PERFECT 7 WEEKLY CURRENT AFFAIRS

June: 2019 / Issue-01

A WORLD OF VIRTUAL REALTY

An Understanding

- A Campaign to Stop Illegal Wildlife Trafficking
- Redefining of SI Units for Refinement and Improvement
- The Teachings of Buddha in the 21st Century
- Full Majority Government : An Analysis
- Forensic Science : A Tool for Scientific Investigation
- Women's Participation in Indian Politics : A Long Way to Go

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ADMISSIONS OPEN FOR NEW SESSION 2019-20

MUKHERJEE NAGAR (DELHI)

GENERAL STUDIES
Pre-cum-Mains

10 June | 5:30 PM

OLD RAJENDRA NAGAR (DELHI)

GENERAL STUDIES
Pre-cum-Mains

10 June | 6:00 PM

PRAYAGRAJ (ALLAHABAD)

GENERAL STUDIES
Pre-cum-Mains

10 June

7:30 AM & 6:00 PM

LUCKNOW (ALIGANJ)

GENERAL STUDIES
Pre-cum-Mains

24 June | 6:00 PM

LUCKNOW (GOMTI NAGAR)

GENERAL STUDIES
Pre-cum-Mains

11 June | 6:00 PM

GREATER NOIDA

GENERAL STUDIES
Pre-cum-Mains

10 June | 3:30 PM

BHUBANESWAR

GENERAL STUDIES
Pre-cum-Mains

10 June

7:30 AM & 6:00 PM

LAXMI NAGAR (DELHI)

GENERAL STUDIES

PCS
Regular Batch
3 June | 7:30 AM

IAS Regular Batch
Pre-cum-Mains
12 June | 10:30 AM

Weekend Batch
8 June | 11:00 AM

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16 JUNE
11:00 AM

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DHYEYA IAS : AN INTRODUCTION

The guiding philosophy of the institute, throughout, has been creation of knowledge base. Dhyeya IAS inculcates human values and professional ethics in the students, which help them make decisions and create path that are good not only for them, but also for the society, for the nation, and for the world as whole. To fulfill its mission in new and powerful ways, each student is motivated to strive towards achieving excellence in every endeavor. It is done by making continuous improvements in curricula and pedagogical tools.

The rigorous syllabi not only instills in them, a passion for knowledge but also attempts to teach them how to apply that knowledge in real-life situations. The programmes lay emphasis on well-rounded personality development of the students and also in inculcating the values of honesty and integrity in them.

Vinay Kumar Singh
CEO and Founder
Dhyeya IAS

Dheya IAS is an institution that aims at the complete development of the student. Our faculty are hand-picked and highly qualified to ensure that the students are given every possible support in all their academic endeavors. It is a multi-disciplinary institution which ensures that the students have ready access to a wide range of academic material.

Our brand of education has broad horizons as we believe in exposure. Our students are encouraged to widen their knowledge base and study beyond the confinements of the syllabus. We aim to lend a gentle guiding hand to make our students recognize their inner potential and grow on their own accord into stalwarts of tomorrow's society.

Q H Khan
Managing Director
Dhyeya IAS

PERFECT 7 : AN INTRODUCTION

With immense pleasure and gratitude I want to inform you that the new version of 'Perfect-7', from the Dhyeya IAS, is coming with more information in a very attractive manner. Heartily congratulations to the editorial team. The 'Perfect-7' invites a wider readership in the Institute. The name and fame of an institute depends on the caliber and achievements of the students and teachers. The role of the teacher is to nurture the skills and talents of the students as a facilitator. This magazine is going to showcase the strength of our Institute. Let this be a forum to exhibit the potential of faculties, eminent writers, authors and students with their literary skills and innovative ideas.

I extend best wishes for the success of this endeavor.

Qurban Ali
Chief Editor
Dhyeya IAS
(Ex Editor- Rajya Sabha TV)

We have not only given the name 'Perfect 7' to our magazine, but also left no stone unturned to keep it 'near to perfect'. We all know that beginning of a task is most challenging as well as most important thing. So we met the same fate.

Publishing 'Perfect 7' provided us various challenges because from the beginning itself we kept our bar too high to ensure the quality. Right from the very first issue we had a daunting task to save aspirants from the 'overdose of information'. Focusing on civil services exams 'Perfect 7' embodies in itself rightful friend and guide in your preparation. This weapon is built to be precise yet comprehensive. It is not about bombardment of mindless facts rather an analysis of various facets of the issues, selected in a systematic manner. We adopted the 'Multi Filter' and 'Six Sigma' approach, in which a subject or an issue is selected after diligent discussion on various levels so that the questions in the examination could be covered with high probability.

Being a weekly magazine there is a constant challenge to provide qualitative study material in a time bound approach. It is our humble achievement that we feel proud to make delivered our promise of quality consistently without missing any issue since its inception.

The new 'avatar' of 'Perfect 7' is a result of your love and affection. We feel inspired to continue our efforts to deliver effective and valuable content in interesting manner. Our promise of quality has reached you in around 100 issues and more are yet to come.

