defence architecture

Candidates must not write on this margin

Space for Rough Work

NEXT IAS