

GS PAPER III-AWARENESS IN THE FIELDS OF IT/COMPUTERS AND ROBOTICS/SPACE**India's Biodiversity and Its Role in Advancing Synthetic Biology**

Synthetic biology, a cutting-edge field that combines genetic engineering and biocomputing, is poised to revolutionise various sectors, including healthcare, agriculture, and industry.

Basics

Synthetic biology leverages advances in **genetic engineering and biocomputing to develop new biological systems** designed to perform specific functions. Essentially, synthetic biology involves rewriting or editing nature's genetic codes to modify existing organisms or create new ones.

Examples

- **Glowing Bacteria:** Scientists have inserted jellyfish genes into bacteria, resulting in glowing bacteria that can be used for detecting pollution.
- **Artificial Insulin:** Modified bacteria can produce human insulin, offering a cost-effective and life-saving alternative.
- **SynBiofuel:** Algae has been engineered to produce biofuels, reducing dependency on fossil fuels.

Applications in Different Fields

According to Boston Consulting Group, by the end of this decade, synthetic biology is expected to contribute over a third of global output, representing nearly \$30 trillion in value.

- **Fashion Industry:** Synthetic biology is enabling various innovations in the fashion industry.
 - Fashion brands like **Hermès** have started using **mycelium (the root structures of mushrooms)** to create pliable new substances as alternatives to traditional leather, addressing ethical concerns associated with leather production.
 - Additionally, **genetically engineered yeast** is being used to produce modified forms of **collagen**, which can be designed into fabrics with specific properties such as improved strength, stretchability, and durability, tailored for various requirements like tear resistance or thickness.
- **Food and Agriculture:** Synthetic biology holds the promise of producing artificial meat at scale, significantly reducing the environmental impact of traditional animal husbandry. Additionally, **microbial engineering can lead to the direct conversion of nitrogen from the air**, reducing the reliance on artificial fertilisers by introducing these microbes into the soil.
- **Mining Industry:** Synthetic biology offers more environmentally friendly methods for extracting valuable metals like copper, uranium, and gold from ore. Traditionally, toxic metals and chemicals were used for extraction, causing environmental harm. Genetically engineered microorganisms can be deployed to bio-leach ore, minimising the use of harmful chemicals like cyanide and reducing toxic waste. This innovation also has the potential to lower operating costs and improve yields in the mining sector.

Challenges and Solutions

While developed countries currently dominate cutting-edge research, there is a risk that wealthier nations and corporations will benefit most from advancements in synthetic biology, leaving vulnerable populations disproportionately affected. To address these concerns and ensure equitable benefits, the following measures should be considered:

- **Clear Communication:** Establish clear communication regarding the scope and outcomes of synthetic biology activities to keep the public informed of both positive and negative impacts.
- **Accountability:** Ensure that organisations involved in research and development (R&D) are accountable for the societal and environmental outcomes of their activities.
- **Global Involvement:** Involve all countries in R&D and ensure broad stakeholder engagement to incorporate diverse viewpoints and contexts.
- **Legal Frameworks:** Utilise legal frameworks such as the Convention on Biological Diversity and the Nagoya Protocol to ensure that benefits arising from non-human genetic resources are shared equitably.
 - For example, if India has a unique plant which other countries want to use in making medicine, they must share benefits derived from its use according to these agreements.
- **Value Traditional Knowledge:** Adopt measures that appropriately value genetic heritage and traditional knowledge for future use.

GS PAPER 1- (INDIAN HERITAGE AND CULTURE, HISTORY AND GEOGRAPHY OF THE WORLD AND SOCIETY)**Himachal Pradesh: Minimum Marriage Age Raised to 21**

Context: Himachal Pradesh has passed a Bill to raise the minimum marriage age for women from 18 to 21 years, amending the Prohibition of Child Marriage (PCM) Act.

