

# GENERAL STUDIES (TEST CODE : 1065)

Name of Candidate	Neha		
Medium Eng./Hindi	English	Registration Number	135596
Center	-	Date	-

## INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	12.5	
2	12.5	
3	12.5	
4	12.5	
5	12.5	
6	12.5	
7	12.5	
8	12.5	
9	12.5	
10	12.5	
11	12.5	
12	12.5	
13	12.5	
14	12.5	
15	12.5	
16	12.5	
17	12.5	
18	12.5	
19	12.5	
20	12.5	

Total Marks Obtained:

Remarks:

## INSTRUCTIONS

- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).  
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in ENGLISH & HINDI इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.  
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.  
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.  
प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
- Word limit In questions, if specified, should be adhered to.  
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.  
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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# EVALUATION INDICATORS

1. Contextual Competence
  2. Content Competence
  3. Language Competence
  4. Introduction Competence
  5. Structure - Presentation Competence
  6. Conclusion Competence
- 

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best



1. Despite many challenges, India has persisted in consolidating relations with Iran. Explain. In the context of Chabahar Port, discuss the significance of other actors in Indo-Iranian relations.

कई चुनौतियों के बावजूद भारत ने ईरान के साथ संबंधों को सुदृढ़ बनाये रखा है। व्याख्या कीजिए। चाबहार पत्तन के संदर्भ में, भारत-ईरान संबंधों में अन्य कर्ताओं के महत्व की चर्चा कीजिए।

India-Iran ties share a long cultural and economic history and people to people contact

The ties have sustained inspite of :

- (1) Iranian revolution
- (2) Ayatollah Khomeini's support to free Kashmir
- (3) Sanctions on Iran due to nuclear activity
- (4) Instability in West Asia

The ties are important for:

- (1) Energy security → Iran is third largest supplier of crude oil to India.
- (2) Connect to Central Asia → due to unavailability of land route



through Pakistan and Afghanistan

(3) Afghanistan stability → Iran is an important stakeholder and also the gateway to Afghanistan for India.

(4) Economic ties → Indian oil refineries are calibrated to Iranian crude. Iran provides favourable trade terms and also accepted payment in rupee-rial mechanism and in exchange of rice.

Chabahar is India's ambitious project in the South East Iran. Its features:

(1) Route till Tahedan being made and then can be used for trade to Afghanistan via Zaranj-Delaram highway

(2) Only 80 km from Gwadar

(3) Near the crucial chokepoints of strait of Hormuz.



The significance of other actors in the Chabahar are:

(1) P5 + 1 → signed the JCPOA with Iran which enabled trade and investments to be resumed normally.

(2) USA → withdrew from the agreement - But India received CAATSAA waiver for Chabahar. However pressuring India to reduce crude import.

(3) China → assumed to build a "string of Pearls" around India. Chabahar is India's answer to Gwadar.

(4) Afghanistan → Wheat shipment already delivered. More trade.

(5) Central Asia → After INSTC materialises, Chabahar can help increase trade with this.

(6) Pakistan → views Indo-Iran ties with suspicion.

Thus, diplomacy is a nuanced game with multiple stakeholders.



2. It has been argued that recent developments in Maldives marked a test for the Neighbourhood First policy of India. In this context, do you think India's neighbourhood policy requires a major overhaul to deal with such developments?

यह तर्क दिया जाता है कि मालदीव के हालिया घटनाक्रम ने भारत की "पड़ोस पहले" की नीति को कसौटी पर कसा है। इस संदर्भ में, क्या आप मानते हैं कि इस प्रकार के घटनाक्रमों से निपटने के लिए भारत की पड़ोस नीति का आमूलचूल निरीक्षण करके उसे दुरुस्त करने की आवश्यकता है?

The proclamation of Emergency and sacking of judges, speaker by the ruling dispensation of Maldives has a turmoil in the archipelago.

The opposition party has sought India's assistance, however India has rightly stayed away from the matter.

This stance is justified as:

- (1) It is the opposition and not the democratically elected ruling party that seeks help.
- (2) It could have been perceived as supporting a coup and undermining Maldives's sovereignty.



However, with China's support to the ruling party and large infrastructure projects to China, critics have called for greater role of India.

Thus, the happenings tested the "Neighbourhood First" policy of India.

The policy is dictated by 'Pujyal Doctrine' which is:

- (1) No reciprocity expectations from small neighbours.
- (2) Respect for sovereignty.
- (3) No interference in internal politics.

India aims to be "Net Security Provider" in the region and Maldives is an important component for the same.



The neighbourhood policy may be overhauled in view of recent developments by:

(1) Ensuring safety of India's strategic and economic interests in any neighbour.

Example: Maldives has asked India to remove its helicopters and refused to extend work visas to Indians.

(2) Play a leadership role in building opinion for strengthening democracy and democratic institutes.

Example: India can use platforms like UN to pressure Maldives to show commitment to democracy.

While China's way of direct interference is to be avoided, India can use its soft power to ensure stability and democracy in Maldives.



