## INTERNATIONAL RELATIONS

### 1. INDIA-RUSSIA RELATIONS

- Context: External Affairs Minister's Visit to Russia
- The recent bilateral meeting between India and Russia saw the signing of crucial agreements, solidifying their collaboration in nuclear power, medicines, pharmaceutical substances, and medical devices. Exploring economic and diplomatic ties, the nations addressed several key areas of cooperation.

Highlights of the India-Russia Bilateral Meeting

- Economic Collaboration: Nurturing Strategic Ties
  - Strategic Collaboration: Emphasis on defense, space exploration, nuclear energy, and technology sharing showcased the enduring partnership. The focus is on deeper cooperation, reflecting the robustness of their relationship.
  - Hydrocarbon Exports: Both nations agreed on expanding Russian hydrocarbon exports to the Indian market, underscoring the economic collaboration. Additionally, discussions included cooperation in the peaceful use of nuclear energy.
  - Programme of Cooperation: The finalized program in the Far East and the upcoming EaEU-India FTA negotiations signify a commitment to broader economic collaboration.
- Agreement on Nuclear Power Plants: Advancing Kudankulam Project
  - Kudankulam Nuclear Project: India and Russia inked agreements to advance the Kudankulam nuclear power project in Tamil Nadu, demonstrating their commitment to the energy sector.
  - Operational Progress: While India already operates two Russian-built nuclear plants, the Kudankulam project is set to become the country's largest. It is expected to operate at full capacity in 2027.
- Diplomatic Initiatives: Multilateral Cooperation
  - Forum Discussions: Deliberations on multilateral forums such as BRICS, SCO, and UN affairs reaffirm the diplomatic ties. Both nations aim to align their interests and collaborate on international platforms.

India Russia Relations

- Historical Perspective
  - Cold War Era: India and the Soviet Union shared a robust relationship during the Cold War, encompassing strategic, military, economic, and diplomatic ties.
  - Post-Cold War: After the Dissolution of the Soviet Union, Russia inherited this close relationship, leading to a Special Strategic Relation between India and Russia.
  - Recent Challenges: The post-Covid scenario and Russia's close relations with China and Pakistan have posed challenges to Indo-Russia relations in recent years.
- Political Relations
  - Inter-Governmental Commissions: The annual meetings of IRIGC-TEC and IRIGC-MTC signify ongoing political relations between the two nations.
- Bilateral Trade
  - Trade Volume: Bilateral trade stood at ~USD 13 Billion in 2021-22 and USD 8.14 Billion in 2020-21, making Russia India's seventh-largest trading partner.
  - Trade Partners: Russia's position as India's trading partner has risen, with only six countries recording higher volumes during 2022-23.
- Defence and Security Relations
  - Tri-Services Exercise: Regular joint military exercises, including 'INDRA,' strengthen defense and security relations.
  - Military Programs: Collaborative efforts in military programs, including BrahMos cruise missile and 5th generation fighter jet programs, showcase the depth of their partnership.
- Science and Technology
  - Key Contributions: From the establishment of Bhilai Steel Plant and IIT Bombay to support in India's early space program, science and technology collaborations have been pivotal.
  - Contemporary Engagement: Ongoing partnerships in basic sciences, materials science, manned spaceflight (Gaganyaan), nanotechnologies, and quantum computing highlight the contemporary engagement.


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Significance of Russia for India: A Multifaceted Partnership

- Balancing China: Diplomatic Leverage
  - Strategic Role: Russia's role in defusing tensions between India and China, evident in the trilateral meeting post-Galwan Valley clashes, highlights its significance.
- Emerging Economic Sectors: Beyond Traditional Collaborations
  - New Areas of Engagement: Mining, agro-industrial, and high technology sectors, including robotics and nanotech, are poised to emerge as focal points of economic engagement.
  - Geographic Expansion: India's increasing footprint in the Russian Far East and the Arctic, coupled with potential connectivity projects, adds new dimensions to the economic partnership.
- Combating Terrorism: Joint Efforts
  - Afghanistan Dynamics: Collaborative efforts between India and Russia on Afghanistan demonstrate their joint commitment, urging the finalization of the Comprehensive Convention on International Terrorism.
- Multilateral Forums: Global Advocacy
  - UNSC and NSG Support: Russia's backing of India's permanent membership in a reformed UN Security Council and the Nuclear Suppliers Group underscores mutual support on the global stage.
- Military Exports: A Changing Landscape
  - Arms Supplier Dynamics: While Russia was India's largest arms supplier in 2013-17 and 2018-22, its share decreased from 64% to 45%, according to SIPRI's Trends in International Arms Transfers 2022 report.