The Bill redefines a “child” as anyone under 21, eliminating the age difference between genders. It also overrides any conflicting laws or customs. To annul a marriage, the time limit has been extended to five years after reaching the age of 21. Since the Bill amends a central law, it must receive the President’s assent to become enforceable, following approval from the state’s Governor.

Earlier, in June 2024, a Central bill ‘Prohibition of Child Marriage (Amendment) Bill, 2021’ lapsed in Lok Sabha which aimed to bring uniformity in the age of marriage for men and women. 2021 Bill was based on recommendations of **Jaya Jaitley Committee**

Background:

1. According to the NFHS-5, 23% (47% in NFHS-3 and 27% in NFHS-4) of women between the age of 20 and 24 were married before 18 years of age.
2. In India, the practice of child marriage was first legally prohibited through the Child Marriage Restraint Act, 1929 (also called **Sarda Act**) (legal age G = 14 years and B = 18 years)
3. This Act was amended in 1978 to increase the minimum age to 18 years for females, and 21 years for men.
4. **The Prohibition of Child Marriage Act, 2006** replaced the 1929 Act, with the same minimum age limits.
5. In 2020, the central government set up a task force (Chairperson: **Ms Jaya Jaitly**) to examine the correlation between the age of marriage and the mother, and the child’s health. The Committee suggested increasing the age of marriage for females to 21.

What the law says?

Currently, the law prescribes that the minimum age of marriage is 21 and 18 years for men and women, respectively. The minimum age of marriage is distinct from the age of majority, which is gender-neutral.

1. An individual attains the age of majority at 18 as per the **Indian Majority Act, 1875**.
2. For Hindus, Section 5(iii) of the **Hindu Marriage Act, 1955** sets 18 years as the minimum age for the bride and 21 years as the minimum age for the groom. **Child marriages** are not illegal but can be declared void at the request of the minor in the marriage.
3. In **Islam**, the marriage of a **minor who has attained puberty** is considered valid under personal law.
4. The **Special Marriage Act, 1954** and the **Prohibition of Child Marriage Act, 2006** also prescribe 18 and 21 years as the minimum age of consent for marriage for women and men respectively.

Reasons for Prevalence of Child Marriages in India

1. **Poverty:** Families often marry off daughters early to reduce economic burdens.
2. **Cultural Norms:** Deep-rooted traditions prioritize early marriage.
3. **Lack of Education:** Limited access to education perpetuates the cycle of early marriage.
4. **Safety Concerns:** Families marry off girls early to protect them from perceived dangers.

Raising the Legal Age of Marriage to Curb Child Marriages

The government’s recent approval to raise the legal age of marriage for women from 18 to 21 aims to align the age for both genders and address several issues:

1. **Health and Wellbeing:** Early marriage and pregnancies negatively impact the nutritional levels, health, and mental wellbeing of mothers and their children.
2. **Delayed Responsibilities:** Raising the marriage age delays women’s transition into family roles, providing more time for education and self-development.
3. **Gender Equality:** Equalizing the legal marriage age for both men and women promotes gender neutrality, challenging stereotypes that wives must be younger than their husbands.
4. **Social and Economic Benefits:** According to research, this change could lead to a reduction in maternal mortality, improved nutrition levels, and more opportunities for women to pursue higher education and careers.

Limitations of Raising the Legal Age

1. **Limited Success of Legal Measures:** Despite existing laws, child marriages remain prevalent. For example, NFHS-5 data shows that 23% of women aged 20-24 were married before 18. Legal measures alone have limited effectiveness without societal support.

2. **Need for Social Reforms:** Laws alone cannot drive change. Improving health, education, and awareness, along with incentivizing later marriages, are crucial. The decline in child marriages has been more linked to better education and employment for women than to legal penalties.
3. **Risk of Negative Consequences:** Raising the marriage age without addressing underlying patriarchal norms may lead to an increase in sex-selective abortions and illegal marriages.