3. The developments since the beginning of 21st century have augured well for India-Japan relations, nonetheless terming them natural allies would require further consolidation of the ties. Critically comment.

21वीं शताब्दी के आरंभ के बाद से घटित घटनाक्रम भारत-जापान संबंधों की बेहतरी का पूर्वाभास कराते हैं, फिर भी इन्हें प्राकृतिक सहयोगी कहने के लिए संबंधों को आगे और सुदृढ़ बनाने की आवश्यकता होगी। आलोचनात्मक टिप्पणी कीजिए।

Post-liberalization, India has found various development partners and Japan has been one of strongest relationship in areas like technology, infrastructure.

Following developments have demonstrated the progress the ties have made:

- (1) India is the first non-NSG member with whom Japan has signed a nuclear agreement
- (2) Japan has joined as 3<sup>RD</sup> partner in Indo-US Malabar exercise
- (3) Part of "Quad" strategic and political alliance
- (4) Asia Africa Growth Corridor which is seen by many as an answer to China's BRI



(5) Natural synergy between India's 'Act East' and Japan's 'Think West' policy

(6) Japan has partnered in infrastructure projects like Bullet train, Delhi-Mumbai Industrial Corridor, 12 upcoming industrial townships.

(7) Japan's PFI - Partnership for Infrastructure policy has helped develop projects in North-East India.

However, further consolidation of ties is needed to term Indo-Japan 'natural allies' due to:

(1) Low bilateral trade. The aim is to raise it to \$15 bn a year. Japan-China bilateral trade is over \$300 bn.

(2) Reluctance of Japan to extend long term visas to



Indian professionals .

(3) Low tourist footfall between the two countries

(4) Japan has a greater interest in South-China sea and may drag India into the politics of the region

(5) Japan's desire to militarize the "G6 Quad".

(6) South Korea is fast replacing Japan as the source of high tech items and technologies for India.

A greater economic and people-to-people contact, along with clarity on defence ties can be the way forward.

India's demographic dividend and Japan's tech leadership can make them truly complementary partners



4. In view of India's quest to become a leading power globally, assess its potential to achieve desired outcomes and preparedness to address key emerging issues in international arena.

विश्व स्तर पर एक अग्रणी शक्ति बनने की भारत की अभिलाषा के आलोक में, अंतर्राष्ट्रीय क्षेत्र में उभर रहे प्रमुख मुद्दों को हल करने के प्रति वांछित परिणामों को प्राप्त करने की इसकी क्षमता और तैयारियों का आकलन कीजिए।

India, with its rising economic might, is looking to become an important player in international politics

The potential of India is demonstrated by its :

- (1) High GDP growth %.
- (2) Poised to become 5<sup>th</sup> largest GDP and 3<sup>rd</sup> in GDP (PPP)
- (3) Demographic dividend
- (4) Skills in STEM, English
- (5) Strong democratic institution
- (6) Military might and peace commitment, non-violence
- (7) Responsible nuclear power, no first use policy
- (8) Proactive role being played in international platforms like WTO, IMF, UN Organisation



(9) Commitment to climate justice, renewable energy.

The world today is no more unipolar and with USA becoming increasingly inward-looking, the ground is open for new powers.

The challenges and emerging issues in the international arena and India's strengths in the same include:

- 1) Rising inequality → India's commitment to socialism and welfare economics
- 2) Terrorism, radicalisation → 2<sup>nd</sup> largest Muslim population yet least number of ISIS recruits. 2<sup>nd</sup> largest manpower in military forces.  
Has coordinated with multiple agencies in surveillance monitoring, intelligence



gathering.

(3) Refugee crisis → though not directly arriving in India, the country has stood by the rights of asylum seekers and has also helped Bangladesh in Rohingya issue

(4) Climate change →  $\pm$  SA, promised INDCs, thrust on renewable energy source

(5) Ageing population and workforce → can be supported by India's demographic dividend

(6) Protectionism → India has always upheld international treaties, showing reliability.

However, internal issues like poverty, unemployment, poor gender indicators are yet to be resolved and need focus in order to propel India into a global power



5. Critically analyse the role of non-state actors in international relations and their impact on India's diplomatic ties and strategic interests.

अंतर्राष्ट्रीय संबंधों में राज्येतर कर्ताओं की भूमिका और भारत के राजनयिक संबंधों एवं सामरिक हितों पर उनके प्रभाव का आलोचनात्मक विश्लेषण कीजिए।

Non-state actors are outside the definition of the "state" and include terrorist organizations, radical groups, organized crime syndicates.

Their role in IR includes.

- 1) Acting as a B-team of the state and act as its proxy in certain areas → HM, JeM are believed to be backed by Pakistan's ISI and train and recruit youth, fan unrest in the Kashmir valley.
- 2) Gather funds for terrorist activities → Haggani network is believed to be the front for financing HM, JeM.
- 3) Due to their "unofficial" status, the state can escape



responsibility of their actions and not attract international sanctions and reprimands.