## HEALTH

### 1. Breakthrough Prizes

- Context: The Breakthrough Prizes in the Life Sciences category for 2024 celebrated pioneering research poised to revolutionize the lives of individuals grappling with three rare diseases: Parkinson's disease, Cystic fibrosis, and Cancer.

2024 Award-Winning Breakthroughs

1. Life Sciences: Trailblazing Breakthroughs

- Cancer Treatment Advances: Carl June and Michel Sadelain
  - Genetic Engineering Triumph: The laureates genetically engineered T cells equipped with synthetic receptors, demonstrating significant success against liquid cancers like leukemia, lymphoma, and myeloma.
  - Remarkable Outcomes: Patients experienced complete tumor eradication and long-term remission, showcasing the potential of this groundbreaking cancer treatment.
- Cystic Fibrosis Breakthroughs:
  - Sabine Hadida, Paul Negulescu, and Fredrick Van Goor invented the first effective medicines to treat the underlying cause of cystic fibrosis.
  - Innovative Medicines: The inventors devised the first effective medicines addressing the root cause of cystic fibrosis, including a triple combination medicine.
  - Enhancing Lives: These medicines enable proper protein function, vastly improving the quality and length of life for individuals affected by cystic fibrosis.
- Parkinson's Disease Discoveries:
  - Thomas Gasser, Ellen Sidransky, and Andrew Singleton discovered the most common genetic causes of Parkinson's disease.
  - Genetic Causes Unveiled: The laureates unveiled the most common genetic causes of Parkinson's disease, offering crucial insights into the mechanisms behind the disease.
  - Role of Lysosome: Their discoveries shed light on the role of the lysosome in neuronal damage, contributing to a deeper understanding of Parkinson's Disease.

2. Fundamental Physics

- Winners John Cardy and Alexander Zamolodchikov have contributed a lifetime of deep insights into quantum field theories.

3. Fundamental Mathematics

- Awardee Simon Brendle has contributed a series of remarkable leaps in differential geometry, a field that uses the tools of calculus to study curves, surfaces and spaces.


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Breakthrough Prizes

- Established in 2012 by Silicon Valley luminaries such as Yuri Milner, Mark Zuckerberg, Priscilla Chan, and Sergey Brin, the Breakthrough Prizes aim to recognize transformative contributions in fundamental sciences.
- Categories: The prizes, known for their substantial financial rewards, are awarded in categories like life sciences, mathematics, and fundamental physics.
- Financial Reward: Recipients of the Breakthrough Prizes receive USD 3 million, surpassing the monetary value of Nobel Prizes, underscoring the prestige associated with the accolades.
- Oscars of Science: Often hailed as the "Oscars of Science," these awards serve as a beacon of recognition within the scientific community, highlighting groundbreaking discoveries.
- Annual Presentations: The awards are presented annually at a ceremony that acknowledges top scientists globally, with the inaugural ceremony hosted by actor Morgan Freeman in 2012.
- Early-Career Prizes: In addition to the main awards, associated prizes like the New Horizons in Physics and Mathematics and the Maryam Mirzakhani New Frontiers Prize focus on recognizing the work of promising early-career researchers.

Rare Diseases: Understanding the Uncommon

- Rare diseases are health conditions of low prevalence, affecting a small number of individuals compared to more prevalent diseases.
- Approximately 8% of the world's population is affected by about 7,000 known rare diseases. Alarmingly, 75% of rare disease patients are children.
- Indian Perspective: India witnesses close to 50-100 million people grappling with rare diseases or disorders, necessitating increased awareness and research.
- Examples of Rare Diseases
  - Lysosomal Storage Disorders (LSD)
  - Cystic fibrosis
  - Haemophilia
  - Parkinson's Disease

## 2. Decriminalising Medical Negligence: Evaluating Legal and Ethical Dimensions

In light of a recent incident involving the unfortunate death of a patient due to alleged medical negligence, the debate surrounding criminal prosecution for such cases has gained prominence.

