

17 May 2024

TOPICS COVERED

1. Formation of rainbow. (GS Paper I: Geography)
2. Health advice to take with no pinch of salt (17 May) (GS Paper III: Hypertension)
3. Should reservation in jobs only be in proportion to the population? (17 May) (GS Paper II: Reservation)
4. The use of AI in drug development (17 May) (GS Paper III: AI)
5. Can parties be de-recognised or de-registered? (17 May) (GS Paper II: Polity)

Supreme Court limits power of ED to arrest PMLA accused (17 May)

Bench upholds right to personal liberty, says those summoned by special courts need not seek bail under PMLA's draconian norms; ED can arrest such accused only with consent of courts after showing specific grounds for custodial interrogation

- The Supreme Court made a decision regarding the Prevention of Money Laundering Act (PMLA).
- They ruled that if a person is summoned by a special court under the PMLA, they are not considered to be in custody.
- Therefore, if the accused appears in court as per the summons, they do not need to apply for bail under the strict conditions of the PMLA.
- The court limited the power of the Enforcement Directorate (ED) to arrest someone after the special court has taken cognizance of the case.

- The ED must separately apply for custody of the accused if they want to detain them for questioning.
- They need to provide specific reasons justifying why custodial interrogation is necessary.
- The special court can require the accused person to furnish a bond under Section 88 of the Code of Criminal Procedure.
- This bond is an undertaking, not bail, and does not require the accused to meet the stringent bail conditions under Section 45 of the PMLA.
- Acceptance of the bond does not mean the accused is granted bail according to the PMLA's strict terms.
- The Supreme Court's decision came from an appeal by Tarsem Lal against the Enforcement Directorate (ED).
- He appealed a decision from the Punjab and Haryana High Court that denied him anticipatory bail.
- The PMLA's Section 45 imposes stringent conditions for bail:
- The accused must prove in court that they are prima facie innocent of the offense.
- They must also convince the judge that they will not commit any offense while on bail.
- These conditions place the burden of proof entirely on the accused who is in custody.
- This makes it very difficult for an accused person to obtain bail under the PMLA.
- The accused often face challenges when trying to contest against the power of the state in these circumstances.

More relief

- The Supreme Court's judgment provides relief by stating that an accused who appears in the special court can be exempted from appearing in person in the future.
- If an accused fails to appear after being summoned, the special court may first issue a bailable warrant and then a non-bailable one.
- The ED (Enforcement Directorate) must separately apply for custody of a person who appears in court.
- However, if the ED needs to conduct further investigation for the same offense under the PMLA, they can arrest a person who is not named as an accused in the complaint under Section 44(1)(b), provided they follow the procedures of arrest under Section 19.
- The case addressed whether an accused can apply for bail under the regular provisions of the Code of Criminal Procedure and, if so, whether such a bail plea must also meet the twin conditions imposed by Section 45 of the PMLA.

- **Refraction:** Sunlight enters a water droplet and bends (refracts) due to the denser nature of water compared to air.
- **Dispersion:** As light bends, it separates into different colors, forming a spectrum ranging from red (longest wavelength) to violet (shortest wavelength).
- **Reflection:** Inside the droplet, the separated colors strike the back surface and reflect back out.
- **Refraction Again:** The reflected colors bend again as they exit the droplet, further separating into distinct colors.
- **Seeing the Rainbow:**
 - An observer can see a rainbow when they are positioned at a specific angle relative to the sun and the raindrops.
 - Light exiting the water droplets at a particular angle reaches the observer's eye, creating the colorful arc effect.
- **Consistency of the Rainbow:**
 - Due to the consistent angle of light scattering from raindrops, everyone sees a rainbow with the same color order (red, orange, yellow, green, blue, indigo, violet).
 - A rainbow is not a physical object but an optical phenomenon that depends on the observer's location and the interaction between sunlight and raindrops.



Adolescent girls at risk after receiving Covaxin, says study (17 May)

- Adolescent girls and individuals with co-morbidities are at higher risk of adverse events after receiving Covaxin (BBV152).
- The report was published in Springer Nature.
- Study conducted by researchers at Banaras Hindu University.
- The study was observational and took place in North India.
- Nearly one-third of participants reported adverse events of special interest (AESI).

- Serious adverse events may occur in 1% of vaccine recipients.
- Extended surveillance is recommended after vaccination.
- Bharat Biotech responded to The Hindu, emphasizing the need for certain data points to avoid bias in safety studies.
- Bharat Biotech cited multiple studies showing Covaxin's excellent safety record.
- The study had 1,024 participants; 635 adolescents and 291 adults were followed up for one year.
- Viral upper respiratory tract infections were reported by 47.9% of adolescents and 42.6% of adults.
- Common AESIs in adolescents: new onset skin and subcutaneous disorders (10.5%), general disorders (10.2%), nervous system disorders (4.7%).
- Common AESIs in adults: general disorders (8.9%), musculoskeletal disorders (5.8%), nervous system disorders (5.5%).
- Menstrual abnormalities were observed in 4.6% of female participants.

Do no harm: conservative, non-surgical approaches advised over hysterectomy (17 May)

On multiple counts, data is lacking on women's health conditions; thus the true magnitude is never known, impeding funding and escaping the attention of policy makers. The availability of data is at the root of addressing these issues, to raise the profile of these diseases and make women across the country aware of their remedies

- There is a significant lack of data available on women-specific health issues in the country.
- The absence of data on women's health conditions means the true magnitude of these issues is unknown.
- This lack of data impedes funding and prevents these issues from receiving attention from policy makers.
- Addressing these issues requires data to raise awareness and profile of these diseases among women nationwide.
- A study published in Women's Reproductive Health examines reasons for hysterectomies among women aged 45 years and above in India.
- The study uses the Longitudinal Aging Study in India (LASI) Wave-1 dataset to analyze the prevalence and reasons behind hysterectomies.
- The authors highlight that nationwide statistics on hysterectomies are limited, with most literature coming from developed countries or clinic-based samples.
- This is the first population-based investigation on hysterectomy using a nationally representative dataset in India.

- The study aims to provide direct insights into hysterectomy and reasons for undergoing the procedure, which were included for the first time in the National Family and Health Survey's fourth wave.

Frequent procedure

- Hysterectomy, or the removal of the uterus, is one of the most common surgeries performed on women globally.
- Advances in technology have made minimally-invasive hysterectomy procedures possible.
- According to Gunnal et al., worldwide, the most common reasons for hysterectomy include fibroids (47.6%), uterovaginal prolapse (13.4%), benign ovarian cysts (12%), malignancy (9%), and adenomyosis (6%).
- Sometimes, a hysterectomy may involve removing other parts of the female reproductive system such as the ovaries, fallopian tubes, and cervix.
- The surgery is typically performed to alleviate symptoms of gynecological disorders such as irregular bleeding, menorrhagia, pelvic pain, and bodily discomfort.
- Many studies indicate that hysterectomy can also reduce anxiety and depression and enhance women's quality of life.
- Despite its health benefits, hysterectomy has long-term ramifications, including early menopause, increased risk of cardiovascular disease, stroke, urinary incontinence, obesity, endocrine and metabolic complications, and loss of sexual desire.
- Additional consequences of hysterectomy include bone mineral density loss, vasomotor symptoms, frailty, depression, and decline in cognitive function.
- The LASI Wave-1 study included a panel sample of 72,250 people aged 45 years and over from 35 states and union territories in India (excluding Sikkim).
- A dedicated module on women's health in LASI Wave-1 asked participants if they had undergone hysterectomy, followed by questions on the reasons for the procedure.

Most cited reasons

- Heavy menstrual bleeding or pain (32.1%), fibroids or cysts (24.2%), and uterine prolapse (16.3%) are the most commonly cited reasons for undergoing hysterectomy.
- Hysterectomy for reasons such as cancer and severe post-partum hemorrhage was less frequently reported.
- The nationwide prevalence rate of hysterectomy in India is 11.5%, with the southern (18.2%) and western (12.7%) regions reporting the highest prevalence.
- The authors suggest that a significant proportion of hysterectomies in India may be unnecessary and prescribed by doctors in certain parts of the country, which requires stricter government regulation.

- Analyzing sociodemographic data, the study found that women from the OBC category, those belonging to the richest wealth quintile, those with lower education levels, and those with an earlier age of marriage were at higher risk of undergoing hysterectomy.
- Women with three or more children also had a higher likelihood of undergoing the procedure.
- Recognizing the seriousness of the issue, the Union Ministry of Health and Family Welfare issued guidelines last year to prevent unnecessary hysterectomies.
- The guidelines express concern about the increasing rate of hysterectomies among young women in India, particularly in rural areas and among poor, less educated women.
- There are reports of unnecessary hysterectomies being performed when medical or non-invasive treatments would have been sufficient.
- Concerns include potential coercion for financial benefit under health insurance schemes and lack of information provided to women about side effects.
- According to NFHS-5 (2019-2021), 3.3% of women aged 15-49 years underwent hysterectomy, slightly higher than the 3.2% reported in NFHS-4 (National Family Health Survey).
- Surprisingly, 50% of women who had hysterectomies did so before reaching the age of 35.
- A recent study estimates the average prevalence rate of hysterectomy in India to be 17 per 1,000 ever-married women aged 15-49 years.
- Andhra Pradesh has the highest prevalence rate of hysterectomy at 63 per 1,000 women, followed by Telangana (55 per 1,000 women), Karnataka (29 per 1,000 women), and Punjab (23 per 1,000 women).

Ministry guidelines

- The Ministry of Health and Family Welfare (MoHFW) document identifies common indications for hysterectomy in India: abnormal uterine bleeding/dysfunctional uterine bleeding, vaginal discharge, lower abdominal pain/pelvic inflammatory disease, abnormal looking cervix, and uterocervicovaginal prolapse.
- The document provides guidance to prevent unnecessary hysterectomies by raising awareness among health providers about alternative treatment methods for gynaecological diseases.
- Patriarchal norms that ascribe reproductive function to women could be a reason for the high number of hysterectomies performed, according to obstetricians.
- Dr. Jaishree Gajaraj, a senior obstetrician and gynaecologist, and former president of the Obstetrics and Gynaecological Society of Southern India, highlights concerns about the overuse of hysterectomies. She notes that surgeries are often recommended for conditions that could be managed conservatively, and patients are sometimes frightened into agreeing to the procedure.