(4) Non-state actors are believed to be involved in FICN smuggling, drugs trafficking, money laundering, arms supply

Their impact on India's diplomatic ties and strategic interests can be elaborated as:

(1) Critical negotiation point → in discussions with Pakistan. India insists that Pak stop supporting all direct and indirect forms of aggression against India before talks can proceed

(2) China factor → China has vetoed to declare Hafiz Saeed as an international



terrorist much to India's disappointment.

(3) International bodies → UNSC Resolution to declare Al Qaeda as terrorist organisation reaffirm India's expose of Pak-backed terrorism. FATF sanctions.

(4) Western countries → USA has frozen accounts and assets of Pak-based groups.

Non state actors help the enemy ~~lose~~ avoid the costs of a full-fledged war yet affect India's interests, thus imposing economic, technological and defence forces related costs on India



6. Examine the key aspects of India-United Kingdom ties. In this context, how significant is the Commonwealth grouping? Discuss in view of the recent developments.

भारत-यूनाइटेड किंगडम संबंधों के प्रमुख पहलुओं का परीक्षण कीजिए। इस संदर्भ में, राष्ट्रमंडल समूह कितना महत्वपूर्ण है? हाल के घटनाक्रमों के आलोक में चर्चा कीजिए।

India-UK ties which began with colonialism have well sustained in the face of 21<sup>st</sup> century democracy.

The key aspects include:

- 1) Huge influx of migrants from India in 1950s-60s under the Commonwealth work permits and their subsequent naturalization and citizenship.
- 2) People to people contacts → tourism, cricket, Indian students, professionals in UK
- 3) India's judicial, political systems are influenced from the British system
- 4) Preferred destination for legal studies due to similar



legal systems

(5) Strategic business partnerships  
→ Tata's acquisition of Jaguar  
NATSteel and Tata Steel  
Arcelor Mittal deal.

Commonwealth is the  
organization of all the  
nations once a part of the  
British crown. Its significance

(1) Organization with the  
2<sup>nd</sup> largest number of  
countries after UN Bodies

(2) Commonwealth games as  
a symbol of unity and  
partnership among nations

(3) Includes developed countries  
like Canada, developing  
countries like India and  
several LDCs and SIDCs.

In the view of Brexit,  
UK has been looking at



partnerships and groupings and its attempt to revive Commonwealth is seen as an attempt for the same.

It can help India by:

- (1) Platform to engage with LDCs and SIDS. → to strengthen its position for South-South cooperation
- (2) Small Island Developing Countries → most are vulnerable to climate change and can partner with them for same
- (3) Commonwealth work visa and free trade regime may be negotiated in the future.

History binds India-UK and economics and diplomacy will continue to strengthen these ties.



7. UN Peacekeeping requires reforms to ensure its increased effectiveness and appropriate use in future. Analyse.

भविष्य में संयुक्त राष्ट्र शांतिरक्षण (यू. एन. पीसकीपिंग) की बड़ी हुई प्रभावशीलता और उचित उपयोग सुनिश्चित करने के लिए इसमें सुधार की आवश्यकता है। विद्येयन कीजिए।

UN Peacekeeping is at forefront in several conflict ridden areas, alleviating human sufferings and upholding human rights.

UN Peacekeeping ~~the~~ forces have won the Nobel Prize for Peace and played valuable role in rebuilding nations like Congo, Haiti.

However certain challenges remain and reforms may be initiated to increase the effectiveness:

(1) Forces can be deployed only on the request of the country's government → hence they have not been able to play any role in the



## Syrian Crisis -

(2) Funding is through donation by member countries and private organizations → received funds are declining and issues of non-payment remains. Example: India is yet to receive payments for its forces.

(3) Does not have permanent forces, but consist of volunteers from member nations

(4) Allegations of corruption, human rights violation, support to despotic regimes

(5) Not enough safety gear, intelligence assistance and monitoring → have led to many soldiers being killed in line of duty.



The way forward to initiate reforms is:

- (1) Proactive deployment in case of severe humanitarian crisis like Syria.
- (2) Independent budget from UN to get funds on time
- (3) Transparency in funding, ground activities, audit mechanism, grievance redressal mechanism.
- (4) Unified Training to improve interoperability among soldiers from various countries
- (5) Mandate to improve surveillance, intelligence gathering to reduce vulnerability to attack.

With increased economic manpower and technical support, the organization can further improve its working.



8. Discuss the progress and hurdles in achieving the objectives of India's Connect Central Asia policy. Also suggest measures to overcome these hurdles.

भारत की कनेक्ट सेंट्रल एशिया नीति के उद्देश्यों को प्राप्त करने में हुई प्रगति और बाधाओं की चर्चा कीजिए। इन बाधाओं को दूर करने के उपाय भी सुझाइए।

India - Central Asia share historic trade ties. However the relationship in modern times is yet evolving.

Central Asia consists of 5 countries → Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan and Tajikistan.

The progress made in the Connect Central Asia policy:

(1) Chabahar port → can help connect to CA through Iran and Afghanistan.

