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GENERAL STUDIES (TEST CODE : 1065)

Name of Candidate	KUMAR ANURAG		
Medium Eng./Hindi	ENG	Registration Number	26074
Center	HSC	Date	12/7/18

INDEX TABLE			INSTRUCTIONS
Q. No.	Maximum Marks	Marks Obtained	
1	12.5		1. 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)। 2. There are TWENTY questions printed in ENGLISH & HINDI इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं। 3. All questions are compulsory. सभी प्रश्न अनिवार्य हैं। 4. The number of marks carried by a question/part is indicated against it. प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं। 5. 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। 6. Word limit in questions, if specified, should be adhered to. प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए। 7. 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।
2	12.5		
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19	12.5		
20	12.5		
Total Marks Obtained:			
Remarks:			

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

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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

Answer all the questions in NOT MORE THAN 200 WORDS each. Content of the answers is more important than its length. All questions carry equal marks.

12.5X20=250

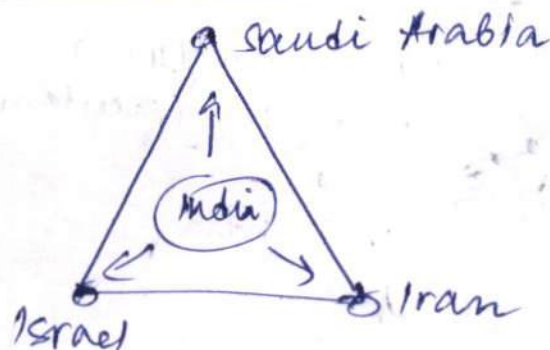
1. Despite many challenges, India has persisted in consolidating relations with Iran. Explain. In the context of Chabahar Port, discuss the significance of other actors in Indo-Iranian relations.

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 is one of the largest importer of oil and gas from the middle east, thus bringing India-Iran ties into prominence.

Challenges to India - Iran ties

* Middle-East trilemma



due to rivalry between Saudi Arabia, Iran and Israel.

* US sanctions → on economic ties with Iran; as Iran Nuclear Deal has been

refuted by the current US administration.

* China-Pakistan axis → on the Persian gulf region

Despite challenges:

* India imports large quantum of oil & gas from Iran

* has created a dehyphenated relationship with other players in the region, such as Israel & Saudi Arabia.

* Investing in Chabahar port creation.



Significance of other actors

* Pakistan → sharing proximity to Chabahar port through Gawadar port;

large muslim population and shares ties with Iran through OIC (Org. of Islamic cooperation) etc.

→ may impact India-Iran ties negatively

* China → heavy investment in Chabahar;
they took diplomacy with both Pakistan and Iran;

↳ One Belt One Road connectivity to middle east, may hamper Indian prospects.

* Gulf nations → who command the trade through Persian gulf will have major interests such as India & China in the region.

It is significant for India to develop Chabahar not only on paper but on ground and win the trust of nations in its proximity.

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?

Recent developments in Maldives:

- imposition of emergency rule in Maldives due to conflicts
- India's opposition to such emergency measures and its immediate revocation.

India's Neighbourhood policy

- based on Anjrat doctrine
- one way contribution to small neighbouring countries without expecting reciprocity
- financial, political and social support to neighbours
- Mutual cooperation and respect for inner matters, policies and non-interference.

Neighbourhood policy & Maldives

- Maldives appeared pro-China and ignored Indian request
- also returned the helicopter gifted by India
- signed FTA with China

Need for policy ~~major~~ overhaul

- ✱ To incorporate the idea that:
 - small nations are provided with enough opportunities to decide their own foreign relations without Indian pressures.
 - eg: similar case with Nepal
- incorporation of soft policy through culture, people and regular ministerial visit
- respect the interest of neighbouring nations

→ creating relations and winning
trust independent of China → and
not appearing as a competitor.

* ASEAN model where large nation
(Indonesia) takes a back seat and
lets the smaller nations dictate
policies.

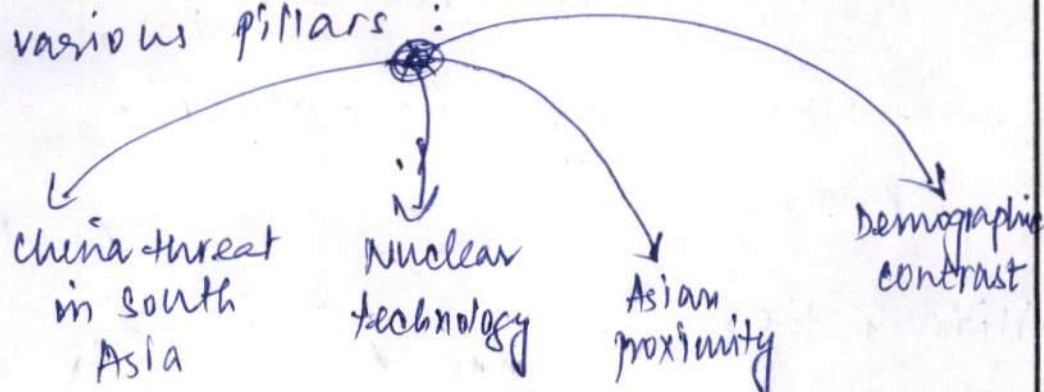
→ regular meeting of the leaders of
the nations.

Due to geographical proximity, India
has inherent advantage. However,
such advantages should be
transformed into opportunities with
mutual understanding.

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।

India-Japan relations are based on various pillars:



Developments in 21st century

* Economic Trade resurgence especially post the rise of East Asian tigers and IT boom.

* Investments and technology tieups such as investment for smart cities, bullet train project etc.

* Japanese MNCs such as Honda,
Hitachi set up in India.

* Nuclear sector → Japan and
India, Civil Nuclear Agreement;
1st non-NPT country to have agreement
with Japan.