Way Forward

1. **Invest in Girls' Education:** Education is key to delaying marriage. According to NFHS-4, the median age of marriage rises with higher levels of education.
2. **Economic Empowerment:** Financial independence gives girls more control over their marriage decisions, reducing the likelihood of early marriage.
3. **Social and Behavioral Change Campaigns:** Changing societal norms around marriage decision-making is essential.
4. **Marriage Registration:** A system to ensure all marriages are registered can help track and enforce legal marriage ages.

GENERAL STUDIES-3; TOPIC: ISSUES RELATING TO DEVELOPMENT AND MANAGEMENT OF SOCIAL SECTOR/SERVICES RELATING TO HEALTH, EDUCATION, HUMAN RESOURCES

Global Health Security: Mpx Outbreak and Vaccine Equity

Introduction

- **The World Health Organization (WHO) has declared Mpx (formerly known as monkeypox) as a Public Health Emergency of International Concern (PHEIC), and the Africa CDC has announced it as a Public Health Emergency of Continental Security (PHECS).**
- This response highlights the **growing concern over the global spread of Mpx**, with cases emerging in countries as distant as Sweden, Pakistan, and the Philippines.
- **The outbreak, which originated in the Democratic Republic of Congo (DRC), underscores the critical importance of global health security and the challenges of vaccine equity.**

Background

- **The WHO's declaration marks the first PHEIC since the May 2024 amendments to the International Health Regulations (IHR), which now include equity as a core principle.**
- The IHR reforms, effective from 2025, aim to ensure that international cooperation and resource mobilization are central to the global health response.

Lessons from COVID-19

- **The COVID-19 pandemic exposed significant weaknesses in global health security, particularly in vaccine equity.**
- **The Global South faced significant delays and shortages in accessing vaccines, largely due to inadequate manufacturing capabilities and a lack of technology transfer from the West.**
- **Indian manufacturers played a pivotal role in bridging this gap, highlighting the importance of sustainable, low-cost vaccine production.**
- **The Mpx outbreak serves as a reminder of the critical need to address these disparities to ensure equitable access to vaccines during health emergencies.**

Challenges in Vaccine Production

- One of the immediate challenges in responding to the Mpx outbreak is the **limited availability of vaccine doses**. Currently, only 0.21 million doses of the Mpx vaccine are available, far short of the 10 million doses needed.
- **The high estimated price of the vaccine shot, around \$100, further exacerbates the issue of access, particularly for low- and middle-income countries (LMICs).**
- The situation is compounded by historical hurdles in technology transfer, with pharmaceutical companies often reluctant to share knowledge during outbreak responses.
- Comprehensive technology transfer, including know-how and biological resources, is crucial for scaling up vaccine production.

Role of International Organizations

- **The WHO has an expanded role** in facilitating the availability of essential medical products during health emergencies.
- **Collaboration with organizations like Gavi and the Coalition for Epidemic Preparedness Innovations (CEPI) is essential** for coordinating the global response.

- Negotiations with pharmaceutical companies for technology transfers are critical for ensuring that LMICs can produce vaccines locally, reducing costs and increasing accessibility.
- These efforts must be supported by the global community to **mobilize resources and ensure a coordinated response**.

Economic Implications

- **The production of low-cost vaccines in LMICs can significantly reduce the economic burden of future outbreaks.**
- The economic benefits of preventing outbreaks far outweigh the costs of producing and distributing vaccines, making it a sound investment for both the Global North and South.

Government Schemes

- **In India, the Central Drugs Standard Control Organization (CDSCO) has waived clinical trial requirements for drugs approved in certain countries, including new drugs used in pandemic situations.**
- This move is aimed at expediting the availability of critical vaccines, including those for Mpox.
- Indian manufacturers, such as the Serum Institute of India, Bharat Biotech, and Zydus Cadila, have extensive experience in vaccine production, positioning them as key players in the global response to Mpox.