(2) Ashgabat Agreement → for cooperation on trade and connectivity

(3) INSTC → when completed can help easier access to CA

(4) India is an observer in Eurasian Economic Union



(5) SCO → India is now a permanent member

(6) Nuclear-civil agreement with Kazakhstan to supply Uranium.

(7) Proposed TAPI pipeline → for supply of gas from Turkmenistan.

(8) Air corridor to Afghanistan

However, certain hurdles exist in the ties due to:

(1) Geography → India lacks direct access to any of the countries

(2) Trade → bilateral trade is only \$ 2 Bn, as opposed to \$ 50 Bn between China and Central Asia

(3) Slow progress on INSTC, TAPI.

(4) Poor people to people contact



However, the bilateral and multilateral agreements and organizations are poised to help in overcoming the hurdles.

- India is also seeking to leverage its soft power by:
- (1) Scholarships to students in CA under ITEC scheme  
→ help in skill training
  - (2) Cultural Research Institute scholarships.
  - (3) Proposals for extending Tele-medicine, Tele-education services to CA similar to Africa.

Central Asia is a recently developing area and provides rich scope for goods and services trade and enhance cooperation in the region.



9. Urban terrorism has been on the rise in recent times. Identify the factors that make urban centres susceptible to terrorist attacks. What lessons can be learnt from the past attacks to put in place effective measures to combat it?

हाल के समय में शहरी आतंकवाद उफान पर रहा है। शहरी केंद्रों को आतंकवादी हमलों के लिए सुग्राह्य बनाने वाले कारकों की पहचान कीजिए। इसका मुकाबला करने हेतु प्रभावी उपाय करने के लिए पिछले हमलों से क्या सबक सीखे जा सकते हैं?

From Mumbai to London, Paris, Brussels - Urban terrorism has raised its ugly head all over the world.

The factors that make urban centres susceptible to terrorist attacks include:

- (1) Relative anonymity
- (2) Easy availability of means and sources.
- (3) Ability to create a larger impact due to high population density.
- (4) Economic inequality, squalor, urban sprawl → leading to alienation and relative deprivation → making



youths vulnerable to  
radicalization.

- (5) Policing difficulty due to huge population.
- (6) Epicentre of economic activities → an attack acts as a psychological horror and generates widespread fear.
- (7) Large influx of migrants which can also be taken advantage by notorious elements.

Each such incidence needs to be critically analysed to pick out lessons. Some of them include:

- (1) Need for greater integration of the marginalized and ethnic minorities → attackers have been 2<sup>nd</sup> generation immigrants and yet poorly integrated.



(2) Community intelligence → neighbours, local imams have reported suspicious youths. However, proper surveillance and monitoring was not put in place.

(3) Innovation → using vehicles as a weapon. Proper documentation may be demanded before sale or rental of vehicles like Truck, trailer

(4) Online radicalization, lone wolf attacks → need to crack down on websites and networks that propagate ISIS material.

For every attack that happens, aim should be to prevent a repeat and hence necessary community security and technical measures should be put in place.



10. Despite consistent efforts to contain it, Jammu and Kashmir has witnessed waves of violence since the inception of insurgency in the late 1980s. What, in your opinion, are the causes of persistent violence in the state? Also, suggest measures to improve the situation in the state.

नियंत्रित करने के निरंतर प्रयासों के बावजूद, 1980 के दशक के उत्तरार्ध में उपद्रव (इंसेर्जेसी) आरंभ होने के बाद से ही जम्मू-कश्मीर हिंसा की लहरों का साक्षी रहा है। आपकी राय में, राज्य में लगातार हिंसा के क्या कारण हैं? साथ ही, राज्य में स्थिति में सुधार के लिए उपाय भी सुझाए।

A combination of local and international factors have led to constant waves of insurgency in Jammu and Kashmir from the late 1980s.

The beginning was due to:

- (1) Perceived rigging of 1987 elections in favour of NC
- (2) End of Soviet Afghan war which freed the Mujahideen and enabled them to focus on a new area - J&K
- (3) Pakistan's overt and covert support to the insurgents

However, the issue has festered for so long and continued due to:



- (1) Pakistan's increased ability to provide funds and training
- (2) Perceived lack of democracy in J&K due to continued rule by only 2 families
- (3) Failure to conduct periodic elections to tier 3 bodies
- (4) Frequent imposition of Governor's rule → viewed as an attempt to control J&K from New Delhi
- (5) Huge unemployment → due to lack of private sector and perceived nepotism and corruption in public sector recruitment
- (6) Rhetorics for abolition of Article 35A → which is viewed by Kashmiris as their right and base of their relationship with Delhi.
- (7) Failure to resettle the



Landits in the valley → thus resulting in loss of secular fabric of Kashmir

(8) Allegations of misuse of power by army.

Since the death of Burhan Wani, an entire new generation of youth who have grown in the shadow of insurgency has taken to arms. The way forward is:

- (1) Economic development
- (2) Greater integration through Scholarships, job opportunities in other parts of India.
- (3) Increased surveillance, monitoring → surgical strikes to destroy hideouts.
- (4) Reinstate democratic govt
- (5) Reassure about constitutional status of Article 35A.