* Military ties → to counter China;

* Malabar Exercise → India
→ USA
→ Japan

* Quad Grouping → USA
↓ ↓
India Japan
→ Australia

Thus, the relationship offers enough
example to illustrate that India-Japan
are nothing but natural allies
as their interests meet

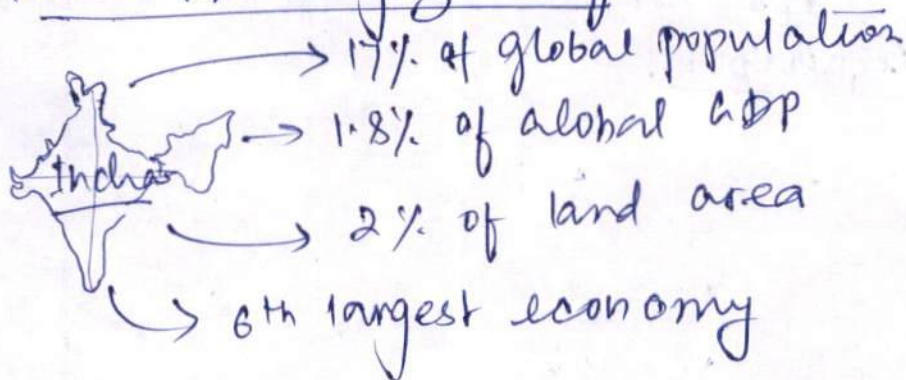
* A4 grouping : Japan, India, Brazil,
Germany for UNSC membership.

* Japan's support for India's NSA
membership.

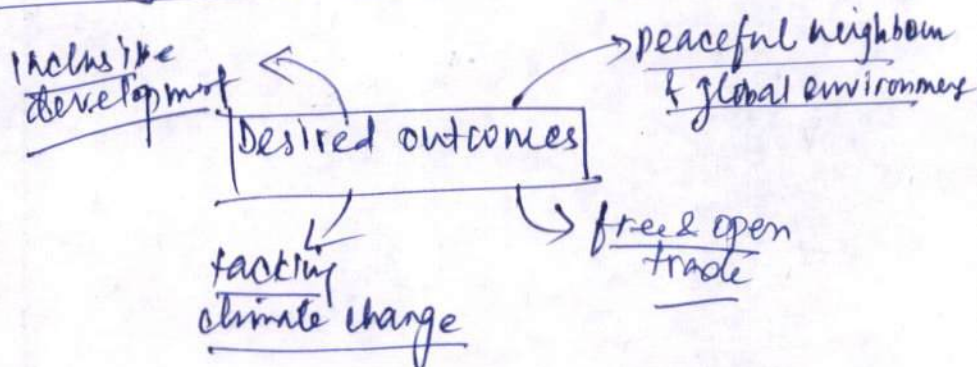
4. In view of India's quest to become a leading power globally, assess its potential to achieve desired outcomes and preparedness to address key emerging issues in international arena.

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's standing globally:



Assessing India's quest to global power



* peaceful global community

- Potential : India has ^{4th} ~~5th~~ most powerful army as per global firepower and hence a credible deterrence
→ nuclear capability

- Challenges → fails in terms of technology and innovation
- CAG report has pointed on its obsolete machinery.

* Free & Open trade

- Potential : → accounts for 3% of global exports
- largest producer of milk, vegetables & various agri-products
- represents interest of developing countries

◦ Challenges

- expertise in labour ^{intensive} ~~producing~~ products
- rise of protectionism and failure of India in WTO.

* Climate change

- Potential → large coastline, tropical location
- initiated International Solar Alliance
- target of 175 GW of NRE by 2022.

• Challenges

- lack of financial resources
- innovation, technology and skills are limited.

• Inclusive development

- Potential: democracy (world's largest),
- various poverty alleviation measures & policies

• Challenges

- Oxfam reports points towards rising inequality
- prevalence of high illiteracy, malnutrition etc.

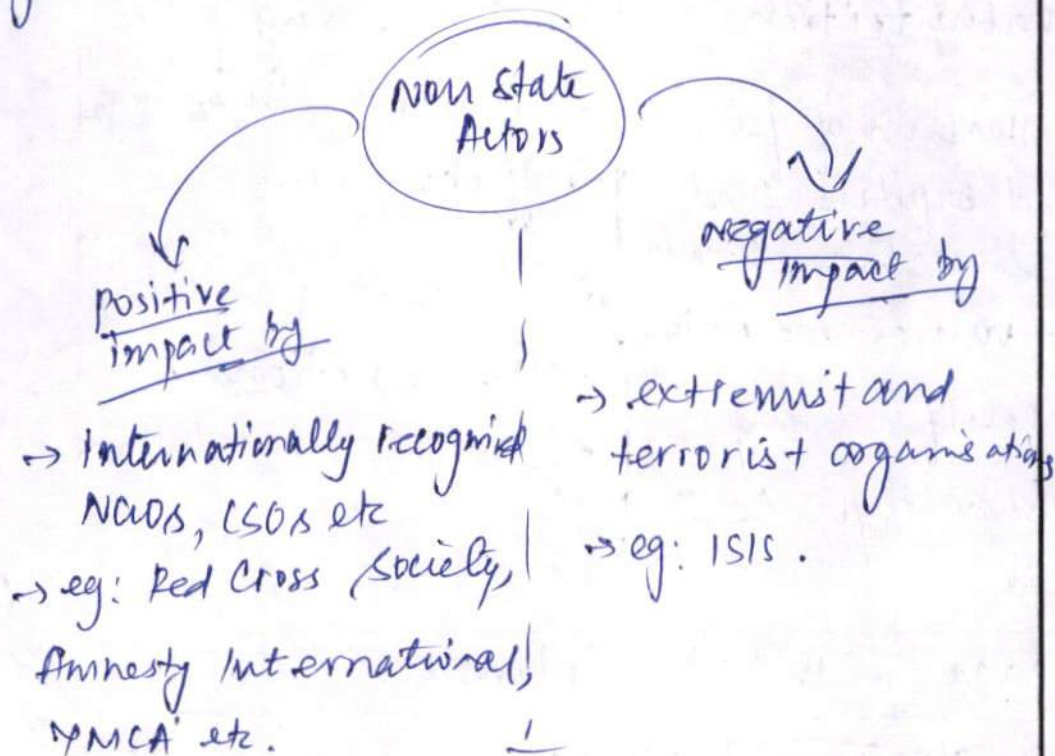
Various international negotiation of India have failed to take off on ground due to its limited capabilities and lack of will.