Way Forward

- To address the Mpox outbreak effectively, **there is an urgent need to scale up low-cost production of the MVA-BN vaccine in India and other LMIC**. This can be achieved through international collaboration and negotiations for technology transfers with Bavarian Nordic, the manufacturer of the MVA-BN vaccine.
- **Rapid mobilization of financial and technical resources**, as well as the sharing of information, is critical for effective outbreak management.
- **Leveraging existing vaccine technologies, such as the Modified Vaccinia Ankara-Bavarian Nordic (MVA-BN) vaccine**, is crucial for the rapid production and distribution of Mpox vaccines.
- Comprehensive technology transfer, including the sharing of biological resources, know-how, and patents, must be prioritized to ensure that LMICs can produce vaccines locally.
- **Strengthening global preparedness for future public health emergencies** is essential to avoid repeating the mistakes of past outbreaks and to ensure that all countries can respond effectively to emerging health threats.

GENERAL STUDIES-1; TOPIC: ROLE OF WOMEN AND WOMEN'S ORGANIZATION

Women's Safety and Psychological Burden

Introduction

- The recent brutal rape and murder of a woman doctor in Kolkata has reignited national discussions on women's safety in India.
- The incident has also highlighted the often-overlooked **psychological impact of violence against women**.

Background

- **Women in India face various forms of aggression and violence, ranging from domestic abuse to public harassment.** While the physical impacts of these forms of violence are widely acknowledged, the psychological consequences are often ignored.

Psychological Impact

- **Women live in a state of perpetual vigilance due to inadequate structural protections**, leading to a deeply ingrained sense of constant alertness and anxiety in their daily lives.
- **The constant state of alertness forces women to continuously evaluate their surroundings for potential threats.** This vigilant state is not only exhausting but also deeply ingrains a **sense of fear and anxiety**, often perceived as a normal part of life.
- Women struggle to articulate the discomfort and mental labour involved in maintaining this heightened awareness. **This psychological strain often goes unrecognized, both by the women experiencing it and by society at large.**
- The mental toll of this perpetual vigilance can lead to chronic stress, anxiety disorders, depression, and other mental health issues, further complicating the lives of women who are already navigating a hostile environment.

Social Implications

- The psychological burden shapes how women interact with the world and perceive themselves. This constant vigilance curtails women's freedom to explore, take risks, and connect with others, leading to a more constrained existence.
- **The fear of violence influences career choices, personal relationships, and even daily activities**, such as traveling alone or participating in public events.
- This burden is often passed from one generation to the next, with **mothers imparting the need for caution and vigilance to their daughters**, perpetuating a cycle of fear and limitation.

Intersectionality

- The burden of vigilance is compounded by caste, class, and religious identities. **Women from marginalized communities face intensified discrimination and prejudice**, adding layers of complexity to their experiences.
- These women encounter more immediate and pervasive dangers, often lacking the institutional support needed to address safety concerns.
- Marginalized women are disproportionately affected by violence and are more likely to be ignored by legal and social systems, exacerbating their vulnerability.

Societal Impact

- The prioritization of safety over curiosity and exploration limits women's experiences and opportunities for growth, both personally and professionally.
- **Society, in turn, is deprived of the potential contributions and innovations that women could bring if they were free from the constant burden of vigilance.**
- The pervasive nature of this psychological burden hinders the development of a more equitable society, where all individuals can participate fully and equally.
- **Unlocking the full potential of women is crucial for overall societal progress**, as their contributions are essential for the advancement of various sectors.

Government Schemes

- India has implemented several schemes aimed at improving women's safety, including the **Nirbhaya Fund**, which finances initiatives for women's safety, and the Beti Bachao, Beti Padhao (Save the Daughter, Educate the Daughter) scheme, which addresses issues related to female empowerment.
- The **One Stop Centre Scheme**, which provides support to women affected by violence, is another important initiative.
- However, despite these efforts, **the implementation and effectiveness of these schemes remain inconsistent**, particularly in rural areas.