The amalgamation of Kashmiriyat, Islamiyat and Shamooriyat is the only solution



11. While the National Investigation Agency is emerging as India's premier terror investigating agency, the challenges before it are multipronged. Discuss.

जहां राष्ट्रीय अन्वेषण अभिकरण भारत की प्रमुख आतंक अन्वेषण अभिकरण के रूप में उभर रही है, वहीं इसके समक्ष बहुआयामी चुनौतियां भी हैं। चर्चा कीजिए।

National Investigation Agency is fast emerging as India's premier terror investigating agency.

The multipronged challenges before it include:

(1) Changing nature of terror

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graph TD; A[Changing nature of terror] --> B[Cyber attacks]; A --> C[Lone wolf attacks]; A --> D[Urban terrorism]; A --> E[Insurgents and infiltration];
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(2) Recruitment and training to fight such attacks → majorly deputed from IPS. and may not be fully acquainted with the challenges

(3) Emerging areas like :

↳ Bio-terrorism

↳ Space-terrorism



↳ environmental terrorism  
over which very limited  
understanding currently exists

(4) Rise of Data → need to  
develop capacity to use  
and process Big Data, analytics,  
artificial intelligence to  
enhance monitoring and  
surveillance.

Predictive analytics can  
help pre-empt attacks

(5) Psychological warfare →  
through spread of fake  
news, propaganda, use of  
sharp power can have  
serious consequences.

(6) Changing societal dynamics →  
rising alienation, anonymity,  
urbanization is making  
traditional social networks  
redundant. Hence difficult



to learn of suspicious activity from such networks

(7) Rising inequality, unemployment → increases relative deprivation and vulnerability of radicalization

(8) Organized transnational rackets of money laundering, FICN, drugs, arms, human trafficking → fund terrorism

(9) Rising funds with international terror organizations like ISIS.

Way forward:

Multi-institutional and multi-dimensional support along with insights from sector specialists can help NIA in face of these challenges.



12. Assess the potential of Social Media Networks for effective policing in India. Also, highlight the reasons behind relatively slow pace of adaptation of social media into policing in India.

भारत में प्रभावी पुलिस व्यवस्था के लिए सोशल मीडिया नेटवर्क की संभाव्यताओं का आकलन कीजिए। साथ ही, भारत में पुलिस व्यवस्था में सोशल मीडिया के अनुकूलन की अपेक्षाकृत धीमी गति के पीछे उत्तरदायी कारणों पर प्रकाश डालिए।

With 2<sup>nd</sup> largest number of social media users, India is adopting these networks at a rapid pace.

Their potential for effective policing include:

- 1) Identification of potential youth that may be radicalized  
→ by tracking the posts they share, content they upload and comments and likes they make, take note of complaints
- 2) Identify possibility of any law and order situation  
→ depending on the posts, hashtags, comments of people from a single area.
- 3) Check the spread of fake



nebes → example: Whatsapp videos that were spread claiming child lifters racket, which resulted in mob lynching of outsiders in that region.

(4) Timely information can be provided on any security or relief work.

(5) Using chatrooms to help de-radicalize youth and get them in contact with correct leaders.

(6) Identify potential cyber stalking, cyber bullying, cyber harassment, sharing of child pornography, revenge porn, threats to women.

(7) Use as a quick response mechanism during emergencies  
example: during floods in Mumbai, police quickly



Updated on shelters and food facilities, available routes.

(8) Identify possible honey-traps from India's enemies.  
Example → case of engineer working on Brahmos.

Mumbai, Bangalore, Delhi police have been proactive on social media networks.

However slow pace is due to:

- 1) Lack of technological expertise and skilled manpower
- 2) Inadequate infrastructure and budget support
- 3) Inertia to change.

With CCTNS, e-courts, digitalization of law and order mechanism is on its way and social media policing can be another dimension of it.



13. Integrated theatre commands are only one amongst the many steps required for improving the effectiveness of armed forces. Discuss.

एकीकृत थियेटर कमांड सशस्त्र बलों की प्रभावशीलता में सुधार लाने के लिए आवश्यक कई उपायों में से केवल एक उपाय है। चर्चा कीजिए।

With the operationalization of the Andaman and Nicobar command, India has launched its first integrated theatre command.

An integrated theatre command is a tri-service command under a unified leadership and control.

It is expected to provide speed, agility and improved pace of attack in any near-fare situation.

However, it is only one amongst the many steps required for improving the effectiveness of armed forces due to:

(1) Lack of adequate machinery



and manpower to spare for such a command.

Example: Air Force only has 31 out of 42 squadrons required.

(2) No appointment of Chief of Defence Staff yet as a permanent figure to lead such integrated commands.

(3) No concrete steps to design fourth arm of defence forces → cyber command and fifth arm → space command

Other steps to improve efficiency of the armed forces include:

(1) Shekatkar committee report → improve teeth to tail ratio by reducing redundant posts like dairy farms, army post offices in civilian areas



(2) Defence budget is about 3% of GDP, whereas China's is about 6%.