- Hysterectomies are sometimes advised for conditions like white discharge, small fibroids, or abnormal uterine bleeding, which could be treated medically or conservatively.
- Dr. Gajaraj criticises the practice of advising hysterectomies for young women as early as 28 or 30 years old, especially after childbirth, without offering alternatives like Hormone Replacement Therapy.
- She points out inconsistencies in surgical practices, such as removing only one ovary, which she believes makes no medical sense.
- However, Dr. Gajaraj notes that among a small segment of gynaecologists, the number of hysterectomies has significantly decreased, and medical management and effective treatments can provide relief from pain and bleeding.
- For instance, she mentions the Mirena Intra Uterine Device as a very effective treatment for abnormal uterine bleeding caused by hormonal imbalance.
- The Union government's guidelines emphasize that hysterectomy should only be considered after less invasive treatments have been attempted.
- Nonsurgical alternatives should always be considered in elective cases before opting for hysterectomy, although it remains the definitive treatment for many gynaecological conditions.

A hysterectomy is a surgical procedure to remove the uterus, the organ where a baby grows during pregnancy.

- **Types of Hysterectomy:**
 1. **Total hysterectomy:** Removes the entire uterus and cervix.
 2. **Supracervical hysterectomy:** Removes the upper part of the uterus, leaving the cervix intact.
 3. **Radical hysterectomy:** Removes the uterus, cervix, surrounding tissues, and lymph nodes, typically done for cancer treatment.
 4. **Vaginal hysterectomy:** Removes the uterus and cervix through the vagina.
 5. **Abdominal hysterectomy:** Removes the uterus and cervix through an incision in the lower abdomen.
 6. **Laparoscopic hysterectomy:** Removes the uterus and cervix through small incisions in the abdomen using a laparoscope.
- **Reasons for a Hysterectomy:**
 - Heavy or prolonged menstrual bleeding.
 - Pelvic pain.
 - Uterine fibroids (noncancerous tumors in the uterus).
 - Endometriosis (tissue similar to the uterus lining growing outside the uterus).
 - Uterine prolapse (when the uterus slips down from its normal position).
 - Cancer of the uterus, cervix, or ovaries.
- **Recovery from Hysterectomy:**
 - Hospital stay: Usually 1 to 3 days depending on the type of hysterectomy.
 - Recovery at home: Typically takes 4 to 6 weeks.
 - During recovery, rest and avoiding strenuous activity are important.

West Nile fever is a mosquito-borne illness caused by the West Nile virus (WNV). The virus is spread to humans by the bite of an infected mosquito.

- **Transmission:** Spread by infected mosquitoes
- **Symptoms:**
 - 80% of infected people have no symptoms.
 - 20% of infected people experience flu-like symptoms including fever, headache, body aches, joint pains, vomiting, diarrhea, or rash.
 - Less than 1% of infected people develop a serious illness affecting the central nervous system, which can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis.
- **Treatment:** There is no specific treatment for West Nile fever, but supportive care can help alleviate symptoms.

Prevention: There is no vaccine to prevent West Nile fever. Mosquito bite prevention is the key to reducing your risk.



Patriotic

Health advice to take with no pinch of salt

In the last three years, the COVID-19 vaccine has generated a lot of public interest as a possible risk factor for **blood clot formation, resulting in sudden cardiac arrest**. However, a proven, bigger, and preventable risk factor for heart attack and brain stroke, i.e., **hypertension**, rarely gets due public attention. Let us dive deep into high blood pressure and its public health relevance.

In 2023, the **World Health Organization (WHO) released a report**, the first ever on hypertension, titled “**Global report on hypertension: the race against a silent killer**”. Hypertension was considered a silent killer as people often are not aware about **high blood pressure** till they develop complications. High blood pressure is the single most important risk factor for early deaths, leading to an estimated **10.8 million preventable deaths every year**, globally. High blood pressure causes more deaths than other leading risk factors, such as tobacco use and high blood sugar. **The number of adults with hypertension nearly doubled in the last three decades (since 1990) to reach 1.3 billion**. Globally, an estimated **46% of adults with hypertension are unaware that they have the condition, and less than half (42%) with hypertension are diagnosed and treated**. Only one in five adults (21%) with hypertension has it under control.

The Indian Council of Medical Research-India DIABetes (ICMR-INDIAB) study has estimated that in India, 311 million people (or one in every three adults) have hypertension. In the country, adults with hypertension are threefold of the estimated 101 million people living with diabetes.

Cut the salt

Excess dietary salt intake (five grams or more per day), one of the key risk factors to hypertension, contributed to **two million cardiovascular disease deaths in 2019**. Research studies have shown that **by reducing salt, cardiovascular disease risks can be reduced by 30% and mortality by 20%**. **Indian adults consume on average eight to 11 grams of salt per day, which is approximately twice that of the WHO recommended daily salt intake**. High salt intake is responsible for an estimated **1,75,000 deaths in India**.

Hypertension is not an issue for any one socio-economic group. A Delhi-based non-governmental organisation, Foundation for People-centric Health Systems, conducted 50 health camps in five localities of Delhi and Gurugram, from October 2023 to March 2024, and screened and treated around 12,000 people. Most of the people were **women, migrant workers, and rickshaw and taxi drivers, nearly all from low income groups**. A large number of them were found to have **diabetes and hypertension, a majority of cases detected for the first time in these camps, indicating the gaps in terms of awareness, detection and treatment**.

In India, the government has set a **target of putting 75 million people with hypertension**



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Dr. Balram Bhargava

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Indians need to have greater awareness about the long-term impact of untreated hypertension and the danger of excess dietary salt intake

and/or diabetes on standard care by 2025. The India Hypertension Control Initiative (IHCI), a collaborative project of the ICMR, Ministry of Health and Family Welfare/Directorate General of Health Services, WHO India and other partners, was initiated in November 2017 in 25 districts in five States of India.

Simple and scalable

The IHCI follows five simple and scalable strategies, implemented through primary health care. The IHCI rolled out simplified drug and dose-specific treatment protocols for primary-care settings. It also focused on **strengthening the drug supply chain by including protocol-based drugs in the State essential drug list**; the forecasting of drugs based on morbidity, and ensuring adequate budget allocation in annual plans to purchase hypertension medication. The IHCI has also followed team-based and decentralised care. In addition, components to make health services patient-centric by measures such as the dispensing of 30 days of medicine in every patient visit are part of the initiative. It has also used information systems for programme monitoring.

Nearly six years of IHCI implementation has resulted in **two major programmatic learnings**. First, the development of **simple treatment protocols with fewer drugs, ensuring reliable drug supply, linking patients to facilities closer to home for follow-up and engaging teams increases access and utilisation of health services from government facilities, by bringing people to health services**. Second, **simplified programme monitoring makes programme performance assessment both quantifiable and actionable**. The IHCI won the ‘2022 UN Interagency Task Force, and WHO Special Programme on Primary Health Care Award’. The IHCI was expanded to 140-plus districts of India, in 2023.

Seventy-six million cardiovascular deaths and 450 million disability adjusted life years (DALYs) would be avoided, if countries, with proven interventions, mobilise to achieve the goal of 50% population hypertension control by 2050. An estimated **4.6 million deaths can be prevented in India by 2040 if half the hypertensive population has its blood pressure under control**. This will help countries achieving the targets under their **National Health Policy** along with global targets and commitments such as **universal health coverage**.

What should be done? First, raise awareness about the risk of and long-term adverse impact of untreated hypertension. **High blood pressure can affect the entire vascular system (multiple organs including the heart, kidneys, brain and eyes)**.

Second, **scale up evidence-based public health interventions such as the IHCI**. Strategies and lessons from such experiences should be used to design and implement interventions to prevent and control other lifestyle diseases such as

diabetes mellitus and chronic kidney diseases.

Third, the interventions in health programmes are often targeted on modifiable risk factors. However, there are **non-modifiable risk factors such as family history, an age of over 65 years and pre-existing comorbidities such as diabetes and/or kidney disease, all of which make a person at higher risk of hypertension**. India already has a high burden of each of these non-modifiable risk factors: **high burden of hypertension (a family risk factor for future generation); high burden of comorbidities and a rapidly rising elderly population**. Therefore, hypertension control initiatives in India need to focus on the healthy adults as well, who may have known non-modifiable risk factors.

Fourth, intensify efforts to reduce dietary salt consumption using strategies such as ‘**SHAKE the salt habit**’ under the WHO’s HEARTS strategy. Under SHAKE, there are five approaches: of **Surveillance to measure and monitor salt use; Harness industry to promote and reformulate foods and meals that contain less salt; A adopt to standard labelling and marketing; Knowledge, educate and communicate to empower individuals to eat less salt; Environment – support settings that promote healthy eating**.

Fifth, lifestyle diseases demand multi-sectoral actions. In 2017, India developed and approved a multi-sectoral plan for the prevention and the control of non-communicable diseases. These plans must be revisited and more concrete actions done by key sectors. We need to leapfrog to this as soon as possible.

Sixth, **having informed citizens is the key to control hypertension at the population level**. Raise awareness about salt in food. There is **invisible salt in the form of pickles, breads, namkeen and papad**. Food packages need to have **better labelling of items/packages in terms of low, medium and high salt content**. People also need to be sensitised to read food package labels and make informed decisions.

Seventh, **stronger enforcement of food regulation in India has the potential to prevent many diseases and reduce the burden on health services**. There needs to be higher taxation on high salt (and also high sugar, high fat) food and other packaged products.

Regular BP checks

Take Control. Regular checking of one’s blood pressure should become an integral part of lifestyle. Access to BP apparatus needs to be increased in public places such as **malls, shops and pharmacies, where people can have their BP measured either free or at nominal and affordable charges**. Every office and workplace needs to have a functional BP apparatus and employees should be encouraged to check their BP regularly. Every single visit to health-care providers should be used to measure one’s BP. Physicians should advise/sensitise people to measure and monitor their BP.