Thus, in order to compete with other rising powers, India needs to focus on its potential & strengths.

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 refers to organisations and institutes not affiliated to any state or nation but working independently.
Eg: International NGOs etc.



Role of non state actors in IR

<u>Positive Role</u>	<u>Negative Role</u>
① Supporting national as well as global interest	① Impacting national and global interest adversely

eg: PETA supporting
wildlife

② promoting inclusive
growth by highlighting
the policy failures.

eg: IFPRI report on
malnutrition

③ Collection of funds
and capitals and
its direction towards
the vulnerable regions.

eg: Relief during
Nepal Earthquake

eg: ISIS spreading
terrorism.

② Promoting inequality
by money laundering
and tax evasions across
nations

③ channelising funds
to terrorism, smuggling,
trafficking etc.

④ generating animosity
between nations.

eg: India - Pak relations

Impact on India's diplomatic ties

and Strategic Interest

Positive Impact

① Strengthens bonds
with other nations.

eg: ORF helps in

Negative Impact

① Disturbs India's
relationship with
its neighbours.

eg: India - Pakistan;

political negotiations,
WEF (World Economic
Forum) → economic
negotiations.

① Highlights grievances
of stakeholders.
eg: through reports on
Human Rights, Freedom
of Press etc.

② Provides legitimacy to
the claims of India
and strengthens its
global image through
reports & papers

④ Channelises funds
to support various
causes and interests.
eg: IT & development,
Solar Alliance etc

Regulation and control of both formal and
informal non state actors are mandatory for
internal security.

eg: FCRA to regulate international NCAs,
PMLA to regulate illegal money transactions.

India-China relationships

② mobilises funds to
~~in~~ harm India's
internal security
interest

eg: fuels insurgency

③ Internal disturbances
through protests, impacting
international treaties
& negotiations.

eg: protest against
Kudankulam plant

④ supports capital
outflows & inflows
illegally.

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 are governed by:

- * Colonial past - as UK still holds the key to Indian access to Europe
- * Trade - largest trading partner in EU with India
- * Security - military exercises, UN peacekeeping missions etc.

Commonwealth Groupings

- comprises 53 members
- generally countries once under British empire
- grouping of nations sharing similar past, culture, law and demography.

Significance of CWG

* Political → comprises roughly 40% of world population, and 31% of global GDP

* Economic : Post Brexit, UK will have to negotiate bilaterally with various trading partners.

Hence, Commonwealth Nations are the most prominent alternative → boost to India-UK direct trade.

* WTO Blockade : Due to non-negotiating behaviour of US and other developed nations, CWG grouping opens for scope of inter-trade

* Stringent laws of EU cost trade can be overcome through bilateral bilateral negotiation → taking account of interests.
eg: India's dairy & Pharma exports to Europe.

* Climate change → Post US exit of Paris Climate Change, the onus on climate change has fallen on other players.

CWA can provide the platform with India taking the lead.

CWA holds its prominence in the current global scenario dominated by fractures and blockades.

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 बढ़ी हुई प्रभावशीलता और उचित उपयोग सुनिश्चित करने के लिए इसमें सुधार की आवश्यकता है। विश्लेषण कीजिए।

UN peacekeeping or the Blue Helmets are the security forces representing United Nations. Members of UN peacekeeping are contributed to UN from amongst its member nation.

Eg: India is the largest contributor of forces in UN peacekeeping

Reforms required

* Issue of representation - richer nations should have larger contribution and representation to bring out the idea of common but differentiated responsibility

* Increasing credibility - through increasing expenditure and armed capabilities, modern equipments and reasonable support.

* Rule based deployment - of the forces and should not be arbitrarily.
- decision should not be influenced by certain dominant power of UNSC.

* Building trust - between the developed nations and developing nations

* Creating accountability - as such missions are usually in regions without any rule and order.

eg: Allegations of rapes & sexual harassment by UN peacekeeping forces

* Collective recognition : so that UN missions can be trusted and called for in battles against terrorism & insurgent.

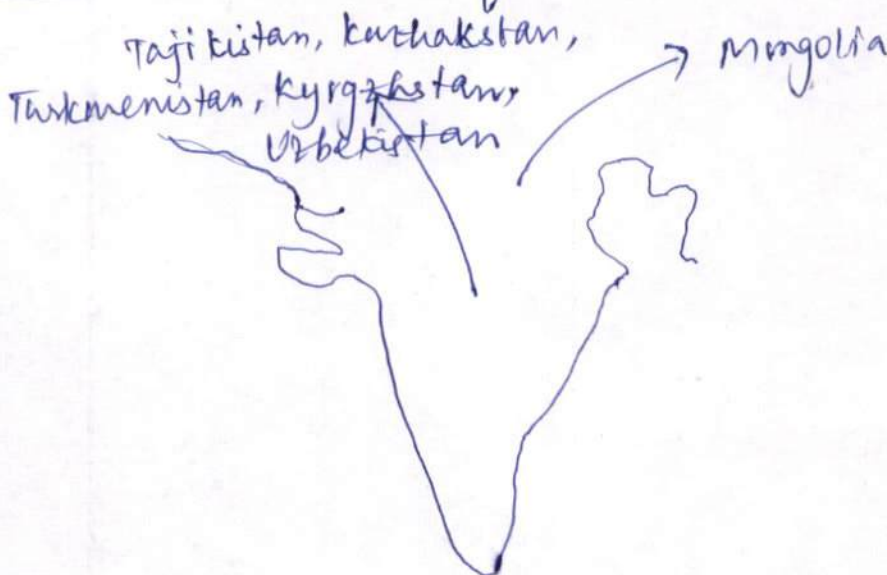
UN peacekeeping machines are like global
police. Hence, the objective should be
to make them credible & trustworthy.