International Best Practices

- **Countries like Sweden and Norway have implemented comprehensive safety nets and educational programs** that emphasize gender equality and provide robust support systems for women.
- In **New Zealand, the government has prioritized the well-being of women through legislative changes**, ensuring that violence against women is met with stringent consequences and providing ample support for victims.
- The **Netherlands has developed a proactive approach by integrating gender-sensitivity training across various sectors**, from law enforcement to public services, to create a more aware and responsive system.

Way Forward

- **Broaden the Understanding of Violence:**
 - **It is crucial to expand the definition of violence to include less tangible forms of harm, such as the psychological burden of constant vigilance.** Recognizing this as a form of violence is essential for addressing it effectively.
- **Implement State and Societal Measures:**
 - Safety measures should ensure that women's freedom is not restricted in the name of protection.
 - This can be achieved through **better urban planning, increased policing in high-risk areas, and public awareness campaigns.**
- **Shift Perspective:**
 - Society must recognize that the burden of perpetual vigilance is a form of violence that needs to be addressed.

- This requires a shift in perspective, where the focus is not only on preventing physical violence but also on alleviating the psychological burden women carry.
- **Create Safer Environments:**
 - **Collective societal action is necessary to create environments where women can feel safe.**
 - This includes community-based initiatives, educational reforms that promote gender equality, and the active involvement of men in discussions about women's safety.

PRELIM FACTS

1.National Medical Register Portal

Context: The Union Minister for Health, launched the **National Medical Register (NMR) Portal**, a comprehensive digital database for all registered allopathic (MBBS) doctors in India.

- The **National Medical Register (NMR)** is mandated under **Section 31 of the National Medical Commission (NMC) Act, 2019**.
- It requires the **Ethics & Medical Registration Board (EMRB)** of NMC to maintain an **electronic registry of licensed medical practitioners**, including their names, addresses, and qualifications.
- The NMR will be **linked with doctors' Aadhaar IDs** to verify authenticity and facilitate the verification process among State Medical Councils (SMCs).
- Its significance includes **strengthening the digital healthcare ecosystem, ensuring transparent access to quality medical professionals, and consolidating public trust in healthcare.**

2.Perpetual bond

Context: **Canara Bank** issued India's first Additional Tier I perpetual bonds since recent rule changes, attracting strong investor interest with a lower-than-expected coupon of **8.27%**.

- This marks a **revival in demand for these bonds, which had declined due to regulatory challenges.**
- The **Securities and Exchange Board of India's (SEBI)** recent valuation tweak, allowing mutual funds to value these bonds based on the **call option, has made them more attractive.**

A **perpetual bond** is a type of **debt security that does not have a fixed maturity date**. Unlike traditional bonds that have a **set date when the principal amount is repaid, perpetual bonds continue to pay interest indefinitely.**

3.Solar paraboloid technology

Context: **Solar paraboloid technology**, a form of **concentrating solar power (CSP)**, is emerging as a promising renewable energy solution.

- It uses **parabolic mirrors to focus sunlight onto a receiver, generating high temperatures (up to 300°C) for electricity or industrial heat.**
- This **technology offers higher efficiency than traditional photovoltaic systems, potentially lowering electricity costs.**

However, challenges such as **high upfront costs and technical complexity remain**

4.Combination drugs

Context: The **Indian government** has banned **156 fixed-dose combination (FDC) drugs**, citing them as **"irrational" with no therapeutic benefit.**

1. FDCs are **combinations of two or more drugs in a single dose**, often used to **simplify treatment regimens.**
2. However, **these combinations can lead to unnecessary drug use, contributing to issues like antibiotic resistance**

5.Oral cholera vaccine

Context: **Bharat Biotech** launched **Hillchol (BBV131)**, an oral cholera vaccine developed in partnership with **Hilleman Labs.**

- This vaccine addresses the **global shortage of Oral Cholera Vaccines (OCVs), with demand exceeding 100 million doses annually.**
- The vaccine is a two-dose oral treatment, **aiming to combat cholera globally. Phase I and II trials were conducted in Bangladesh, and Phase III in India.**

Cholera is an acute, diarrheal disease caused by the bacterium *Vibrio cholerae*. It is characterized by severe diarrhea and dehydration, which can lead to rapid and life-threatening fluid loss if not treated promptly.