Health advice to take with no pinch of salt (17 May) (GS Paper III: Hypertension)

Indians need to have greater awareness about the long-term impact of untreated hypertension and the danger of excess dietary salt intake

- **COVID-19 Vaccine and Blood Clots:**
 - Recently, there has been public concern about COVID-19 vaccines potentially causing blood clots and sudden cardiac arrest.
- **Hypertension:**
 - Hypertension, or high blood pressure, is a significant, preventable risk factor for heart attacks and strokes.
 - It often doesn't get enough public attention despite its serious health implications.
- **WHO Report on Hypertension (2023):**
 - The report is titled "Global report on hypertension: the race against a silent killer".
 - Hypertension is called a silent killer because people often don't know they have it until complications arise.
 - High blood pressure is the leading risk factor for early deaths, causing an estimated 10.8 million preventable deaths annually.
 - It leads to more deaths than tobacco use and high blood sugar.
- **Global Statistics:**
 - The number of adults with hypertension nearly doubled since 1990, reaching 1.3 billion.
 - Approximately 46% of adults with hypertension are unaware of their condition.
 - Less than half (42%) of those with hypertension are diagnosed and treated.
 - Only 21% of adults with hypertension have it under control.
- **Hypertension in India:**
 - According to the ICMR-INDIAB study, 311 million people in India (one in three adults) have hypertension.
 - This is three times the number of people living with diabetes in the country, which is estimated at 101 million.

Cut the salt

- Excess salt intake (5 grams or more per day) is a key risk factor for hypertension.
- In 2019, high salt intake contributed to 2 million cardiovascular disease deaths.
- Reducing salt intake can lower cardiovascular disease risks by 30% and mortality by 20%.

- Indian adults consume 8 to 11 grams of salt per day, double the WHO recommended amount.
- High salt intake causes an estimated 175,000 deaths annually in India.
- Hypertension affects all socio-economic groups.
- A Delhi NGO screened and treated around 12,000 people in 50 health camps from October 2023 to March 2024.
- Many participants, mostly women, migrant workers, and low-income individuals, were found to have undiagnosed diabetes and hypertension.
- This indicates significant gaps in awareness, detection, and treatment of these conditions.
- The Indian government aims to provide standard care to 75 million people with hypertension and/or diabetes by 2025.
- The India Hypertension Control Initiative (IHCI) started in November 2017, is a collaborative project involving ICMR, Ministry of Health and Family Welfare, WHO India, and other partners, initially targeting 25 districts in five states.

Simple and scalable

- IHCI follows five simple strategies implemented through primary health care:
 - Simplified drug and dose-specific treatment protocols.
 - Strengthened drug supply chain by including protocol-based drugs in the State essential drug list and ensuring adequate budget allocation.
 - Team-based and decentralised care.
 - Patient-centric measures like dispensing 30 days of medicine at each visit.
 - Use of information systems for program monitoring.
- Nearly six years of IHCI implementation led to two major learnings:
 - Simple treatment protocols, reliable drug supply, linking patients to nearby facilities, and team engagement increase access and utilisation of health services.
 - Simplified program monitoring makes performance assessment quantifiable and actionable.
- IHCI won the '2022 UN Interagency Task Force and WHO Special Programme on Primary Health Care Award'.
- Expanded to 140+ districts in India in 2023.
- Achieving 50% population hypertension control by 2050 could avoid 76 million cardiovascular deaths and 450 million DALYs globally.
- In India, controlling blood pressure in half the hypertensive population could prevent 4.6 million deaths by 2040.
- This supports achieving targets under National Health Policy and global commitments like universal health coverage.
- **Raise Awareness:**

- Inform people about the risks and long-term effects of untreated hypertension.
- Explain how high blood pressure affects multiple organs, including the heart, kidneys, brain, and eyes.
- **Scale Up Public Health Interventions:**
 - Expand programs like IHCI.
 - Use successful strategies to design interventions for other lifestyle diseases such as diabetes and chronic kidney diseases.
- **Target Non-Modifiable Risk Factors:**
 - Acknowledge factors like family history, age over 65, and existing conditions (diabetes, kidney disease) that increase hypertension risk.
 - Focus on healthy adults with these risk factors.
- **Reduce Salt Consumption:**
 - Implement WHO's "SHAKE the salt habit" strategy:
 - **Surveillance:** Monitor salt use.
 - **Harness Industry:** Promote low-salt foods.
 - **Adopt Labelling:** Standardize salt content labels.
 - **Knowledge:** Educate people about salt consumption.
 - **Environment:** Support healthy eating environments.
- **Multi-Sectoral Actions:**
 - Revisit and act on India's multi-sectoral plan for preventing and controlling non-communicable diseases.
 - Engage key sectors in concrete actions.
- **Informed Citizens:**
 - Raise awareness about hidden salt in foods like pickles, breads, namkeen, and papad.
 - Improve food package labelling for salt content.
 - Educate people to read labels and make informed choices.
- **Stronger Food Regulation:**
 - Enforce stricter food regulations to prevent diseases.

- Increase taxes on foods high in salt, sugar, and fat.

Regular BP checks

- Regularly check your blood pressure as part of your lifestyle.
- Increase access to blood pressure machines in public places like malls, shops, and pharmacies.
- Ensure offices and workplaces have blood pressure machines and encourage employees to use them.
- Measure blood pressure during every visit to healthcare providers.
- Physicians should advise people to monitor their blood pressure regularly.

Politics served with concise social media content (17 May)

- Information dissemination is changing rapidly, including in India.
- Traditional analyses often focus on the medium of information.
- However, there are profound shifts in human psychology due to the rise of social media.
- Instant gratification has become the norm, impacting political narratives.
- These changes have the potential to alter election outcomes.
- In India, there is growing social media use in vernacular languages.
- The digital space is largely unregulated, contributing to the spread of misinformation.
- The political environment is highly competitive and polarized.
- Vigilance is necessary to manage disruptive misinformation effectively.

'Going viral' as objective

- Recent study shows human attention spans have dropped from 2.5 minutes to 45 seconds in two decades.
- Short social media content like videos under a minute and brief articles are now very popular.
- Viral content is easier to produce and spread quickly.
- Social media algorithms prioritize viral content over substantial and factual narratives.
- This allows unknown figures to become influential by catering to short attention spans.
- Political parties are using this trend to their advantage.
- BJP in India is seen as having a more effective social media presence than Congress.
- BJP's social media dominance is linked to its early adoption of platforms like Facebook, Twitter, and WhatsApp.

- Congress only started investing significantly in social media after the 2019 general election.
- Despite Congress's efforts, BJP still leads in social media follower counts and engagement.
- However, the social media landscape is constantly changing.

An inversion of roles

- Viral political content quickly shapes and spreads political narratives.
- A recent example is Dhruv Rathee's video "Is India Becoming a Dictatorship" which went viral.
- The video sparked discussions on various platforms, surpassing any video posted by the political Opposition.
- The video's information wasn't new but was crafted to go viral, with easily editable one-minute sections for short attention spans.
- The video was spliced into many 'shorts,' simplifying arguments and ignoring context, spreading rapidly.
- BJP supporters struggled to counter the narrative set by the video.
- The Opposition used the video's popularity, keeping it in the public eye for over two weeks, putting BJP on the defensive.
- This case shows a shift where independent content creators set narratives, and political parties amplify them.
- The Opposition increasingly relies on independent influencers to create viral content, then amplifies it through political leaders.

Analysis is more difficult now

- The changing roles in media impact its checks and balances, making them less relevant.
- Content creation has become more democratic, with algorithms favoring instant gratification.
- Social media has leveled the playing field, reducing the impact of large spending.
- Political analysis is harder due to narratives generated quickly on social media.
- Traditional election message analysis is insufficient as social media influences millions rapidly.
- The political party that can control this chaotic environment will benefit.
- It is unclear which party is winning the battle for attention in this new landscape.

Malign motive (17 May)

Court order quashing arrest lays bare police design to circumvent due process

- The Supreme Court of India invalidated the arrest and remand of NewsClick founder Prabir Purkayastha.
- The invalidation was due to the Delhi police not providing written grounds for his arrest.
- The Court criticized the secretive manner in which the police obtained his custody.
- The Unlawful Activities (Prevention) Act was invoked against NewsClick, but the case seemed baseless.
- The police attempted to bypass legal procedures, showing a lack of good faith.
- Mr. Purkayastha was brought before a remand judge at dawn, with police custody obtained at 6 a.m.
- The police did not inform his lawyer about the early morning proceedings.
- A 'remand advocate' was present instead of Mr. Purkayastha's lawyer, depriving him of proper legal representation.
- The aim was to keep Mr. Purkayastha in police custody without informing him of the reasons, denying him the chance to seek bail and legal counsel, and misleading the court.
- The judgment extends the principle from **Pankaj Bansal Case (2023)** to the UAPA, requiring written grounds for arrest.
- The Court suggests this requirement should apply to all arrests, under the UAPA or any other offences.
- The police recently filed a charge sheet claiming Mr. Purkayastha was funded by the Chinese government.
- The charge sheet alleges Mr. Purkayastha and Neville Roy Singham conspired to replace Indian democracy with a party-state system like China's.
- It also accuses them of supporting riots, protests, and funding terrorists in India.
- Due to the serious nature of these allegations, obtaining regular bail would have been difficult.
- The Court emphasized the importance of adhering to proper procedures, such as providing written grounds for arrest.

Trade imbalance (17 May)

A sharp spike in the import bill blights April's mild uptick in exports

- India's merchandise exports declined by over 3% in 2023-24 due to geopolitical and logistical disruptions.
- In April 2024, exports slightly increased to \$34.99 billion, a 1.07% rise from the previous year.
- 17 of India's top 30 export items saw year-on-year declines.
- The minor growth was driven mainly by pharma, chemicals, electronics, and petroleum products.
- Petroleum product exports rebounded due to rising global oil prices.