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's connect Central Asia Policy is directed towards building political, economical & cultural

ties with nations of central Asian region



Progress

- Prime Ministerial visits and signing of various MOUs.
- Chabahar Port linkage through Iran

- and its connectivity to Central Asia
- signing of INSTC (International North South Transport Corridor) and Ashgabat agreement.

Hurdles

- landlocked region
- no direct connectivity → POK, Pakistan and China
- Heavy dominance of China in the region due to direct linkage
- slow implementation of the various agreements and projects.

Measures

- Impetus to international projects such as INSTC, Ashgabat & Chhabar linkage
- Regular official visits and meetings

- India's soft power in the region through Yoga & Bollywood.
- Nuclear agreement and investments (capital) ; service trade impetus.

It is important for India to widen its international network beyond US, Russia and Gulf, in order to counter the influence of China and also to emerge as a major global player.

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?

Urban terrorism refers to terrorist attacks in urban areas.

eg: 2008 Mumbai attack, Paris Attack in 2017.

Factors

* High population & population density

→ to make larger impact

* lifeline of the nation & state

→ urban centres are life lines - economically & politically

eg: Mumbai, Paris, Tokyo etc.

* Alienated urban youth and radicalisation

→ due to underemployment and unemployment.

* Greater impact and media coverage
in comparison to isolated rural regions.

[# Lessons to be learned]

* Security measures

→ dedicated counter-terror force in urban centres

→ robust intelligence mechanism

* Extremist counselling centres

→ to provide counselling to disaffected youths

* Drills and community training

→ to prepare the citizens & public beforehand in case of contingency.

* Reasonable & professional media coverage

→ so as to not unnecessarily ~~constr~~

broadcast sensitive issues

→ give away security strategy to terrorists.

Urban terrorism has been rightly described
as to 'kill a few & frighten a thousand'.

Hence, necessary measures must be taken
to curb this menace.

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।

Jammu and Kashmir is undoubtedly the most troubled state of India.

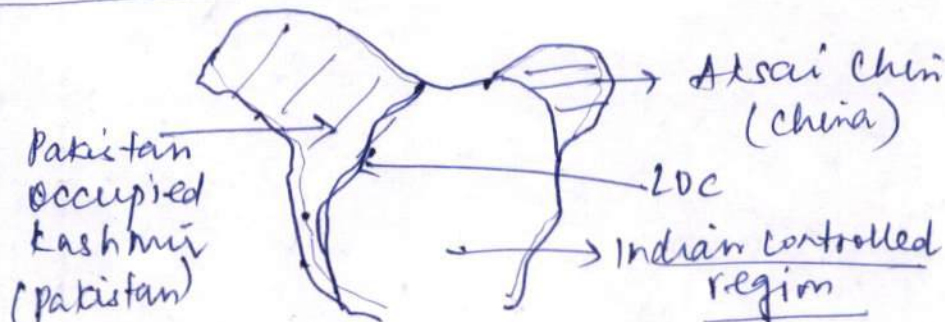


Fig: Jammu & Kashmir

Causes of persistent violence

* External states such as Pakistan & China : who fuel the region with arms & ammunition.

eg: Operation Tropic of Pakistan

* Isolation and lack of development as the region has large minority population → remaining isolated from cultural integration with the rest of the country.

* Separatist leaders and Jihadis : are successful in brainwashing the youths

* lack of investment and economic enterprise - due to hilly terrain and episodes of violence.

* Government's policy failures : use of pellet guns and harsh laws such as Public Safety Act, AFSPA.

* psychological impact on people who have grown in the area of violence.

Measures to improve

* Investment & development in the region:

focusing on tourism & agriculture.

* Improving border security as per the recommendation of Madhukar Dey Committee report.

* Targeted policy measures towards the J&K youth.

eg: Himayat under SDV Gram Saushal Yojana of Mo Rural Development;

Nai Koshni & Nai Manzil for minority youth.

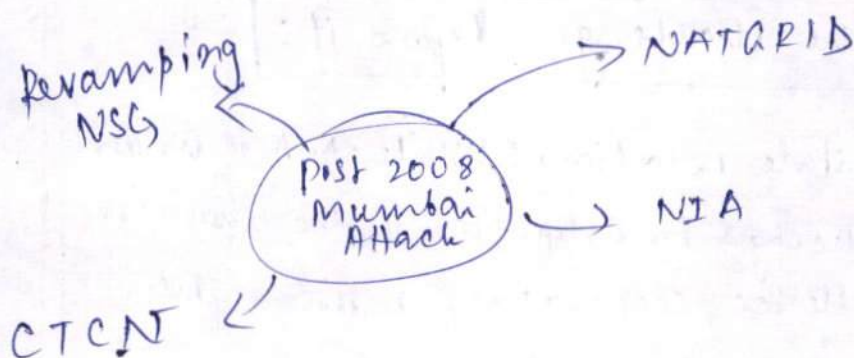
* Ek Bharat, Shrestha Bharat for integrating the youth of J&K with the rest of India.

Gradually, India must work towards equalizing the status of J&K with other states and integration of not only the territory but also its people.

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 the prime counter-terrorism and intelligence agency conceptualised post 2008 Mumbai Attack.



NIA as premier terror investigating agency

- * Terrorism linked investigations are primarily led; especially across the border conflict impacted areas of J&K, Bangladesh border etc.
- zeroing on the youth radicalised by ISIS, Al Qaida;
- prevention of proliferation of terrorist activities.