6.Codon deoptimization technology

Context: **Indian Immunologicals Ltd (IIL)**, in collaboration with Griffith University, Australia, has developed a **needle-free intranasal COVID-19 booster vaccine using codon deoptimization technology.**

- This **live-attenuated vaccine, which modulates viral attenuation by adjusting genetic codons, is designed to be safe and quick to produce.**

Codon-pair deoptimization involves increasing the frequency of underrepresented codon pairs without changing codon usage or amino acid sequences. It is a highly efficient virus attenuation strategy that utilizes suboptimal codon pairs to achieve attenuation of recoded viruses.

ANSWER WRITING

Q. In light of the recent surge in insurgent activities in the Balochistan province of Pakistan, analyze the potential security implications for India and suggest measures it can adopt to strengthen its border security. (10 Marks, 150 Words)

Answer:

India's security landscape is continuously evolving, with challenges ranging from cross-border terrorism to internal insurgencies. In 2023, India ranked 6th on the Global Terrorism Index due to threats from various non-state actors. With a porous 15,106 km border, ensuring robust security measures against emerging threats is crucial for national stability.

Potential Security Implications for India Due to Insurgent Activities in Balochistan:

- **Increased Cross-Border Terrorism:** The surge in insurgent activities in Balochistan could escalate cross-border terrorism into India, particularly in the western region.
- **Radicalization and Extremism:** Rising insurgency in Balochistan may lead to the radicalization of youth, who could be recruited by extremist groups targeting India.
- **Strain on Border Resources:** An increase in insurgent activities could necessitate a heavier deployment of security forces and resources along India's western border, stretching existing capacities.

For example: The Border Security Force (BSF) has already increased patrols along the Indo-Pak border.

- **Potential Refugee Influx:** Escalating violence in Balochistan could trigger a refugee crisis, leading to an influx of refugees into India, which might strain local resources and create security concerns.
- **Increased Drug and Arms Trafficking:** Insurgency often leads to a rise in illicit activities such as drug and arms trafficking, which could spill over into India, threatening internal security.

For example: The Narcotics Control Bureau (NCB) reported an increase in drug seizures along the western border in 2023.

Measures India Can Adopt to Strengthen Border Security:

- **Enhanced Surveillance and Technology Use:** Deploy advanced surveillance technologies like drones, thermal imaging, and satellite monitoring to enhance real-time border surveillance and detection.

For example: The Integrated Border Management System (IBMS), implemented along the India-Pakistan border, has reduced infiltration incidents due to improved monitoring capabilities.

- **Strengthening Border Infrastructure:** Develop robust border infrastructure, including fencing, all-weather roads, and outposts, to ensure rapid deployment and response to potential threats.

For example: Under the Border Area Development Programme (BADP), the government has constructed roads and upgraded infrastructure in border areas, enhancing security and mobility.

- **Intelligence Sharing and Coordination:** Improve intelligence sharing and coordination between various security agencies to preempt and respond swiftly to cross-border threats.

For example: The Multi-Agency Centre (MAC) under the Intelligence Bureau (IB) has been pivotal in coordinating counter-terrorism efforts.

- **Community Engagement and Awareness:** Engage with border communities through awareness programs and involve them in surveillance activities to act as the first line of defence against infiltration.

- **Modernization of Border Forces:** Invest in modernising border forces with better equipment, training, and infrastructure to ensure they are well-prepared to tackle evolving security challenges.

India's proactive approach to securing its borders amid escalating regional instability, such as in Balochistan, is vital for national security. By leveraging technology, strengthening infrastructure, and fostering community involvement, India can build a resilient defence mechanism. As global dynamics evolve, adopting a comprehensive and adaptive border security strategy will ensure India's sovereignty and stability in the coming decades.