- The increase in oil and gold prices raised India's import bill by 10.25% to over \$54 billion.
- April's trade deficit was \$19.1 billion, the highest in four months.
- The OPEC+ meeting in June might extend output cuts, potentially raising oil prices to \$100 a barrel.
- A global rush to gold as a safe haven could further increase gold prices.
- Higher oil and gold prices could negatively impact India's trade balance, the rupee, and domestic fuel prices.
- Global trade volumes fell by 1.2% in 2023 but are expected to rise by 2.6% in 2024, according to the World Trade Organization.
- The Indian government hopes lower inflation and improved growth in key Western markets will boost demand.
- India needs to improve its approach to benefit from this demand increase and ensure widespread economic benefits.
- Challenges in labour-intensive sectors like garments and footwear need addressing, as India has been losing to competitors like Bangladesh and Vietnam.
- Sectors like garments, footwear, gems, and jewellery continued to decline in April.
- Addressing quality concerns in products like spices and drugs, and tackling labour and environmental issues in shrimp exports, is important.
- Agricultural exports, limited to control inflation, should be boosted, especially with good monsoon prospects.
- The next government must quickly take action to stimulate export growth and maintain manageable trade balances.

Full Name: Organization of the Petroleum Exporting Countries (OPEC)

- **Function:** A permanent, intergovernmental organization of countries with a significant amount of oil reserves. OPEC aims to coordinate the petroleum policies of its members and secure fair and stable oil prices for both producers and consumers.
- **Secretary General:** Haitham al-Ghais
- **Headquarters:** Vienna, Austria.
- **Founded:** September 14, 1960, in Baghdad, Iraq.
- **Founding Members:** Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.
- **Current Members:** Algeria, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Republic of the Congo, Saudi Arabia, United Arab Emirates, and Venezuela'.
- **Organization:** OPEC OPEC member countries meet semiannually to discuss and decide on oil production quotas and other related matters

WTO (World Trade Organization)

- **Role:** Manages global trade rules and helps resolve trade issues between countries.
- **Start Date:** Began on January 1, 1995, replacing an older trade agreement from 1948.
- **Members:** Includes 164 countries and 24 observer nations working to join.
- **Main Tasks:**

- Oversees trade agreements.
- Facilitates trade deal negotiations.
- Settles trade disputes.
- **Leader:** Directed by Ngozi Okonjo-Iweala from Nigeria.
- **Location:** Based in Geneva, Switzerland.

Should reservation in jobs only be in proportion to the population?



Sukhdeo Thorat
is the former chairman of the University Grants Commission and Professor Emeritus at JNU



Sudheendra Kulkarni
served as an aide to Atal Bihari Vajpayee in the Prime Minister's Office

PARLEY

During his election campaign, Congress leader Rahul Gandhi has often used the slogan *jiti abadi, utna haq* (the rights of a group are proportionate to the group's share in the total population). The Prime Minister has lashed out at him for the slogan and others have argued that it is against the spirit of the Constitution. Should reservation in jobs only be in proportion to the population? Sukhdeo Thorat and Sudheendra Kulkarni discuss the question in a conversation moderated by Abhinav Lakshman. Edited excerpts:

This slogan is not new. It has a unique place in the history of India's social justice politics. What is the salient difference in how it was used in Kanshi Ram's time and how it is being used now? What does it really mean? Whose population and what right is the slogan talking about?

Sukhdeo Thorat: One of the justifications for a caste census is that **Indian society is highly diversified and exclusionary**. Very few countries have a group-specific policy like we have. We combine policies that are focused on individuals and at the same time we focus on groups as a whole. Over the last 20 years, you will see that there has been an increase in demand for group-specific policies: for certain SCs (Scheduled Castes), STs (Scheduled Tribes), Other Backward Classes (OBCs), those above OBCs such as the Patels and Marathas, and now low-income groups, and women. That is simply because of the character of our society where certain groups face discrimination from having an equal access to opportunity and equal rights.

Increasingly, the issue is that **the government is surrendering to some groups due to pressure and providing group-specific policies without sufficient information**. That is why we find arguments for caste-wise data, sub-caste-wise data — so that we can study it and the government can take a position based on that. When I was chairman of ICSSR (Indian Council of Social Science and Research), I was asked to justify reservation at the Centre for the Jat community. We were not given caste census data for the Jats. But we were given five reports of five States and those reports were very poor. This is an example to say that **if we want to have group-specific policies, we should have group-specific information about human development indicators, poverty, income, malnutrition, education, and ownership of means of production**. That, I think, is the justification of the Congress.

Sudheendra Kulkarni: This slogan did not start with Kanshi Ram. In some ways, **it has its origins in the debates and even policies of the colonial government**. It is the British who introduced proportionate representation to certain sections of society. It was also supported



Prime Minister Narendra Modi with Madiga Reservation Porata Samithi leader Manda Krishna Madiga during a public rally in Hyderabad. THE HINDU

by B.R. Ambedkar in States and Minorities: he made a strong case for representation proportionate to the population. In fact, he wanted erstwhile depressed classes to also be categorised as minorities. And depending on the proportion of population, he demanded representation. That was strongly opposed by the Congress and was not adopted in the Constitution. Instead, a principle of affirmative action was introduced for certain sections of society, for certain needs, that is, education and employment, which would ensure their justice and development. This was done unanimously. But in this principle, there is no concept of jiti abadi utna haq. This concept is patently unconstitutional. It goes against the letter and spirit of the Constitution. India is a Republic which recognises equality among citizens. Caste is not recognised as a unit in the Constitution. If it is recognised, it is only to the extent of certain policies for affirmative action.

jiti abadi utna haq is also unimplementable. Let me give an example. We are already encountering enormous difficulties in ensuring reservation even for groups such as SCs. You know there is a strong demand for sub-categorisation among Dalits, tribal groups, and OBCs. This is because there is a strong feeling among beneficiary categories that some sub-category is taking a much larger share of the benefits and depriving others. For instance, the Madigas in Telangana are demanding sub-categorisation because they believe that the Malas, who are fewer in number, are getting more benefits. The Rohini Commission's initial findings also show that there is a tremendous imbalance even among the beneficiary groups. Affirmative action has some justification within certain frameworks. But jiti abadi utna haq is a divisive and unconstitutional concept. If anyone tried to implement it, it can create social chaos.

Are you saying we must find larger groups to ensure accurate representation, or should we move away from representation in totality?



Affirmative action has some justification within certain frameworks. But *jiti abadi utna haq* is a divisive and unconstitutional concept. If anyone tried to implement it, it can create social chaos.

SUDHEENDRA KULKARNI

SK: The fundamental moral underpinning of the Constitution is *nyay* (justice). We are far from approaching the ideal. The question is how we move towards it. **There is a tendency to focus only on the government or the formal sector of the economy.** These provide employment only to a small section. So, we need to think of economic and social justice and equality in totally different terms. This means we need to think of wealth and livelihood creation at the bottom of the socioeconomic pyramid.

ST: Dr. Ambedkar's position was that if the reservation share of the SCs, STs (Scheduled Tribes) has to be defined, it should be in proportion to the social, economic, and educational standing of the group. He was not strictly in support of the population as an indicator for representation. He dealt with reservation in the legislature and said that it should be in proportion to the socioeconomic standing of the group. He said that the majority seats in the legislature should be reduced to a certain extent and redistributed among the social and religious minorities. And the redistribution of seats, which will also apply to jobs, should be in proportion to the economic and social standing. Nevertheless, population comes in. Because in the absence of the other indicators, at that time, **population was considered to be a tentative indicator of a fair representation of a group.** But that doesn't mean that it should be the ultimate indicator.

The second point is the reservation issue by social group. There is a distinction between pro-poor policies, irrespective of caste, religion, ethnicity, gender, and policies for those who are discriminated against. Affirmative action policies are necessary in addition to general policies, which are applicable to all, only for those groups which have suffered from discrimination. So, as far as reservation is concerned, in India you will have to have a policy that is for economic and educational empowerment for all, irrespective of caste and religion, and an additional policy for the group that is discriminated against. **Ambedkar did not ask for reservation only in the public sector. He also asked for it in the private sector because discrimination is more rampant in the private sector than the public sector.**

But the question here is, how do we determine what qualifies as a fair share?

ST: Ambedkar was clear that the fair share should be based on the socioeconomic and

educational standing of the group, which can be supplemented by the population. Take, for example, Parsis or Christians. They are minorities, but they are advanced in terms of education. Their share is much, much higher than their population share. Brahmins constitute only 3.5% or 5%, but their share is several times higher than the low castes.

What should be the aim of a caste census in India?

SK: A caste census is welcome because it will reveal how many people belong to which caste or sub caste and their relative backwardness or progression. **It will then show government and society what actions are needed for us to move towards greater equality.** The question is, what are you going to do then with the data of the caste census? The caste census will also, among other things, reveal how certain castes who were earlier deprived and discriminated against have moved on. This will be important new information that will come out. Let us not be under the illusion or misconception that all the SCs are as discriminated against as they were 70 years ago. **There is a certain section of SCs which has moved on, a section of OBCs that has moved on.** Many of them are creeps. Should their children get reservation? **The concept of a creamy layer** should also now be applied to the SCs. So, these are the larger issues that will be revealed by the caste census. Similarly, there are other so-called non-OBCs or upper castes who are poor. So, we need to therefore take a holistic view and not go in the direction that divides our society, that is, *jiti abadi, utna haq*.

ST: The purpose of a caste census is quite clear. It is not a census only to gain demographic data and family data. The first is that you go down from broader caste categories like SCs to sub castes. So, have a population estimate of these sub castes or even religious groups for that matter and social groups within the religion. But that certainly is not the purpose. **The purpose is to know about the economic, educational, and social standing of these groups. What is their access to ownership of means of production like land, business, employment? What are their educational levels? Do they face discrimination? What is the nature of such discrimination?** So a caste census will generate all this information and bring transparency. There will be shocks. **The people who are opposed to a caste census are worried simply because they think that the 5% Brahmins will have a 60% share.** But my point is government policy is based on evidence and data and it is a fair policy. But at the moment policies are not based on data. Policies are based on political pressures.