* Economic investigation related to terror funding, FIN (Fake Indian Currency) Notes and money laundering through international transactions.

eg: recent investigation of on separatist Hurriyat leaders of J&K

However, the challenges before it:

* Centre-state relations: While NIA is under centre, Policing & investigation is the domain of state. Hence, cooperation between state agencies are required.

* Lack of coordination: amongst various other investigating agencies and the data they hold. eg: CBI, FIU, ED etc.

* Investigation across international border: eg in Pakistan.

* Judicial delays: as most of the cases initiated by NIA remain pending before courts for a long period.

* Manpower shortages: to cover up and investigate various incidents & activities all across the vulnerable zones in India.

* Capability issue : In coming out with fair and impartial investigation in quickest possible time; many cases are under investigation for a long period

* Allegation of misuse : by the centre against the regional parties of state or any dissenting voices.

[# way out]

* Detailed legislation : clearly delineating the power and authority of NIA

* establishment of dedicated fast track courts under the supervision of SC for all terror related activities

* building the capacity and increasing the manpower; bringing & enhancing technical capability

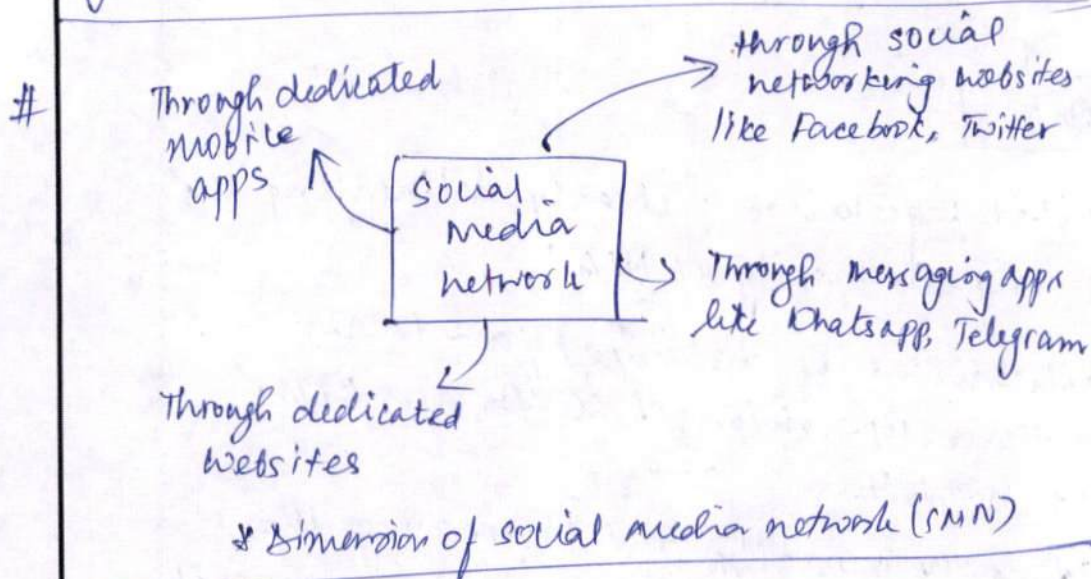
* Independent committee to select and appoint the NIA chief.

A central investigating agency which is strong, efficient, robust is the need of the hour to prevent attacks like 2008 Mumbai from happening again.

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।

The twitter handle of Mumbai Police is known for its quick responses to public grievances and witty replies and updates.



Potential of SMN for effective policing

- * Quicker response : by the police via social media network; saves time during critical incidents → eg: road accidents
- * Easy to interact : through media & texting, saves the hassle of visiting police stations.

Eg: whatsapp handle run by Delhi Police for Corruption complaints

* Transparent : as social media complaints are publically visible and fixes accountability on police to perform.

* Real time information : with locations and images ; eg: During Flood rescue operations etc, brings in efficiency.

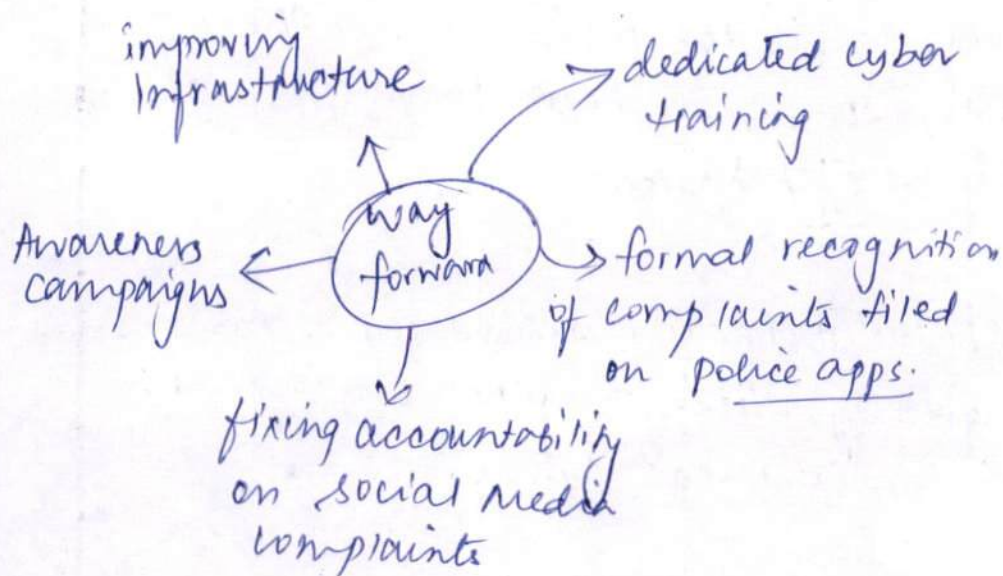
* Public trust and visibility : Confidence building measure by the police through resolution of complaints and grievances on social media platform.

* Dedicated apps & portals for specific complaints : eg: Himmat app by Delhi police on women security.