(3) Huge import dependency

(4) Poor participation of private sector in Make in India for defence sector

(5) CAG report → ammunition is sufficient only for 10 days of war as opposed to mandated 20 days.

(6) Overburdened CAPF which should act as second line of defence.

Way forward:

(1) Rationalization of manpower

(2) Indigenisation of equipment

→ Defence corridors

(3) More ~~trilateral~~ service exercises to improve their interoperability.



14. Discussing the applications of the NISAR mission, comment on the need for international collaborations in India's space programme to generate resources and develop expertise.

NISAR मिशन के अनुप्रयोगों पर चर्चा करते हुए, संसाधन जुटाने और विशेषज्ञता विकसित करने के लिए भारत के अंतरिक्ष कार्यक्रम में अंतर्राष्ट्रीय सहयोग की आवश्यकता पर टिप्पणी कीजिए।

## NISAR OR NASA-ISRO

Space Aperture Radar is a joint collaboration for high quality mapping of earth resources.

NISAR will help in:

- (1) Provides picture of land-forms, minerals, water bodies, vegetation
- (2) Can be used to track impact of climate change.
- (3) Utilization of natural resources and exploration
- (4) Accurate planning
- (5) Enhanced understanding for scientific R & D.
- (6) Map the forest cover to conform to CAMPA Rules.



While ISRO has proved its mettle by initiatives like GSLV Mk III, Cryogenic tech, Chandrayaan, Mangalyaan, international collaborations can further enhance India's Space program.

It can aid in :

- (1) Assistance in cutting edge technology → example: Russia has helped in PSLV.
- (2) Generate financial resources → India is fast becoming the go-to agency for launching small and medium satellites → generates foreign exchange.
- (3) Training manpower → Russia has promised help in manned-mission Gaganyaan.
- (4) International issues → by negotiating and playing



important role in areas like:

a) Peaceful use of outer space

b) No weaponization of outer space

c) United efforts to clean space debris.

(5) Contribute to understanding of cosmic phenomenon and science: Chandrayaan confirmed water on moon which was earlier observed by NASA.

Aditya, along with NASA's Parker will go at lagrange points and help understand solar flares.

Space is a common resource and hence a collaborative approach is the right way to study and develop understanding of space.



15. Elaborate upon the role of remote sensing technology in the agriculture sector. Also, enumerate various programmes undertaken by the government to leverage remote sensing technology for monitoring agriculture in India.

कृषि क्षेत्रक में सुदूर संवेदन प्रौद्योगिकी की भूमिका का सविस्तार वर्णन कीजिए। साथ ही, भारत में कृषि की निगरानी करने के लिए सुदूर संवेदन प्रौद्योगिकी का लाभ उठाने हेतु सरकार द्वारा आरंभ किए गए विभिन्न कार्यक्रमों को भी सूचीबद्ध कीजिए।

Remote sensing technology uses satellites, drones to get an accurate picture of various features on land.

Remote sensing technology is being used in agriculture sector for:

(1) Assessing damage to crops due to natural phenomenon like drought, hail, flood → payment of PM KBY uses this technology to decide insurance payouts to be made

(2) Used to assess drought situation → % of land sowed is one parameter used to declare the category of drought



(3) To get more information about deep forested areas → can be used to identify timber smuggling, encroachment

(4) Used by policy-makers to estimate the crop production → used to make decisions and procedures for procurement, pricing, marketing

(5) To identify areas which may require irrigation

Government has already deployed remote sensing technology in agriculture like :

(1) BHUVAN → to make detailed land records. Can help resolve conflicting claims and corruption in land deals.

(2) CHAMAN → technology is



used to assist horticulture production.

(3) Drones are being used to disperse seeds in barren land that is inaccessible → example: forests destroyed due to forest fire

(4) Damage assessment under Pradhan Mantri Kushi Bima Yojana.

Agriculture, with use of such technologies can definitely grow faster than the current rate of 3-4% and will enable achieving doubling of farm income by 2022.



16. Defining superbugs, assess why India is particularly vulnerable to them. Also, suggest measures that can be taken to deal with the threat of superbugs in India.

सुपरबग को परिभाषित करते हुए, मूल्यांकन कीजिए कि भारत इनके प्रति विशेष रूप से सुभेद्य क्यों है। साथ ही, भारत में सुपरबग के खतरे से निपटने के लिए किए जा सकने वाले उपाय भी सुझाइए।

Superbugs are bacteria, viruses or other parasites that have developed immunity to most of the mainly used courses of treatment.