To listen to the full interview Scan the code or go to the link www.thehindu.com

Should reservation in jobs only be in proportion to the population? (17 May) (GS Paper II: Reservation)

- Rahul Gandhi used the slogan 'Jitni abadi, utna haq' (the rights of a group are proportionate to their population) in his election campaign.
 - The slogan suggests job reservations should be in proportion to population.
 - The Prime Minister criticized the slogan, saying it goes against the Constitution's spirit.
 - India currently has reservations based on fixed percentages for Scheduled Castes, Scheduled Tribes, and Other Backward Classes.
 - **Arguments for proportional reservation: fairness and inclusivity.**
 - **Arguments against: potential impact on merit and constitutional principles.**
 - Debate continues over **balancing affirmative action and meritocracy** in job reservations in India.
 - Justification for caste census: Indian society is diverse and exclusionary; few countries have group-specific policies like India.
 - India combines policies focusing on individuals and groups.
 - **In the past 20 years, there's been an increase in demand for group-specific policies due to discrimination faced by certain groups.**
 - Groups include Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), and others like Patels, Marathas, low-income groups, and women.
 - Government sometimes surrenders to group pressures and provides policies without sufficient information.
 - There's a need for **caste-wise and sub-caste-wise data to understand and justify policies.**
 - Example: **Lack of data on Jats affected a decision on reservation.**
 - Data needed on human development indicators, poverty, income, malnutrition, education, and ownership for effective group-specific policies.
 - **This justifies the Congress' call for caste census and data-driven policy-making.**
-
- Origin of the slogan 'Jitni abadi, utna haq':
 - The idea has historical roots, including debates during the colonial era and was supported by B.R. Ambedkar.
 - **Ambedkar argued for proportionate representation based on population in his writings on States and Minorities.**
 - Adoption in the Constitution:
 - **The Congress opposed Ambedkar's proposal, and the Constitution instead adopted affirmative action for education and employment needs.**
 - Affirmative action in the Constitution does not endorse 'jitni abadi utna haq'.
 - Constitutionality and implementation:
 - 'Jitni abadi utna haq' is considered unconstitutional as it goes against the principles of equality and justice in the Constitution.
 - India recognizes equality among citizens, not caste as a unit.
 - Challenges with current reservation system:

- Implementing even existing reservations for Scheduled Castes (SCs) is difficult.
- There's a demand for sub-categorization among Dalits, tribal groups, and Other Backward Classes (OBCs) due to perceived unequal distribution of benefits.
- Example: The Madigas in Telangana seek sub-categorization because they believe the Malas receive more benefits.
- Social implications:
- Implementing 'jitni abadi utna haq' could lead to social chaos and divisions.
- Affirmative action has some justification within certain frameworks, but the slogan is seen as divisive and impractical.
- The Constitution's fundamental moral basis is justice (Nyay), but we are still far from achieving this ideal.
- The focus has traditionally been on the government and formal sectors of the economy, which employ only a small segment of the population.
- To achieve economic and social justice and equality, we need to rethink our approach.
- This involves creating wealth and livelihood opportunities at the bottom of the socioeconomic pyramid.
- The emphasis is on addressing the needs of the marginalized and economically disadvantaged sections of society.
- Dr. Ambedkar believed that reservation for SCs and STs should be based on their social, economic, and educational status, not solely on population.
- He suggested that seats in the legislature should be redistributed among social and religious minorities to ensure fair representation.
- Reservation in jobs and legislature should reflect the economic and social standing of the groups.
- Population was considered as a tentative indicator of fair representation in the absence of other indicators.
- Ambedkar emphasized affirmative action for groups that face discrimination, rather than general pro-poor policies.
- He advocated for reservation not only in the public sector but also in the private sector, where discrimination is more widespread.

But the question here is, how do we determine what qualifies as a fair share?

- Ambedkar believed that fair representation should be based on the socioeconomic and educational status of the group, supplemented by population.
- He used Parsis and Christians as examples of minorities who are advanced in education, yet their share of benefits is higher than their population share.
- In contrast, Brahmins make up a small percentage of the population (3.5% to 5%), but their share of benefits is disproportionately higher compared to lower castes.
- This highlights the need for a nuanced approach to reservation and representation, considering both socioeconomic status and population as factors.

What should be the aim of a caste census in India?

- A caste census is important because it will show the distribution of different castes and sub-castes and their relative backwardness or progress.
- It will provide data to the government and society to understand what actions are needed to achieve greater equality.
- The data from the caste census will reveal how certain castes, previously deprived and discriminated against, have progressed.
- Not all Scheduled Castes (SCs) and Other Backward Classes (OBCs) face the same level of discrimination as they did 70 years ago; some have moved up socioeconomically.
- There is a section of SCs and OBCs who are wealthy, and the concept of a creamy layer should be applied to them as well.
- The caste census will highlight issues like whether children of wealthy SCs and OBCs should still receive reservation benefits.
- The census will also reveal poor individuals among non-OBCs or upper castes, indicating that poverty isn't limited to specific castes.
- We need to take a holistic view and avoid policies like 'jitni abadi, utna haq' that could divide our society.
- The purpose of a caste census is not just to collect demographic and family data.
- It aims to break down broader caste categories like SCs into sub-castes and religious groups to estimate their population.
- The main purpose is to understand the economic, educational, and social status of these groups.
- It will reveal their access to means of production such as land, business, and employment.
- Educational levels and the nature of discrimination faced by these groups will be assessed.
- A caste census will bring transparency by generating this comprehensive information.
- Some oppose the caste census because they fear it will show Brahmins with a disproportionately large share, but evidence-based government policies should be fair.
- Current policies are often influenced more by political pressures than by data and evidence.

The challenge of reporting propaganda (17 May)

A mischievous and selective presentation of facts can sometimes be more dangerous for democracy than pure lies

- Election campaigns often focus on influencing public opinion, not presenting facts.

- Political leaders often exaggerate or distort truths to appear superhuman or discredit opponents.
- Journalists find it challenging to report these statements accurately during elections.
- In the past, false information had limited impact, but now technology spreads it widely and keeps it alive.
- Journalists face dilemmas on how to report speeches containing falsehoods:
 - Should they simply reproduce what was said?
 - Should they ignore the leader making false statements?
 - Is real-time fact-checking possible?
- When statements are major distortions, reporters must decide on responsible journalism:
 - Should they blackout false statements from leaders?
 - Is it enough to present opposing statements without verifying facts?
- These are crucial questions for journalists in handling misinformation and reporting accurately.
- When reporting factually incorrect statements, journalists should explain and quote reliable sources.
- Verifiable claims (e.g., about political manifestos) can be checked and reported accurately.
- Speculative statements (e.g., India as a superpower under Sardar Patel) can only be reported as opinions.
- Misinformation and misinterpretation are bigger threats than outright lies.
- Providing context and background is more valuable than simple fact-checking in some cases.
- Example: Selective facts about Muslim population growth can be dangerous.
- Numbers can be misleading; different arguments can use the same data to support opposite claims.
- Surveys may not capture complex realities (e.g., communalism).
- Numbers and data contribute to understanding but do not provide the complete picture.
- Reporting election campaigns is challenging due to these complexities.
- Journalists must skillfully use data, context, and background information to present an unbiased picture.
- Countering propaganda with facts is essential to maintaining journalistic integrity.

The use of AI in drug development

What are target proteins and how are they identified? How do AI-based tools AlphaFold 3 and RoseTTAFold All-Atom help in predicting the correct target protein and its interactions with drugs? Where does India stand in the field of computational drug development?

EXPLAINER

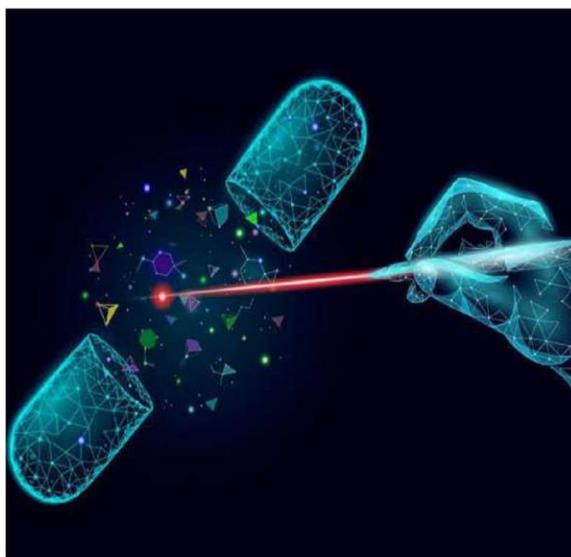
Binay Panda

Drug development is an expensive and time-consuming process. However, the advent of Artificial Intelligence (AI) has opened up a world of possibilities with respect to fast-tracking drug development.

How does the process start?

The process of developing a drug starts with identifying and validating a target. A target is a biological molecule (usually a gene or a protein) to which a drug directly binds in order to work. The overwhelming majority of targets are proteins. Only those proteins with ideal sites where drugs can go and dock to do their business are druggable proteins.

Target proteins are identified in the discovery phase, wherein a target protein sequence is fed into a computer which looks for the best-fitting drug out of millions in the library of small molecules for which the structures are stored in the computer. The process assumes that the structures of the target protein and drug are known. If not, the computer uses models to understand the sites where a drug can bind. This discovery process avoids time-consuming laboratory experiments that require expensive chemicals and reagents and have a high failure rate. Once the suitable protein target and its drug are identified, the research moves to the pre-clinical phase, where the potential drug candidates are tested outside a biological system, using cells and animals for the drug's safety and toxicity. After this, as part of the clinical phase, the drug is tested on a small number of human patients before being used on more patients for efficacy and safety. Finally, the drug undergoes regulatory approval and marketing and post-market survey phases. Due to a high failure rate, the discovery phase limits the number of drugs that pass and carry on to



GETTY IMAGES

the pre-clinical and clinical phases.

How can AI help this process?