However, despite the potential and the benefits, there has been slow pace of adoption because :

* Digital illiteracy : Around 80% of Indians are digitally illiterate as per world Bank, especially in rural areas.

- * Fake and unchecked reporting: social media provides anonymity leading to fake reportings and loss of crucial time by police.
- * Privacy issue: as sensitive issues can not be reported on social media platforms.
- * Cyber capability of police: as police are not trained exclusively on cyber dimension and computer/mobile use.
- * Internet penetration: in non-urban areas are very poor
- * Behavioural attitude: public trusts police only when formal reporting is done.



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

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

Indian Armed Forces are divided into 3 wings:

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graph TD
    A[Indian Armed Forces are divided into 3 wings:] --> B[Army]
    A --> C[Navy]
    A --> D[Air Force]
  
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All 3 wings hold independent command over the various command zones such as North-West command zone, Eastern Command etc.

Need for Integrated theatre command

* Coherence in the 3 wings → due to integrated and collaborative response of all the 3 wings.

* quick decisions → as the CoAS, CoNS and Co Air Force and take collective decision quickly.

* efficiency and scale → to utilise the limited resources from all wings efficiently.

eg: China has an integrated theatre command created over the South-West region that shares boundary with India

- * A integration of Strategic Nuclear Command can also further improve credibility.
- * However, Integrated theatre commands are only one amongst the many steps. There is need to:
 - * Increase the defence expenditure - as 70% of the equipments are 'vintage' category; CAG has reported on poor war storage capability.
 - * Reduction in imports and make in India - as India is the largest importer of defence equipments; DRDO fails to bring the required equipments.
 - * Psychological and mental boost - through One Rank, One pension; facilities and opportunities to the armed forces
 - * Technical capabilities - in terms of intelligence and equipments.
eg: provision of bullet proof jackets in high-conflict zones.
 - * Improved R&D :- making DRDO, HAL, and OFB efficient in meeting the requirements of the armed forces.

& Academic integration : Capabilities of ISRO, CSIR can be used in making our armed forces robust and more capable; application of Big Data & Artificial Intelligence.

Recently DB Shettkar Commission had been established to recommend on the improvement and increasing the capabilities of armed forces, which has ^{also} highlighted the above mentioned points.

The idea is that

= a country sleeps in peace, only when its borders are guarded, and guarded well.

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 mission refers to NASA-ISRO
Aperture Radar mission, a joint
collaboration between ISRO (India) and
NASA (USA) space agencies.

Applications of NISAR mission

* In space discovery : to use the aperture radar in mapping and locating the inner crust of space bodies

* In archaeology : for discovering underground establishments and imaging.

eg: Such technology has been used in mapping the base of Angkor-Wat temple tone

* In fighting climate change : through comprehensive reading of the polar

region and glaciers.

* In discovering new planets : NISAR^{also} has also application in its reconing & mapping of MARS.

Need for international collaboration

* ISRO is a new organisation - having formally set up only in late 1960s. Hence, technical support and experience of established & old agencies are required.

* Financial constraints of developing countries like India; huge opportunity cost in terms of social spending on health & education.

eg: NY Times & Western media criticism of India spending money on space programs while half of India sleeps without ~~food~~ proper food.

* Technical constraints : such as cryogenic engine. Indian space programs were delayed in 1992 when it failed to get the cryogenic engine technology from Russia.

* International technology and research such as of manned space program or Reusable Launch Vehicle as by Space X can help India advance its space programs.

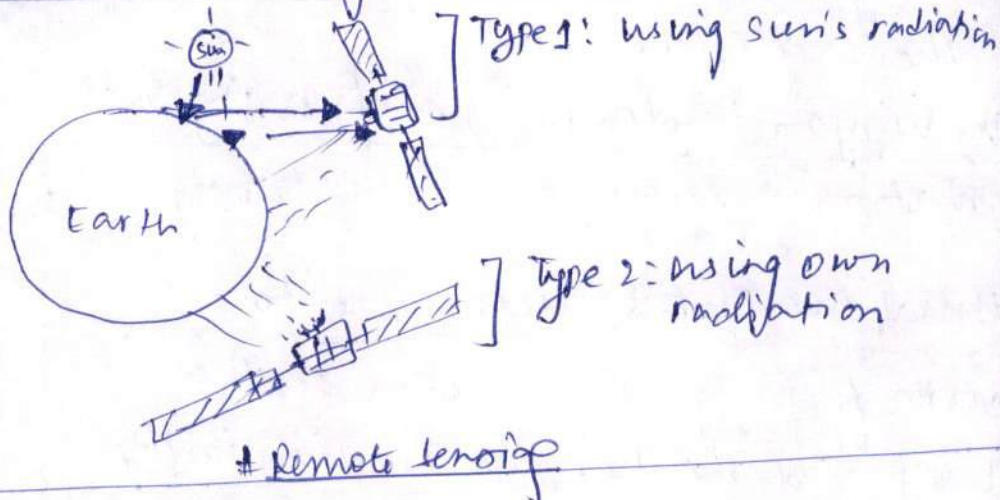
* Linkage of space technology on agriculture, education, tackling climate change further mandates the need for international collaboration.

ISRO is aiming for a manned space flight by 2022 and is being proactively supported by NASA for the same.

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 refers to mapping of the terrestrial or oceanic region of the earth using a satellite.



Role of remote sensing in agriculture:

* Precision farming: by assessing the type and quality of land, the type of crop optimal on the land etc.

* Insurance mechanism: in quickly assessing the crop loss and remuneration to the farmers. eg: In PM Fasal Bima Yojana

* Weather forecasts : by the remote sensing technology can help farmers in adopting the required measures. eg: IMD forecasts

Eg: 55% of cropped area in India is rain-dependent; a 'gamble in monsoon'.

* Technical inputs : such as nearest ~~to~~ agriculture market, connectivity via the satellites.

Krishi Vigyan Kendras (by ~~ICAR~~ ^{ICAR}) using such information to enhance productivity.