This discussion explores the legal provisions, recent developments, and arguments for and against the exemption of doctors from criminal prosecution.

Understanding Medical Negligence in India

- Definition: Medical negligence involves a deviation from the expected standard of care by a medical professional, resulting in harm to the patient.
- It encompasses misdiagnosis, improper treatment, lack of informed consent, or abandonment.
- Magnitude of Issue: Statistics indicate a significant impact, with an estimated 5 million annual deaths attributed to medical negligence. Discrepancies in reported cases and legal actions highlight the complexity of addressing this concern.

Legal Frameworks Addressing Medical Negligence

- Indian Penal Code (IPC): Section 304A addresses death by negligence, applicable to medical professionals.
- Consumer Protection Act (CPA), 1986: Allows patients to file complaints against healthcare providers for negligence.
- Medical Council of India Act, 1956: Empowers the Medical Council of India (MCI) to take disciplinary action against doctors found guilty of negligence.

Recent Developments

- Parliamentary Announcement: The Home Minister announced a move to exempt doctors from criminal prosecution in cases of death due to negligence.
- Rulebook Implications: Section 106(1) of the Bharatiya Nyaya (Second) Sanhita (BNSS) indicates potential imprisonment and/or fines for doctors if convicted, contrasting the announced exemption.

Arguments in Favor of Exemption

- Harassment and Decision-Making: Criminal prosecution is seen as harassment, influencing doctors' decisions during critical moments. Exemption is expected to foster better patient care without risk aversion.


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Arguments Against Exemption

- Potential Malpractice Increase: Blanket exemption may lead to a rise in medical malpractice, caution bioethicists and lawyers.
- Power Imbalance: Due to the power imbalance in doctor-patient relationships, negligence calls for stringent punishment.
- Impact on Marginalized Populations: Exemption could disproportionately affect marginalized populations, leading to increased vulnerability.

Way Ahead

- Patient Justice: Despite existing legal frameworks, challenges persist in seeking justice and compensation for medical negligence victims.
- Public Awareness: Effective implementation and raising awareness are imperative for safeguarding patient rights and ensuring quality healthcare.
- Nationwide Survey: A comprehensive nationwide survey can provide insights into the scope of medical negligence, guiding informed policy decisions.

## ENVIRONMENT

### Indian Meteorological Department

- Context: The Indian Meteorological Department (IMD) has unveiled a new logo as it approaches the significant milestone of 150 years of service in delivering weather and climate information to the nation.
- The logo, featuring a blend of orange and green hues, intricately incorporates the numerical '150' within the existing emblem, depicting the Indian monsoon winds traversing the nation.

India Meteorological Department

- Establishment: Founded in 1875, the IMD stands as the National Meteorological Service of India and the primary government agency for meteorology and related subjects.
- Operates under the Ministry of Earth Sciences of the Government of India.
- IMD is headquartered in New Delhi and holds the distinction of being one of the six Regional Specialized Meteorological Centres of the World Meteorological Organization.

Roles and Responsibilities

- Meteorological Observations: Conducting meteorological observations and furnishing current and forecast meteorological information essential for the smooth operation of weather-sensitive sectors such as agriculture, irrigation, shipping, aviation, and offshore oil explorations.
- Weather Warnings: Issuing timely warnings against severe weather phenomena like tropical cyclones, norwesters, dust storms, heavy rains and snow, cold and heat waves, crucial in averting the destruction of life and property.
- Statistical Support: Providing meteorological statistics required for diverse sectors including agriculture, water resource management, industries, oil exploration, and various nation-building activities.
- Research and Development: Engaging in research and promoting studies in meteorology and allied disciplines, contributing to advancements in the understanding of atmospheric processes.