India is particularly vulnerable to them as:

- (1) Huge population density → easier spread of bugs.
- (2) Porous borders → immigrants from Bangladesh, Nepal may carry bugs which they may not be vaccinating against.
- (3) Poorly regulated farm sector → antibiotics are used in poultry sector to aid growth.
- (4) Practice of self-medication



- (5) Easy availability of drugs without prescription
- (6) Inability or lack of awareness about completing entire course of antibiotics
- (7) Using antibiotics even for viral infections, diseases.
- (8) Low awareness about MDR (Multi Drug Resistance) even in medical community  
→ even doctors prescribe cocktail of antibiotics
- (9) Visiting doctor only once symptoms become severe → needs stronger course of drug
- (10) Mass bathing events like Kumbh Mela where bugs can spread to vast population

A superbug named NDM → after New Delhi has spread to entire world



India, thus needs to take following measures to deal with the threat of superbugs

- (1) WHO watchlist should be strictly followed → access, watch and reserve category of drugs should only be prescribed in correct hierarchy
- (2) Regulate and ban use of antibiotics in poultry sector
- (3) Increase awareness about MDR → among patients, chemists and medical practitioners.
- (4) Red line → on highest category antibiotics → serve as warning for patients
- (5) R & D, innovation to develop vaccines.

Ayushman Bharat promises healthcare to the poorest Indians and fighting superbugs remains its critical area.



17. Despite its associated risks, nanotechnology offers many advantages to improve upon existing technologies to tackle air, water, and soil pollution. Analyse.

अपने संबंधित जोखिमों के बावजूद, नैनो प्रौद्योगिकी वायु, जल और मृदा प्रदूषण से निपटने के लिए वर्तमान प्रौद्योगिकियों में सुधार लाने के कई सुअवसर भी प्रदान करती है। विश्लेषण कीजिए।

Nanotechnology is the use of technology and devices at the smallest scale - at size of  $10^{-12}$  metres.

Risks associated with nanotechnology include:

- (1) Extremely small size  $\rightarrow$  can escape and become part of ecosystem  $\rightarrow$  Bioaccumulation
- (2) Difficult to control once it starts spreading
- (3) May act as invasive species and deplete resources in an ecosystem  $\rightarrow$  example: land accumulation

However, the advantages offered by nanotechnology are manifold and can help tackle air, water and soil pollution.



Some of the examples are:

(1) Soil → nano molecules can be used to deliver precise quantity of fertilizer, pesticides, weedicides thus preventing overusage and exposure.

nano molecules can help deliver water to the roots of plants, preventing water logging.

(2) Water → purification of water by using nano membrane.

Using nanotechnology for bioremediation.

Can be used at source of effluents to remove impurities before releasing the water into river bodies.

(3) Air → nano filters can be used at the source of exhaust chimneys → to remove harmful particles before the smoke is



released into the air :

Nanotechnology driven air purifiers can be developed for public and home use.

However, care should be taken before scaling up the use of nanotechnology.

Its impact, especially on fish, soil organisms, birds should be evaluated.

Due safety tests, once passed, nanotechnology can become an effective tool in fighting pollution.

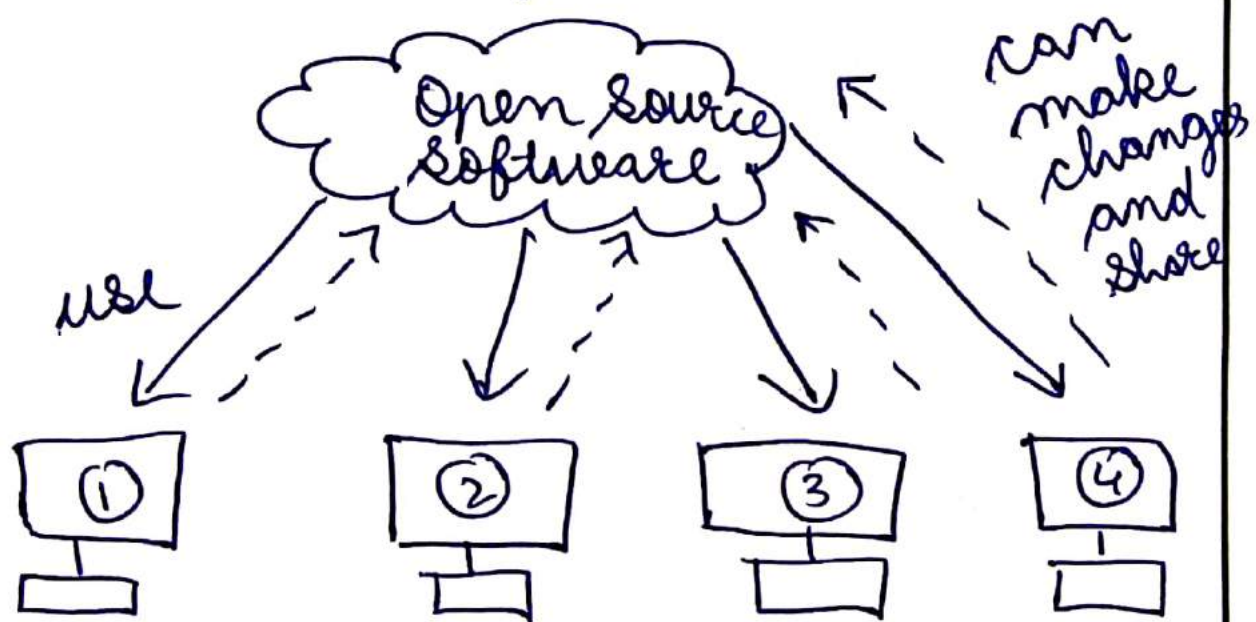


18. What is cloud computing? With examples, identify how it can improve the quality of governance. Also, suggest some measures that can be deployed to counter the security risks that may arise.