MCQ

1. Consider the following statements regarding fixed-dose combination (FDC) drugs

1. FDCs are combinations of two or more drugs in a single dose, often used to simplify treatment regimens.

2. These combinations can lead to unnecessary drug use, contributing to issues like antibiotic resistance

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
c) **Both 1 and 2** d) Neither 1 nor 2
2. Consider the following statements regarding National Medical Register (NMR)
- The National Medical Register (NMR) is mandated under Section 11 of the National Medical Commission (NMC) Act, 2020.
 - It requires the Ethics & Medical Registration Board (EMRB) of NMC to maintain an electronic registry of licensed medical practitioners, including their names, addresses, and qualifications
- Which of the statements given above is/are correct?
- a) 1 only b) **2 only**
c) Both 1 and 2 d) Neither 1 nor 2
3. Consider the following statements regarding **Solar paraboloid technology**
- It uses parabolic mirrors to focus sunlight onto a receiver, generating high temperatures (up to 500°C) for electricity or industrial heat.
 - This technology offers higher efficiency than traditional photovoltaic systems
- Which of the statements given above is/are correct?
- a) 1 only b) **2 only**
c) Both 1 and 2 d) Neither 1 nor 2
4. Consider the following statements regarding the New India Literacy Programme (NILP):
- Literacy under NILP is defined solely as the ability to read and write.
 - Full literacy is defined as achieving 100% literacy in a State/UT.
 - The redefined literacy includes critical skills like digital and financial literacy.
- Which of the above statements is/are correct?
- a) 1 only b) 2 only
c) **3 only** d) 1, 2, and 3
5. Which of the following statements accurately describes Leptospirosis?
- a) Leptospirosis is a viral disease transmitted primarily through airborne droplets.
b) **Leptospirosis is a zoonotic bacterial disease transmitted to humans through contaminated water, especially during the monsoons.**
c) Leptospirosis spreads easily through human-to-human contact.
d) Leptospirosis is a fungal infection commonly found in arid regions
6. Which of the following factors primarily contribute to mass wasting in Tibet's Sedongpu Gully, affecting the Brahmaputra River?
- a) Overgrazing by livestock
b) Unregulated mining activities
c) Large-scale deforestation
d) **Warming and seismic activity**
7. Consider the following statements:
- Marriage and divorce are listed in the Union list of Schedule VII of the constitution.
 - Only Parliament can define marriage age for the citizens by enacting an Act.
- Which of the statements given above is/are correct?
- a) 1 only b) 2 only
c) Both 1 and 2 d) **Neither 1 nor 2**
8. Consider the following statements Unified Payments Interface (UPI):
- It was launched by the National Payments Corporation of India (NPCI) in 2016.
 - It requires all the customers to register with NPCI.
 - For normal UPI the transaction limit is up to Rs 2 Lakh per transaction.
- Which of the statements given above is/are correct?
- a) 1 only b) **1 and 2 only**
c) 2 and 3 only d) 3 only
9. Consider the following statements about Guru Padmasambhava:
- He is considered the founder of Nyingma, the oldest tradition of Tibetan Buddhism.
 - He is often regarded as the "Second Buddha".
- Which of the statements given above is/are correct?
- a) 1 only b) 2 only
c) **Both 1 and 2** d) Neither 1 nor 2
10. Consider the following statements about Agriculture Infrastructure Fund (AIF):
- Agriculture Infrastructure Fund is a short term debt financing facility for investment in viable projects for post-harvest management infrastructure.
 - It is a Central Sponsored Scheme with 50:50 shares between the State and the Central Government.
 - The loans up to the limit of Rs. 2 crores provided under this financing facility includes interest subvention of 3% per annum.
- Which of the statements given above is/are correct?
- a) 1 and 2 only b) **3 only**
c) 2 and 3 only d) 1, 2 and 3