AI has the potential to revolutionise target discovery and understand drug-target interaction by drastically cutting down time, increasing the accuracy of prediction of interaction between a drug and its target, and saving money. The development of two AI-based prediction tools, AlphaFold and RoseTTAFold, developed by researchers at DeepMind, a Google company, and the University of Washington, U.S., respectively, has provided a major scientific breakthrough in the last four years in the area of computational drug development. Both tools are based on deep neural networks. The tools' neural networks use massive amounts of input data to produce the desired output – the three-dimensional structures of proteins. Published recently, the new avatars of AlphaFold and

RoseTTAFold, called AlphaFold 3 (developed jointly by Isomorphic Labs, a DeepMind spinoff) and RoseTTAFold All-Atom, respectively, take the capability of these tools to an entirely new level. The significant difference between the upgraded versions and their previous forms is their capability to predict not just static structures of proteins and protein-protein interactions but also their ability to predict structures and interactions for any combination of protein, DNA, and RNA, including modifications, small molecules and ions. Additionally, the new versions use generative diffusion-based architectures (one kind of AI model) to predict structural complexes. In a test with 400 interactions between targets and their small molecule drugs, AlphaFold 3 accurately predicted their interactions 76% of the time versus 40% by RoseTTAFold All-Atom.

What are the drawbacks?

With all the promise and potential in drug development, AI tools have limitations. For example, the tools can, at best, provide up to 80% accuracy in predicting interactions (the accuracy comes down drastically for protein-RNA interaction predictions). Second, the tools can only aid a single phase of drug development, target discovery and drug-target interaction. It will still have to go through the pre-clinical and clinical development phases, and there is no guarantee that the AI-derived molecules will result in success in those phases. Third, one of the challenges with diffusion-based architecture is model hallucinations, where insufficient training data causes the tool to produce incorrect or non-existent predictions. Finally, unlike the previous versions of AlphaFold, DeepMind has not released the code for AlphaFold 3, restricting its independent verification, broad utilisation and use for protein-small molecule interaction studies.

What about India?

Developing new AI tools for drug development requires large-scale computing infrastructure, especially ones with fast Graphics Processing Units (GPUs) to run multiple tasks with longer sequences. GPU chips are expensive, and with newer and faster ones being produced by hardware makers every year, they have a quick expiration date. India needs such large-scale computing infrastructure. That, along with a lack of skilled AI scientists, unlike in the U.S. and China, is the second reason why researchers in India could not establish a first-mover advantage in developing AI tools for drug development despite the country having a rich history in protein X-ray crystallography, modelling and other fields of structural biology. However, with a growing number of pharmaceutical organisations, India can lead the way in applying AI tools in target discovery, identification, and drug testing. Binay Panda is Professor at JNU, New Delhi and posts at @ganitilabs.

THE GIST

The process of developing a drug starts with identifying and validating a target. A target is a biological molecule (usually a gene or a protein) to which a drug directly binds in order to work.

AI has the potential to revolutionise target discovery and understand drug-target interaction by drastically cutting down time, increasing the accuracy of prediction of interaction between a drug and its target, and saving money.

The development of two AI-based prediction tools, AlphaFold and RoseTTAFold, developed by researchers at DeepMind, a Google company, and the University of Washington, U.S., respectively, has provided a major scientific breakthrough in the area of computational drug development.

The use of AI in drug development (17 May) (GS Paper III: AI)

What are target proteins and how are they identified? How do AI-based tools AlphaFold 3 and RoseTTAFold All-Atom help in predicting the correct target protein and its interactions with drugs? Where does India stand in the field of computational drug development?

- Drug development is expensive and time-consuming.
- Artificial Intelligence (AI) is speeding up drug development processes.
- AI analyzes large datasets quickly to find potential drug candidates.
- It helps in discovering new drug targets or repurposing existing drugs.
- AI optimizes clinical trial designs and predicts patient responses.
- Benefits include faster drug discovery, reduced costs, and potential for innovation.
- Challenges include ensuring data quality, regulatory approval, and addressing ethical concerns.

How does the process start?

- Drug development begins with identifying and validating a target, usually a biological molecule like a gene or protein.
- Most drug targets are proteins that have specific sites where drugs can bind.
- The discovery phase uses computers to match the target protein sequence with suitable drug molecules stored in a library.
- This process relies on known structures of the target protein and drug, or uses models to predict binding sites.
- It avoids time-consuming and expensive laboratory experiments and has a high failure rate.
- Once a suitable protein target and drug are identified, research moves to the pre-clinical phase.
- In the pre-clinical phase, potential drug candidates are tested outside of biological systems using cells and animals to assess safety and toxicity.
- The clinical phase follows, where the drug is tested on a small number of human patients to evaluate efficacy and safety.
- Finally, the drug undergoes regulatory approval, marketing, and post-market surveillance phases.
- The discovery phase limits the number of drugs that proceed to the pre-clinical and clinical phases due to a high failure rate.

How can AI help this process?

- AI has the potential to revolutionize target discovery and drug-target interaction.
- It drastically reduces time and increases accuracy in predicting how drugs interact with their targets.
- Two AI-based prediction tools, AlphaFold and RoseTTAFold, have been developed by DeepMind and the University of Washington, respectively.
- These tools use deep neural networks to predict the three-dimensional structures of proteins.

- AlphaFold 3 and RoseTTAFold All-Atom are upgraded versions that can predict structures and interactions for proteins, DNA, RNA, modifications, small molecules, and ions.
- The new versions use generative diffusion-based architectures to predict structural complexes.
- In a test with 400 interactions between targets and small molecule drugs, AlphaFold 3 predicted interactions accurately 76% of the time, compared to 40% by RoseTTAFold All-Atom.
- These advancements represent a significant scientific breakthrough in computational drug development.

What are the drawbacks?

- AI tools in drug development have limitations despite their promise.
- They can provide up to 80% accuracy in predicting interactions, but this drops significantly for protein-RNA interactions.
- AI tools only aid in the target discovery and drug-target interaction phases of drug development.
- Drugs identified using AI still need to undergo pre-clinical and clinical development phases.
- There is no guarantee that molecules identified by AI will succeed in clinical trials.
- Diffusion-based architectures used by AI tools face challenges such as model hallucinations due to insufficient training data.
- DeepMind has not released the code for AlphaFold 3, limiting independent verification and broad utilization for protein-small molecule interaction studies.

What about India?

- Developing new AI tools for drug development requires large-scale computing infrastructure.
- This infrastructure needs fast Graphics Processing Units (GPUs) to handle multiple tasks with longer sequences.
- GPU chips are expensive and are quickly replaced by newer and faster models each year.
- India lacks large-scale computing infrastructure and skilled AI scientists compared to the U.S. and China.
- Despite India's rich history in protein X-ray crystallography and modelling, researchers have not achieved a first-mover advantage in AI tools for drug development.
- India has a growing number of pharmaceutical organizations.
- India has the potential to lead in applying AI tools for target discovery, identification, and drug testing.

Can parties be de-recognised or de-registered?

Does the Election Commission have the power to de-recognise a political party for violation of the MCC?

Rangarajan. R

The story so far:

The Election Commission of India (ECI) in its report on enforcement of Model Code of Conduct (MCC) has stated that it expects star campaigners to lead by example and not vitiate the fabric of society. This has raised a debate about ECI powers to rein in MCC violations.

What are registered parties?

Section 29A of the Representation of the People Act, 1951 (RP Act) lays down the requirements for registration of a political party with the ECI. Any political party that seeks registration should submit a copy of its memorandum/constitution. Such document should declare that the party shall bear true faith and allegiance to the Constitution of India. It should also bear allegiance to the principles of socialism, secularism and democracy, and uphold the sovereignty, unity and integrity of India. Registered political

parties enjoy the following legal benefits - (a) tax exemption for donations received under Section 13A of the Income Tax Act, 1961, (b) common symbol for contesting general elections to the Lok Sabha/State Assemblies, and (c) twenty 'star campaigners' during election campaign. As per the ECI, there are 2,790 active registered political parties in India.

What are recognised parties?

A registered party is referred to as a Registered Unrecognised Political Party (RUPP). Political parties are recognised as a 'national' or 'State' party under the provisions of The Election Symbols (Reservation and Allotment) Order, 1968 (Symbols Order) by the ECI. The criteria for recognition at the 'national' or 'State' level consists of winning requisite number of seats and/or obtaining required percentage of votes in a general election to Lok Sabha or State Assembly. At present, there are six 'national' parties, and sixty-one 'State' parties that have been recognised. These recognised

parties enjoy additional concessions of having a reserved symbol during elections and forty 'star campaigners'.

What are the issues?

It has been noticed that less than a third of RUPPs contest elections. The RP Act does not confer explicit powers on the ECI to de-register any political party if it fails to contest elections, conduct inner-party elections or lodge requisite returns. The Supreme Court in *Indian National Congress versus Institute of Social Welfare & Ors* (2002) had held that the ECI does not have power to de-register any political party under the RP Act. It may de-register only under exceptional circumstances like registration being obtained by fraud or the political party ceasing to have allegiance to the Constitution or if it is declared unlawful by the Government. The RUPPs that don't contest elections raise concerns over the possible misuse of income tax exemption and donations collected being used for money laundering.

The MCC prohibits using caste and communal feelings to secure votes, and bribing or intimidation of voters.

Recognised political parties are guilty of violating the MCC on various occasions. However, it has been observed that the ECI on such occasions at best bars leaders from campaigning for a short period of two to three days.

What needs to be done?

The ECI in its memorandum for electoral reforms (2016) has suggested amendment to the law that would empower the ECI to deregister a party. The Law Commission in its 255th report (2015) on 'Electoral reforms' has also recommended amendments for de-registration of a political party if it fails to contest elections for 10 consecutive years. These recommendations should be implemented. Under Paragraph 16A of the Symbols order, the ECI has the power to suspend or withdraw recognition of a recognised political party for its failure to observe MCC or follow lawful directions of the Commission. It has probably been used only once for three weeks in 2015 when the recognition of National People's Party was suspended for failure to follow the directions of the ECI. Strict action under this provision would have a salutary effect in ensuring adherence to the MCC.