* Optimal use of resources due to precision farming, information on the geology and market, water availability etc.

* Monitoring farming and data collection for agricultural research by ICAR; direct transmission to farmers ~~by~~ ^{via} mobile connectivity.

Various programs:

* BHUVAN portal : ISRO + Ministry of Agriculture to assess the farming land and agriculture via a dedicated satellite and dissemination of information via Bhuvan portal

* Chaman portal : for horticulture product assessment via remote sensing

* PUSA - Krishi app and other innovative web portals and apps to direct technical innovations to farm lands.

Technology and space research is a major pillar when it comes to "doubling farmer's 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 सुझाए।

Superbugs refers to micro organisms such as bacteria, viruses and protozoa that has become immune to a large set of drugs and medicines that were once used to eliminate it.

[# Vulnerable India]

* Poor sanitation and hygiene leads to constant exposure to myriad bacteria & viruses.

* overuse of drugs : such as anti-biotics leads to emergence of immunity

↳ easy availability of drugs

↳ self-medication

- * huge population → makes and population density → in certain districts, it is as much as 1500 to 1900 persons / km².
- * poor health cadre → emergence of fake doctors ~~are~~ and reliance on quacks in rural areas.
- * poor health infrastructure → leads to various hospital acquired diseases and constant exposures
- * Zoonosis → where large animal population already helps in creating superbugs and then transmitting it to humans.
- * migration: both inter country and intra country helps in spread of superbugs.

Measures taken

- * Policy guidelines on Anti-microbial resistance → both by Ministry of Health and WHO.

* Red line campaign → to strict the use of anti-biotics

* strict enforcement of Schedule H & Schedule X drugs guidelines.

* campaign for awareness with support from various NGOs, through media advertisements.

Measures that can be taken

* Medical guidelines to doctors for restrictive prescription of anti-biotics

* Mandatory prescription for purchase of drugs

* WASH (Washing, Sanitation & Hygiene) practices in schools and in daily activities

* elimination of open defecation.

Superbugs is a global medical emergency which needs a collaborative approach and measures on war footing to be tackled.

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 refers to such technologies which harness the potential of nano size ($10^{-9}m$).

Associated risk

- * Small sizes of particles, units & equipments → make them vulnerable to inhalation → causing lungs & breathing related problems
- * Experiment failures may lead to negative consequences on human health as it is difficult to locate nano particles.

However, it offers many advantages:

Tackling Air Pollution

- * At source : in incinerators and exhaust cylinders → nano particles are

used for reaction and absorption of harmful gases, such as CO, SO₂ etc.

→ In curbing vehicular emissions through efficient combustion and development of eco-friendly fuels.

* In open : Nano-particles are being experimented with their ability to form collusion with pollutants.

Tackling Water Pollution

* In cleaning of water - through interaction with germs and micro-organisms. Eg. aid to Chlorine cleaning etc.

* In making water potable; reducing water contamination such as Arsenic, Fluoride etc.; through dedicated targeting

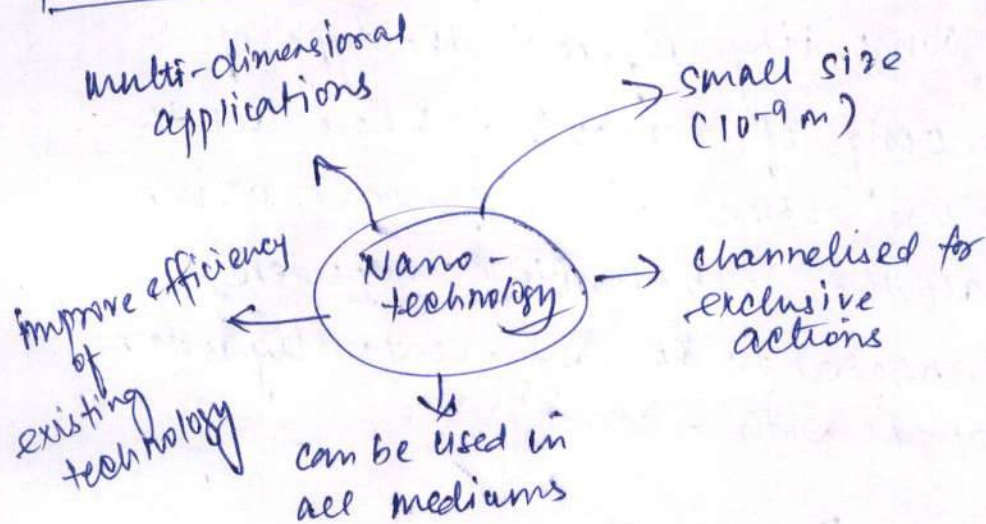
* In water treatment at industrial source; tackling oil spills along with bacteria.

Tackling Soil Pollution

* For channelised reaction with soil contaminants; not impacting other small plants

* For curbing over-use of fertilisers and its negative impact on the soil quality.

* For remediation of solid wastes, complementing bio-remediation.

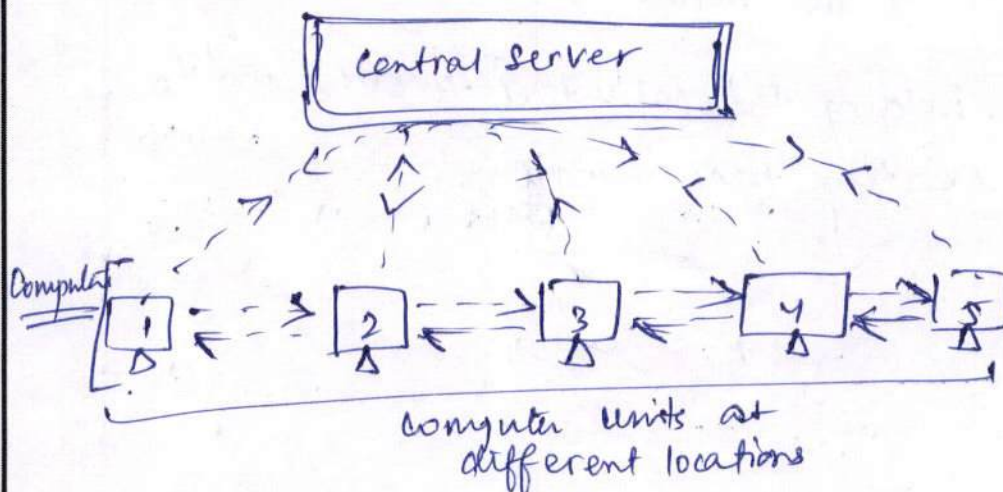


hence, holding the potential to add on to the existing technologies.