क्लाउड कंप्यूटिंग क्या है? उदाहरणों के साथ, पहचान कीजिए कि यह शासन की गुणवत्ता कैसे सुधार सकता है। साथ ही, इसके द्वारा व्युत्पन्न हो सकने वाले सुरक्षा जोखिमों का सामना करने के लिए अपनाये जाने वाले कुछ उपाय भी सुझाइए।

Cloud computing is the usage of cloud technology to perform various computing activities.

It uses distributed cloud, thus reducing costs. Example:



Thus, it can be used to access a particular application by several parties and the made changes can be shared among all.



It can improve the quality of governance by:

(1) Faster, real-time update or workflows → example: ASHA soft used to update the health and immunization details of children → the view can help quickly identify need for interventions

(2) Financial transparency → real time tracking of payment being made in P F M S

(3) Identify risks → can detect disease/epidemic beginning.

(4) Prevent pilferage → using centralised system for procurement, PDS system

(5) Usher transparency, fix accountability and enable citizen's rights

However, security risks



may also arise, and due care should be taken to counter them like:

(1) Cyber attacks → hackers, Spam, DDoS, viruses, trojans can attack the cloud.

Needs both preventive measures like secure softwares, security tools and corrective measures like restoring the system to normalcy.

(2) Privacy concerns → additional data security layers in line with Justice Srikrishna recommendations

(3) jurisdiction issues → most clouds are located in foreign locations. Data localization needs to be mandated.

MEGH DOOT, MEGH RAS are some in use clouds by the government and with necessary security, their use will only increase.



19. Delineate objectives and services linked with Technology and Innovation Support Centers (TISC) program of the WIPO. Also, highlight steps taken by India in this context with special emphasis on IPR awareness.

WIPO के प्रौद्योगिकी और नवाचार सहायता केंद्र (टेक्नोलॉजी एंड इनोवेशन सपोर्ट सेंटर: TISC) कार्यक्रम से जुड़े उद्देश्यों और सेवाओं का वर्णन कीजिए। साथ ही, IPR जागरूकता पर विशेष बल के साथ इस संदर्भ में भारत द्वारा उठाए गए कदमों पर प्रकाश डालिए।

Technology and Innovation Support Centers (TISC) program of the WIPO are a way to increase awareness and strengthen IPR regimes in developing countries.

India's first TISC has become operational in Punjab.

Its objectives and services include :

- (1) Increase awareness about IPR processes like patent filing, evaluation
- (2) Training manpower in such processes.
- (3) Provide a repository of various patents from all over the world → can be



accessed by students and professionals → can help aid innovation and research

India has also taken various steps in the direction of IPR awareness like:

(1) KIRAN scheme → training women scientists after a career break, in the area of IPR

(2) Courses by government institutions to build capacity among IPR professionals.

(3) Social media awareness campaigns like # Lets Talk IP

(4) UGC funding to higher education institutions is being proposed based on parameters like research papers published, patents filed.



(5) National IPR Policy → which speaks about increasing awareness, administrative support and capacity building to create 500000 IPR professionals by 2025.

India's treaties like RCEP, BTIA have seen criticism of India's IPR regime during the negotiations.

USA has continually placed India in the grey list about IPR matters.

Hence, such international and government measures will help strengthen India's IPR regime and usher in a new chapter of 'Innovate in India'.



20. Discuss the significance of polar research and India's contribution in this regard.

ध्रुवीय शोध के महत्व और इस संबंध में भारत के योगदान की चर्चा कीजिए।

Polar regions are the last untouched land-masses and thus offer valuable insights in the areas like Biology, Geology, Hydrology and Climate Change.

Significance of polar research includes:

- (1) Understand severity of climate change → rapidly melting icebergs in the pole
- (2) Space research → due to lower pollution and unique day and night phenomena.
- (3) Mineral resources → newly exposed stretches are expected to contain valuable resources underneath → example: sea-bed mining for polymetallic nodules, minerals like manganese.



copper, tridium

(4) Energy Security → gas hydrate or methane hydrates have been trapped under these icebergs. If suitable technology is developed to exploit them, they can solve the energy crisis of future.

(5) Ozone layer → studies in Antarctica were responsible for detecting the deterioration and the gradual repairing of the ozone layer.

India's contribution in this area includes:

(1) Antarctica → the continent is viewed as a common resource or 'global good'.

India has research stations MAITRI and BHARTI where research on bio-organisms



and other life sciences is carried out.

HIMADRI will be replacing the old-non-operating station

(2) Arctic → India has sent seeds to the "seed vault" in Norway to preserve the genetic diversity of the plant kingdom.

India is an observer in the Arctic Council.

As the last bastions free of anthropogenic influence, the polar research can help reveal insights into various physical and biological and cosmic areas.

India, with its scientific expertise can play a crucial role in the same.