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THE GIST

Section 29A of the Representation of the People Act, 1951 (RP Act) lays down the requirements for registration of a political party with the ECI.

The Supreme Court in *Indian National Congress versus Institute of Social Welfare & Ors* (2002) had held that the ECI does not have power to de-register any political party under the RP Act.

The ECI in its memorandum for electoral reforms (2016) has suggested amendment to the law that would empower the ECI to deregister a party.

Can parties be de-recognised or de-registered? (17 May) (GS Paper II: Polity)

Does the Election Commission have the power to de-recognise a political party for violation of the MCC?

- The Election Commission of India (ECI) released a report on the enforcement of the Model Code of Conduct (MCC).
- In the report, the ECI emphasized that star campaigners should set a positive example and avoid actions that harm the social fabric.
- This statement has sparked a debate regarding the powers of the ECI to control violations of the Model Code of Conduct.
- The Model Code of Conduct is a set of guidelines that regulate political parties and candidates during elections to ensure fair play and ethical behavior.

- Violations of the Model Code of Conduct can range from using hate speech to making false allegations against opponents.
- The ECI's role is to oversee elections in India and ensure that they are conducted in a free and fair manner.
- The ECI has the authority to take action against individuals or parties found violating the Model Code of Conduct, which can include issuing warnings or even disqualifying candidates.
- The debate over the ECI's powers involves discussions about how effective these measures are in preventing MCC violations.

What are registered parties?

- Section 29A of the Representation of the People Act, 1951 (RP Act) outlines the requirements for the registration of political parties with the Election Commission of India (ECI).
- To register, a political party must submit a copy of its memorandum/constitution to the ECI.
- The memorandum/constitution must declare that the party will uphold true faith and allegiance to the Constitution of India.
- The party must also pledge allegiance to the principles of socialism, secularism, and democracy, and uphold the sovereignty, unity, and integrity of India.
- Registered political parties in India enjoy several legal benefits:
- Tax exemption for donations received under Section 13A of the Income Tax Act, 1961.
- Common symbol for contesting general elections to the Lok Sabha (House of the People) and State Legislative Assemblies.
- Permission to have up to twenty 'star campaigners' during election campaigns.
- According to the ECI, there are currently 2,790 active registered political parties in India.

What are recognised parties?

- A registered political party that is not recognised by the Election Commission of India (ECI) is referred to as a Registered Unrecognised Political Party (RUPP).
- The ECI recognises political parties as 'national' or 'State' parties under the Election Symbols (Reservation and Allotment) Order, 1968 (Symbols Order).
- Recognition as a 'national' or 'State' party is based on criteria such as winning a requisite number of seats or obtaining a required percentage of votes in a general election to the Lok Sabha (House of the People) or State Legislative Assembly.
- Currently, there are six 'national' parties and sixty-one 'State' parties that have been officially recognised by the ECI.
- Recognised political parties enjoy additional benefits, including:
- Having a reserved symbol during elections.
- Permission to designate up to forty 'star campaigners' during election campaigns.

What are the issues?

- Less than a third of Registered Unrecognised Political Parties (RUPPs) in India actually contest elections.
- The Representation of the People Act (RP Act) does not grant explicit authority to the Election Commission of India (ECI) to de-register political parties that fail to contest elections, conduct inner-party elections, or file necessary returns.
- The Supreme Court ruling in *Indian National Congress vs. Institute of Social Welfare & Ors* (2002) clarified that the ECI cannot de-register a political party under normal circumstances, except in cases involving fraud, loss of allegiance to the Constitution, or if declared unlawful by the government.
- RUPPs that do not contest elections raise concerns about potential misuse of income tax exemptions and donations, potentially for purposes like money laundering.
- The Model Code of Conduct (MCC) prohibits the use of caste and communal sentiments to secure votes, as well as bribery and voter intimidation.
- Recognised political parties have been found guilty of violating the MCC on several occasions.
- The ECI typically penalises such violations by temporarily barring party leaders from campaigning for short periods, usually two to three days.

What needs to be done?

- The Election Commission of India (ECI) in its memorandum for electoral reforms in 2016 suggested an amendment to empower the ECI to deregister a political party.
- The Law Commission, in its 255th report on 'Electoral reforms' in 2015, also recommended amendments for de-registration of a political party if it fails to contest elections for 10 consecutive years.
- These recommendations for electoral reforms should be implemented to strengthen the electoral process.
- Under Paragraph 16A of the Symbols Order, the ECI has the power to suspend or withdraw recognition of a recognised political party for its failure to observe the Model Code of Conduct (MCC) or follow lawful directions of the Commission.
- This power was used once in 2015 when the recognition of the National People's Party was suspended for three weeks due to its failure to follow ECI's directions.
- Strict action under this provision would have a positive effect in ensuring political parties adhere to the MCC and ECI's directions effectively.

As U.S. hikes China tariffs, imports soar from China-reliant Vietnam (17 May)

Vietnam's export boom has been fuelled by imports from neighbouring China, with inflows from China almost exactly matching the value and swings of exports to the U.S. in recent years; as inflation remains high, the White House has remained quiet on Vietnam's large trade surplus

- The United States has increased efforts to reduce trade with China by imposing higher tariffs.
- As a result, U.S. imports from Vietnam have greatly increased, as Vietnam relies on Chinese inputs for many of its exports.
- This has led to a significant widening of trade imbalances between China, Vietnam, and the United States.
- Vietnam's trade surplus with the United States in 2023 was close to \$105 billion, which is 2.5 times larger than it was in 2018.
- Vietnam now ranks fourth in terms of trade surplus with the United States, following China, Mexico, and the European Union.
- The relationship between China, Vietnam, and the United States has become increasingly interdependent, supported by trade, customs, and investment data.
- Vietnam's export growth has been fueled by imports from China, with the value of these imports closely matching the swings in exports to the United States.
- These insights are confirmed by preliminary estimates from the World Bank, along with analysis by several economists and supply chain experts.
- Preliminary estimates from the World Bank indicate a 96% correlation between Chinese imports into Vietnam and Vietnamese exports to the United States, up from 84% before Donald Trump's presidency.
- This surge in Chinese imports into Vietnam has coincided with an increase in Vietnamese exports to the United States.
- Some analysts suggest that the United States may view this as Chinese firms using Vietnam to avoid additional tariffs imposed on their goods.
- Darren Tay, a lead economist at BMI Research, mentioned that this situation could potentially lead to tariffs being imposed against Vietnam after U.S. elections.
- Vietnam is seeking market economy status in Washington, especially after President Joe Biden's efforts to strengthen diplomatic ties with the country.
- U.S. imports of goods from Vietnam totaled over \$114 billion in 2023, more than double the amount in 2018 when the U.S.-China trade war began.
- This surge in imports from Vietnam accounted for more than half of the \$110-billion drop in imports from China since 2018, according to U.S. trade data.
- In industries such as textiles and electric equipment, Vietnam has captured more than 60% of China's market share loss.
- Despite this, Chinese input remains crucial for Vietnam, as many of the goods exported to the United States are made from parts and components produced in China.

- In the first quarter of this year, U.S. imports from Vietnam were valued at \$29 billion, while Vietnam's imports from China amounted to \$30.5 billion.
- These figures reflect a pattern seen in previous quarters and years, showing closely corresponding flows.
- Despite high inflation, the White House has not commented on Vietnam's substantial trade surplus, but analysts suggest this could change after the November elections.
- Nguyen Ba Hung, principal economist at ADB's Vietnam mission, predicts a potential policy shift towards Vietnam by the winning party post-elections, which could increase U.S. import costs.

Cotton and panels

- The increase in China-Vietnam-U.S. trade reflects growing investments in Vietnam as a manufacturing base, with companies relocating activities from China.
- Many of these manufacturers are Chinese firms that establish factories in Northern Vietnam but continue to rely on supply chains from China.
- Some of the trade involves finished products labeled as "Made in Vietnam" despite no value being added in the country, as concluded by the U.S. Department of Commerce in investigations, such as those on solar panels.
- Vietnam is under scrutiny due to its exposure to Xinjiang, China, a region from where the U.S. bans imports over accusations of human rights violations against Uyghurs.
- Xinjiang is a major source of cotton and polysilicon used in Vietnam's industry, including exports of cotton apparel and solar panels to the U.S.
- Vietnam faced the highest value of shipments denied entry into the U.S. due to risks of Uyghur forced labor, according to U.S. customs data.
- Vietnam's import of raw cotton from China declined by 11% last year to 214,000 tons, despite being double the amount in 2018.
- China exported at least \$1.5 billion worth of cotton apparel to Vietnam, up from nearly \$1.3 billion in 2022.
- U.S. imports of cotton clothes from Vietnam fell by 25% to \$5.3 billion last year, though this data may not include all cotton items.
- Vietnam surpassed China as the main exporter of products covered by the Xinjiang ban, according to Hung Nguyen of RMIT.

Exports may rebound 14% in FY25 (17 May)

Merchandise exports could rebound to \$500 billion this year as global demand is slowly improving and the prospects of a good monsoon could free up restrictions on the shipments of agricultural products, says the apex exporters' group FIEO

- India's apex exporters' group, the Federation of Indian Exporters' Organisations (FIEO), forecasts that the country's goods exports could rebound to \$500 billion this year.
- This optimism is based on improving global demand and the potential relaxation of curbs on shipments of farm products due to prospects of a good monsoon.
- India's exports declined to \$437.1 billion in 2023-24 from a record high of \$451.1 billion in the previous year.
- The ongoing Red Sea crisis is impacting the cost and time for shipping goods to major markets, which has already led to a few order cancellations in sectors like metals and commodities.
- Delays and higher shipping costs could result in further order cancellations, potentially eroding India's competitive edge in global markets.
- The Red Sea crisis is disrupting delivery schedules and causing spoilage of perishable goods due to longer sea routes.
- Exporters are increasingly opting to send goods as air cargo, but this has limited capacity and has led to a fourfold increase in costs on routes like India to Europe.
- FIEO president Ashwani Kumar stated that the Red Sea crisis is negatively impacting both sea freight and air freight, thereby affecting Indian exports.
- There are structural issues affecting exporters, including the fact that while exports contribute more than 20% to GDP, their share in net bank credit is not proportional.
- Demand for credit has risen due to increasing inflation, high commodity prices, and abnormal increases in sea and air freight.
- Slow uptake and longer transit times are also delaying export payments, requiring more credit for longer tenors.