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 refers to the type of networking of computers where all the data are stored in a central server and all the sub-units (computers) are connected to it and eventually inter-connected with each other.



Hence, a file can stored in unit 1, can be accessed from unit 5, and any change made will be reflected in all the units.

Ways it can improve governance quality

* Time saving and quick service

eg: Any file created in the initial phase will be accessible to subsequent officers in real time; no separate forwarding of file

* Real time data availability to all officers

eg: PRAGATI model of Indian government where real time updates on various government schemes are channelled to both state level officers, central officers & PMO.

* Brings transparency and accountability

eg: As it can highlight the level at which the work on a file or project has stopped

* Cuts down on red-tapism

eg: As files do not have to manually be transferred

* Interconnects departments & officers bringing efficiency

eg: Magistrate can enquire and assess the data on law & order, education through

his computer alone.

however, such inter-connectivity possess risks.

some risks and measures:

* Risk: cyber-attack may cripple the entire platform

* Sol: Intra-net exclusive for a particular regional government can be created

→ dedicated bot/malware assessment and regular software upgradation.

* Risk: wrong changes in file by one unit will be reflected in all units

Sol → back up of files can be created to revert back

→ second layer of checking before the editing in files are saved.

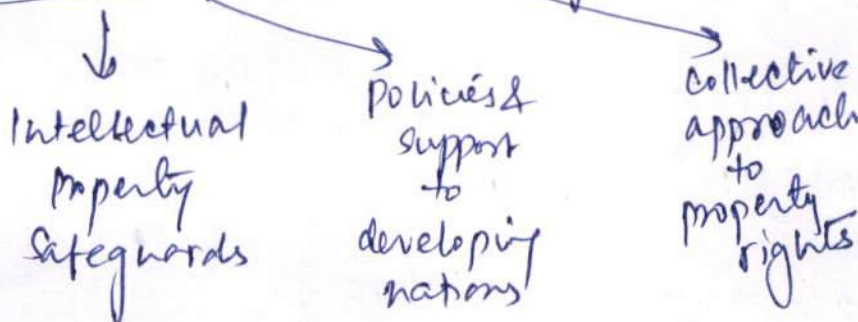
Maharashtra has become the first state to adopt a comprehensive State

Cloud Computing policy.

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।

WIPO is a specialised agency of the United Nations, catering to :



TISC program

* Objectives

- to create a robust & comprehensive Intellectual property environment globally
- to promote innovations and research
- to support developing nations in building a robust IPR framework

→ to provide startups access to IPR through state channels.

* Services

- support financially and technically to developing nations
- provide incentive to industries to go for IPR support
- generate awareness through campaigns & negotiations

Steps by India

* IPR policy 2016 by India highlighting the legislative framework and guidelines towards IPR.

* IPR promotion cell under DIPPI in Ministry of Commerce & Industry as nodal agency to promote IPR and

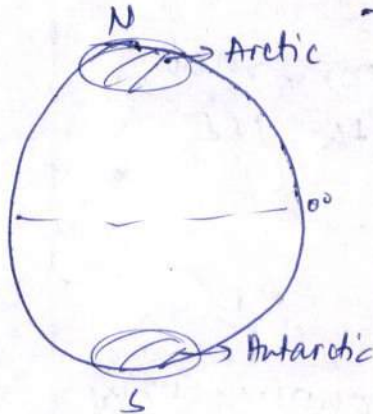
take forward the idea of
"Creative India, innovative India".

* Amendment in legislations such
as Patents Act to meet the IPR
guidelines of WTO.

Innovation can drive the economy only
when such innovations are incentivised
and supported. Hence, a comprehensive
and strengthened IPR framework becomes
necessary.

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 of the Earth are still ~~inhabited~~ not inhabited and offers a prime location for research on Earth in its natural environment.

Significance of polar research

* Idea of human origin and survival on earth

* Life in cryogenic environment
eg: Svalbard Seed Bank in Arctic etc

* Information on climate change and melting of polar regions
↳ impacting the policy decisions globally

* Impact of anthropogenic factors on
earth's environment via comparison
with polar environment

* Discovery of medicines and biological
~~factors~~ organisms in low temperature
environment.

* Studying weather phenomena

India's contribution

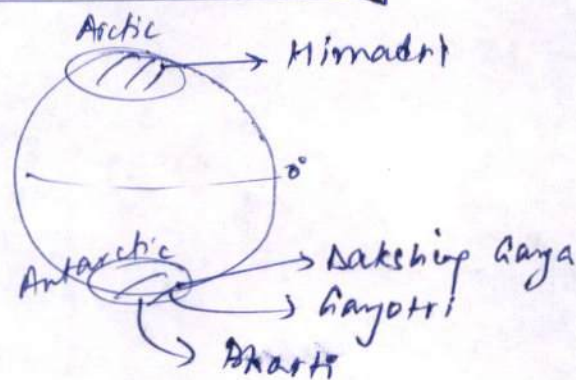


Fig: India's research centres

* has established various research centres

* worked actively in creating reports on
climate change & impact of pollution.

* Scientific discoveries of organisms &
~~and~~ medicines in polar climate.

Pursuance of scientific innovation is the fundamental aspect of India's endeavours, being implemented through such research centres.