Meteorology

- Scientific Study: Meteorology is the scientific study of the Earth's atmosphere, focusing on comprehending and forecasting weather patterns, atmospheric phenomena, and climate.
- Analyzing Atmospheric Conditions: This discipline involves analyzing atmospheric elements such as temperature, humidity, air pressure, wind, and precipitation to predict weather and study the intricate processes steering the Earth's atmospheric system.

Major Initiatives: Advancing Meteorology in India

- National Monsoon Mission (NMM)
  - Launch: Initiated by the Government of India in 2012, NMM aims to develop a state-of-the-art dynamical prediction system for monsoon rainfall across different time scales.
- Mausam App
  - Dissemination Tool: The Mausam app serves as a user-friendly tool for disseminating weather information and warnings, providing citizens with accessible and attractive insights into meteorological updates.

## PRELIMS

### 1. Pegasus Spyware


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- Context: The Washington Post and Amnesty International report claims that Pegasus spyware targeted journalists in India.
- They were targeted via a 'zero-click exploit'.
- The Israeli company NSO Group has formed it.
- Despite its claimed purpose for targeted surveillance, the spyware's deployment raises concerns globally.

Zero-Click Exploit

– It refers to malicious software that allows spyware to be installed on a device without the device owner's consent.

– it doesn't require the device owner to perform any actions to initiate or complete the installation.

Definition of Spyware

- Malicious Intent: Spyware, as a form of malicious software, infiltrates computer devices with the objective of discreetly accessing, collecting, and forwarding data to a third party without the user's knowledge or consent.
- Wide-Ranging Impact: Pegasus spyware exhibits the capability to infect billions of phones, irrespective of the operating system—iOS or Android—posing a significant threat to user privacy and security on a global scale.

Global Status

- Human Rights Abuses: Pegasus spyware has been operational in countries with documented human rights abuses, including Egypt, Saudi Arabia, Madagascar, and Oman. Its deployment in such regions raises ethical questions regarding the technology's role in potential rights violations.

Indian Scenario

- Official Denial: India has not officially acknowledged being a customer of NSO. However, instances of Pegasus found on the phones of journalists, academics, and opposition leaders have sparked a political crisis, prompting scrutiny over potential misuse.
- Surveillance Capabilities: Pegasus, with its ability to transform phones into surveillance devices, poses a significant threat to privacy by covertly intercepting encrypted messages on platforms like WhatsApp and Signal.

Supreme Court's Intervention

- Pegasus Project Revelations: Following revelations from the 'Pegasus Project,' activists filed petitions in the Supreme Court, alleging a mass surveillance exercise by the government to stifle free speech and democratic dissent.
- Government's Response: In response, the Supreme Court requested a detailed affidavit from the Centre regarding its use of Pegasus. The Centre, citing national security concerns, declined to comply, escalating the legal debate on the balance between security imperatives and individual privacy rights.

## 2. Appointment of Judges in High Court

- Context: The Supreme Court Collegium headed by Chief Justice of India has recommended the appointment of Chief Justices to five High Courts.

Appointment of Judges: Constitutional Provision

- According to Article 217, the judges of a high court are appointed by the President.
- The chief justice is appointed by the President after consultation with the chief justice of India and the governor of the state concerned.
- For appointment of other judges, the chief justice of the concerned high court is also consulted.
  - In case of a common high court for two or more states, the governors of all the states concerned are consulted by the president.
- The Constitution has not prescribed a minimum age for appointment as a judge of a high court.

Supreme Court Judgements

- In the Second Judges case (1993), the Supreme Court ruled that no appointment of a judge of the high court can be made, unless it is in conformity with the opinion of the Chief justice of India.
- In the Third Judges case (1998), the Supreme Court opined that in case of the appointment of high court judges, the chief justice of India should consult a collegium of two senior-most judges of the Supreme Court.
  - Thus, the sole opinion of the chief justice of India alone does not constitute the 'consultation' process.


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Qualifications of Judges

- A person to be appointed as a judge of a high court, should have the following qualifications:
  - He should be a citizen of India.
  - He should have held a judicial office in the territory of India for ten years; or He should have been an advocate of a high court (or high courts in succession) for ten years.