Xi, Putin hail relations as 'stabilising' force in world (17 May)

China is ready to work with Russia to strengthen fairness and justice in the world, says its leader; the Russian President says the countries uphold a world order that reflects multipolar realities

- Leaders Xi Jinping and Vladimir Putin met in Beijing, framing their nations' ties as stabilizing forces in a chaotic world.
- Putin's visit marks his first trip abroad since his March reelection and the second to China in just over six months.
- He seeks greater Chinese support for Russia's war effort in Ukraine amid unprecedented sanctions from the West.
- Putin was welcomed by Xi at a grand ceremony outside Beijing's Great Hall of the People, as shown by state broadcaster CCTV.
- During their meeting, Xi referred to Putin as his "old friend" and emphasized that China-Russia relations contribute to peace.

- Xi stated that China is ready to collaborate with Russia to uphold fairness and justice in the world.

Multipolar realities

- Mr. Putin described Russia-China relations as "stabilizing factors in the international arena."
- He emphasized that these relations are not opportunistic or directed against any other country.
- Putin stated that together with China, Russia upholds principles of justice and a democratic world order based on international law.
- Following closed-door meetings, Putin and Xi signed a joint statement to deepen their countries' "comprehensive strategic partnership."
- The statement was reported by the state news agency Xinhua.

No 'further escalation'

- Hours after praising Russian troops for advancing on all fronts in Ukraine, President Putin arrived in Beijing for his first trip abroad since re-election.
- The Kremlin announced that Russia and China agreed to oppose further escalation of the conflict in Ukraine.
- According to the joint statement, both countries emphasized the need to stop any actions that prolong hostilities.
- China has denied allegations that it is supporting Russia's war efforts in Ukraine.

Slovak PM in 'very serious' condition after being shot (17 May)

- Slovak Prime Minister Robert Fico's condition has stabilized but remains "very serious" following an attempt on his life.
- Government officials have called the shooting a "political assault", raising concerns about increased polarization and potential further violence.
- The incident occurred just weeks before European Parliament elections, prompting calls for calm and suspension of EU election campaigning.
- Slovakia's political landscape is divided between pro-Europeans and nationalists, with recent elections marred by disinformation, accusations, and social media attacks.
- Slovak President-elect Peter Pellegrini urged all political parties to temporarily suspend or significantly reduce their European election campaigns.

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- Pellegrini emphasized the need to avoid "further confrontation" in a joint statement with outgoing President Zuzana Caputova.
- Slovak Prime Minister Robert Fico's condition remains very serious after surviving a shooting incident.
- Surgeons spent hours in surgery to save the 59-year-old leader's life after he was shot while speaking to the public.
- Deputy Prime Minister Robert Kalinak confirmed that while Mr. Fico's condition has stabilized, his injuries are complicated.
- The shooting occurred in Handlova, Slovakia, where police detained a suspect at the scene.
- Mr. Fico was airlifted to Banska Bystrica hospital, where he underwent a seven-hour surgery conducted by two medical teams.
- Video footage showed security agents rushing Mr. Fico into a car after the shooting, while police handcuffed a man nearby.
- Despite being from rival political camps, outgoing President Zuzana Caputova and President-elect Peter Pellegrini called for calm and an end to "the vicious circle of hatred" in Slovakia.
- Mr. Fico, a four-time Prime Minister, has faced criticism for aligning Slovakia's foreign policy with the Kremlin.

PRELIMS PRACTICE QUESTIONS:

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| <p>Question 1: A rainbow is formed due to: (a) Reflection of sunlight from the Earth's surface</p> | <p>Answer: (b) Refraction and dispersion of sunlight by water droplets</p> |
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| <p>(b) Refraction and dispersion of sunlight by water droplets</p> <p>(c) Diffraction of sunlight by dust particles in the atmosphere</p> <p>(d) Bioluminescence of certain organisms in the sky</p> | <p>Explanation: Rainbows are formed when sunlight interacts with water droplets in the atmosphere. Sunlight bends (refracts) as it enters a water droplet, separating into its constituent colors (dispersion) due to their slightly different speeds. The light then reflects off the back of the droplet and exits, creating the colorful arc we see as a rainbow.</p> |
| <p>Question 2: The order of colors in a rainbow, from the innermost part to the outermost part, is always:</p> <p>(a) Red, orange, yellow, green, blue, indigo, violet</p> <p>(b) Violet, indigo, blue, green, yellow, orange, red</p> <p>(c) The order is random and depends on the specific sunlight</p> <p>(d) There is no fixed order; it depends on the observer's position</p> | <p>Answer: (a) Red, orange, yellow, green, blue, indigo, violet</p> <p>Explanation: The order of colors in a rainbow is always red, orange, yellow, green, blue, indigo, and violet. This is because different colors of light bend by slightly different amounts as they pass through the water droplets. Red light bends the least, while violet bends the most.</p> |
| <p>Question 3: A hysterectomy is a surgical procedure involving the removal of:</p> <p>(a) Appendix</p> <p>(b) Uterus</p> <p>(c) Gallbladder</p> <p>(d) Kidney</p> | <p>Answer: (b) Uterus</p> <p>Explanation: A hysterectomy is the surgical removal of the uterus, the organ in the female reproductive system where a fetus develops during pregnancy.</p> |
| <p>Question 4: What are some of the common medical reasons for performing a hysterectomy?</p> <p>(a) Treatment for severe acne</p> <p>(b) Removal of a cancerous appendix</p> <p>(c) Management of heavy and uncontrolled menstrual bleeding</p> <p>(d) Treatment for a broken leg</p> | <p>Answer: (c) Management of heavy and uncontrolled menstrual bleeding</p> <p>Explanation: There are various reasons for a hysterectomy, but some common ones include:</p> |
| <p>Question 5: West Nile Virus is primarily transmitted to humans through:</p> <p>(a) Direct contact with infected animals</p> <p>(b) Consumption of contaminated food or water</p> <p>(c) The bite of an infected mosquito</p> <p>(d) All of the above</p> | <p>Answer: (c) The bite of an infected female mosquito</p> <p>Explanation: WNV is primarily transmitted through the bite of an infected female mosquito. Mosquitoes become infected by feeding on infected birds, and then transmit the virus to humans and other animals when they bite.</p> |

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| <p>Question 6: What are some of the common symptoms of West Nile Virus infection in a healthy individual?</p> <p>(a) Always severe illness requiring hospitalization</p> <p>(b) Often no symptoms at all, or mild flu-like symptoms</p> <p>(c) Development of large, painful blisters</p> <p>(d) Difficulty breathing and chest pain</p> | <p>Answer: (b) Often no symptoms at all, or mild flu-like symptoms</p> <p>Explanation: Around 80% of people infected with WNV show no symptoms at all. In some cases, mild flu-like symptoms like fever, headache, body aches, nausea, and vomiting might occur.</p> |
| <p>Question 7: Who is at a higher risk of developing serious complications from West Nile Virus infection?</p> <p>(a) Children under the age of 5</p> <p>(b) People with weakened immune systems (elderly or chronically ill)</p> <p>(c) Both (a) and (b)</p> <p>(d) People living in urban areas</p> | <p>Answer: (c) Both (a) and (b)</p> <p>Explanation: While WNV can infect anyone, young children and people with weakened immune systems are at higher risk of developing serious complications like encephalitis (inflammation of the brain) or meningitis (inflammation of the meninges).</p> |
| <p>Question 8: The Organization of the Petroleum Exporting Countries (OPEC) is an intergovernmental organization that primarily focuses on:</p> <p>(a) Promoting renewable energy sources</p> <p>(b) Regulating global oil prices</p> <p>(c) Facilitating international trade in natural gas</p> <p>(d) Investing in clean energy technologies</p> | <p>Answer: (b) Regulating global oil prices</p> <p>Explanation: OPEC is a group of countries with a significant share of the world's oil reserves. One of its primary goals is to influence global oil prices by coordinating production levels among member countries.</p> |
| <p>Question 9: How does OPEC influence global oil prices?</p> <p>(a) By directly setting fixed prices for oil</p> <p>(b) By collectively managing production levels to affect supply</p> <p>(c) By imposing taxes and tariffs on oil exports</p> <p>(d) By investing in alternative oil exploration techniques</p> | <p>Answer: (b) By collectively managing production levels to affect supply</p> <p>Explanation: OPEC doesn't directly set oil prices, but it influences them by collectively deciding on production quotas for member countries. When production is restricted, oil supply goes down, which can lead to price increases. Conversely, increasing production quotas can lead to a decrease in oil prices.</p> |
| <p>Question 10: The World Trade Organization (WTO) is an intergovernmental organization that deals with:</p> <p>(a) International migration and border control</p> <p>(b) Global health regulations and disease control</p> <p>(c) International trade rules and regulations</p> | <p>Answer: (c) International trade rules and regulations</p> <p>Explanation: The WTO is the primary international body that establishes and enforces rules governing international trade between member nations. It aims to promote free trade, reduce trade barriers, and facilitate the smooth flow of goods and services across borders.</p> |

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| (d) International cooperation on environmental issues | |
| Question 11: What are some of the key functions of the WTO? (a) Setting tariffs and quotas for individual countries (b) Negotiating trade agreements between member nations (c) Resolving trade disputes between member countries (d) All of the above | Answer: (d) All of the above Explanation: The WTO performs various functions: Negotiating Trade Agreements: The WTO facilitates trade negotiations between member countries, aiming to reduce tariffs, subsidies, and other trade barriers. Enforcing Trade Rules: The WTO establishes a framework for fair trade practices and oversees the implementation of these rules by member countries. Resolving Trade Disputes: The WTO provides a forum for member countries to settle trade disputes through a consultation and adjudication process. |

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