**3. Ayushman Bharat Scheme**

- Context: The Health Ministry has released data related to the achievements under the Ayushman Bharat Scheme.

Achievements under AB PM-JAY

- Approximately 28.45 Crore Ayushman Cards have been created since the inception of the scheme.
- A total of 26,901 hospitals including 11,813 private hospitals have been empanelled under AB PM-JAY
- Gender equity: Women account for approximately 49% of the total Ayushman cards created and approximately 48% of total authorized hospital admissions.

Components of Ayushman Bharat

- Ayushman Arogya Mandir:
  - The component led to creation of 1,50,000 Health and Wellness Centres (AB-HWCs), renamed as Ayushman Arogya Mandir.
  - They are created by upgrading the Sub Health Centres (SHCs) and rural and urban Primary Health Centres (PHCs), to bring health care closer to the community.
  - The aim is to provide Comprehensive Primary Health Care (CPHC) along with the provision of follow-up care to the patients in the community.
  - The essential health services along with the provisioning of essential medicines and diagnostics are provided closer to the community through these centers.
- Ayushman Bharat Pradhan Mantri- Jan Arogya Yojana (AB PM-JAY):
  - AB PM-JAY is the largest publicly funded health assurance scheme in the world which provides health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization.
  - It covers up to 3 days of pre-hospitalization and 15 days of post – hospitalization expenses such as diagnostics and medicines.
  - Benefits of the scheme are portable across the country i.e. a beneficiary can visit any empanelled public or private hospital in India to avail cashless treatment.
  - There is no restriction on the family size, age or gender.
  - Eligibility: The inclusion of households is based on the deprivation and occupational criteria of the Socio-Economic Caste Census 2011 (SECC 2011) for rural and urban areas, respectively.
    - This number also includes families that were covered in the Rashtriya Swasthya Bima Yojana (RSBY) but were not present in the SECC 2011 database.

## ANSWER WRITTING

**The application of artificial intelligence (AI) in education has the potential to revolutionize traditional teaching methods and improve student learning outcomes. Discuss. (Answer in 250 words)**

The modern world is full of technology and new inventions, in which artificial intelligence (AI) is playing a major role in every sphere of life. Education sector is also not untouched with the application of AI, whether it is primary, secondary or higher education including professional education.

Potential of AI to revolutionize traditional teaching methods

- Virtual assistant: In various schools, AI-enabled robot teachers assist teachers in the classroom such as setting assignments, monitoring student progress and replying to FAQs of students.
- Automated grading: It can automate the assessment process while helping to remove biased evaluation patterns of human teachers in subjective papers.
- Enhancing teacher's capability: It can help teachers in performing their repetitive administrative tasks such as scheduling classes, curriculum development, marking attendance etc. allowing teachers to concentrate on enhancing educational quality.
- Teacher training: It can be used to provide training to teachers as well with the help of computerised tests, robot trainers and other techniques to keep their knowledge up to date.


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- Creating smart content: It can help in generating and updating the contents of the lessons, keeping the information up to date and customising it for different learning curves.
- Wider reach: Natural Language Processing tools having AI capability can break down barriers of communication between various regional languages by using deep learning networks to translate. This would enable sharing quality knowledge at a wider level.

Potential of AI to improve student-learning outcomes

- Personalised education: It can help in personalising the teaching pattern for an individual
- student as per his/her potential in learning, knowledge gaps and preferences.
- Tutoring: It can provide extra help to the students outside of the classroom without going for tuition. It can provide students with instant feedback and guidance on their performance.
- Boost originality: It can be used to check plagiarism in various documents and reports submitted by students to boost original thinking and creativity.
- Better assessment: It helps teachers as well as students in getting detailed insights into students' performance and identifying areas for improvement. Moreover, by analysing data on student performance, attendance, and behaviour, it can predict student outcomes and provide early intervention when necessary.
- Time Management: AI can help students manage their time more effectively by providing reminders and suggestions for prioritizing their tasks.
- Accessibility: It can help make education more accessible to people with disabilities by providing tools such as text-to-speech and speech-to-text in real time.

With the day-to-day growing influence of AI in education in India, the sector must adapt its plans to account for it and how it can assist today's young minds to become tomorrow's capable leaders and innovators

## MCQs

1. **Consider the following statements about Global Biodiversity Framework Fund**
   1. The framework was adopted at the COP15 to the UN Convention on Biological Diversity.
   2. The fund will be managed by the Global Environment Facility (GEF).
   3. The fund will be used by the countries to achieve the 23 targets set under the Kunming-Montreal Global Biodiversity Framework (KMGBF).

   How many above statements is/are correct?
   a) Only one
   b) Only two
   **c) All the three**
   d) None
2. **Consider the following statements about Indian Ocean Tuna Commission**
   1. It is an intergovernmental organisation mandated to sustainably manage highly migratory Fisheries resources in the Indian Ocean.
   2. The Agreement for the Establishment of the Indian Ocean Tuna Commission was adopted by the UNEP in 1993.

   **Choose the correct statements:**
   Which of the above statements is/are correct?
   **a) 1 Only**
   b) 2 Only
   c) Both
   d) None
3. **Consider the following statements about Intergovernmental Negotiating Committee (INC-3).**
   1. INC-3 targets for a legally binding instrument on plastic pollution.
   2. Global Coalition for Plastics Sustainability was announced by it.

   Which of the above statements is/are correct?
   a) 1 Only
   b) 2 Only
   c) Both
   **d) None**
4. **Consider the following statements about Pressmud**
   1. It is a residual by-product in the sugar industry.
   2. It is used as a feedstock for biogas production through anaerobic digestion.
   3. It eliminates pre-treatment costs as it lacks the organic polymer lignin, unlike agriresidue.

   How many above statements is/are correct?
   a) Only one
   b) Only two
   **c) All the three**
   d) None
5. **A23a, sometimes seen in the news, is related to which of the following?**
   a) A short-course Tuberculosis Preventive Treatment (TPT) regimen, endorsed by the WHO


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b) **A large icebergs drifting away beyond Antarctic waters**
c) A celestial object discovered using Himalayan Chandra Telescope.
d) A deepest point newly found in the Anarctic Ocean

6. Which of the following countries are part of Nordic countries?
   1. Finland
   2. Sweden
   3. Norway
   4. Poland
   5. Estonia

   How many of the above options is/are correct?
   a) Only one
   b) Only two
   **c) Only three**
   d) All five
7. Consider the following statements regarding European Free Trade Association (EFTA).
   1. The European Free Trade Association (EFTA) is a regional trade organization and free trade area consisting of all Nordic countries.
   2. The organization operates in parallel with the European Union (EU) and all members are part of the Schengen Area.
   3. India has signed the Trade and Economic Partnership Agreement with European Free Trade Association (EFTA).

   How many above statements is/are correct?
   **a) Only one**
   b) Only two
   c) All the three
   d) None
8. Consider the following statements regarding PM Vishwakarma Scheme.
   1. The scheme aims at supporting and providing skill-upgradation training to artisans and craftspeople.
   2. It creates avenues of market linkage for persons working in trades and crafts.
   3. The scheme does not provide any financial assistance.

   How many above statements is/are correct?
   a) Only one
   **b) Only two**
   c) All the three
   d) None
9. Consider the following statements regarding Shanghai Cooperation Organisation (SCO).
   1. The SCO is an intergovernmental organisation established to ensure security and maintain stability across the Eurasian region.
   2. Regional Anti-Terrorist Structure (RATS) was established as part of SCO.
   3. SCO does not concentrate in the fields of economics and culture.

   How many above statements is/are correct?
   a) Only one
   **b) Only two**
   c) All the three
   d) None
10. Lead, ingested or inhaled, is a health hazard. After the addition of lead to petrol has been banned, what still are the sources of lead poisoning?
    1.Smelting units
    2.Pens and pencils
    3.Paints
    4.Hair oils and cosmetics

    Select the correct answer using the codes given below:
    (a) 1, 2 and 3 only
    **(b) 1 and 3 only**
    (c) 2 and 4 only
    (d) 1, 2, 3 and 4




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