Ashutosh Singh
Managing Editor
Dhyeya IAS

PREFACE

Dhyeya family feels honoured to present you a pandora box 'Perfect 7'. 'Perfect7' is an outstanding compilation of current affairs topics as per the new pattern of Civil Service examination (CSE). It presents weekly analysis of information and issues (national and international) in the form of articles, news analysis, brain boosters, PIB highlights and graphical information, which helps to understand and retain the information comprehensively. Hence,'Perfect 7' will build in-depth understanding of various issues in different facets.

'Perfect7' is our genuine effort to provide correct, concise and concrete information, which helps students to crack the civil service examination. This magazine is the result of the efforts of the eminent scholars and the experts from different fields.

'Perfect 7' is surely a force multiplier in your effort and plugs the loopholes in the preparation.

We believe in environment of continuous improvement and learning. Your constructive suggestions and comments are always welcome, which could guide us in further revision of this magazine.

Omveer Singh Chaudhary
Editor
Dhyeya IAS

Perfect 7

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Content

SEVEN IMPORTANT ISSUES

1. A WORLD OF VIRTUAL REALTY : AN UNDERSTANDING

Why in News?

Indian Navy recently incorporated the applications of artificial intelligence (AI), virtual reality (VR) and other emerging technologies in its training syllabus. In another event, in April 2019, Indian Navy has inaugurated a new, state-of-the-art Virtual Reality Centre (VRC) to boost its indigenous warship design capabilities.

Introduction

Virtual means 'near or implied' and reality means the state of things as they actually exist, thus virtual reality is nothing but 'near reality'. VR is a simulation of a physical entity into a virtual or imaginary environment that is created using softwares or programs that defy beliefs of a user compelling him/her to accept it as actual reality. Virtual reality is one of the modern technologies which was introduced a few decades back and has taken an important place in the field of technology in a very short time. It makes use of an artificial environment generated by the computer in which simulates the real environment. Besides gaining an immediate acceptance in the world of computer games, it is now being used in many fields of life including architecture, medicine, military and aviation. Scientists and researchers are expecting to explore a lot in this modern technology than what we know about it today. It is a great leap in the field of 3D and a lot of work is still under progress.

We experience the world through our senses and perceptions using our five senses viz. touch, taste, sight, smell and hearing. All this is done with the help of our incredible brain. In simple words, our entire sense of reality is due to the combination of sense making mechanism of the brain and sensory information that we perceive. VR actually exploits and plays with the sensations & perceptions of our brain by simulating an artificial environment which actually doesn't really exists but our brains thinks that it does. It is just like make belief.

Virtual reality is breaking new ground, but augmented reality (AR), still in its early days, may be the true bridge to a world of virtual interfaces. While VR is all about a world created solely on computers or online, AR still deals with the real world and has elements of the virtual world built atop it, akin to layers of information. Mixed reality (MR) mixes both realities (VR and AR) in a bid to capture the best of both worlds. However, for mixed reality to gain traction, we need headsets and mixed reality content too.

Definitions

Virtual Reality can be used as an umbrella term to describe other technologies similar to, but different from, an actual reality experience.

Virtual Reality

VR is the most widely known of these technologies. It is fully immersive, which tricks our senses into thinking we are in a different environment or world apart from the real world. Using a head-mounted display (HMD) or headset, we experience a computer-generated world of imagery and sounds in which we can manipulate objects and move around using haptic controllers while tethered to a console or PC.

Augmented Reality

AR overlay digital information on real-world elements. 'Pokemon GO' is among the best-known examples. Augmented reality keeps the real world central but enhances it with other digital details, layering new strata of perception and supplementing your reality or environment. Current variations of AR use our phone or tablet's camera to detect the real world and overlay 3D objects over it. The most common is the tech used in social apps like Snapchat, that change our face using masks that orient themselves and animate based on the movement of our facial features and muscles.

Mixed Reality

MR brings together real world and digital elements. In mixed reality, we interact with and manipulate both physical and virtual items and environments, using next-generation sensing and imaging technologies. It allows us to see and immerse ourself in the world around us even as we interact with a virtual environment using our own hands—all without ever removing our headset. It provides the ability to have one foot (or hand)

in the real world and the other in an imaginary place, breaking down basic concepts between real and imaginary, offering an experience that can change the way we play game and work today.

Applications of VR

The first thing which comes to our mind when we think about VR is gaming, but applications of VR are not limited to just gaming. We are using this technology in the field of military, healthcare, education, fashion, business, sports, media, engineering, entertainment, scientific visualization, architecture, among others. Some are discussed below:

Education

Education sector has adopted VR for teaching and learning situations. It has the potential to revolutionise learning, retention and content delivery exponentially. One can learn to play musical instruments, fix a computer, and draw a painting in the virtual world. VR-enabled classrooms allow real-time assessment of students with different capacities. There will always be students with different rates of lesson absorption, retention and ability for application. VR can change the way education is served in remote areas. A universal classroom can become a reality. Students can become a part of global education systems and instantly access latest breakthroughs in knowledge, practice and technology.

It is important to understand that it would be incorrect to assume that VR is a threat to mainstream teaching jobs. In truth, VR is not designed as a substitute for the teacher but as a supplement. With it, teaching does not need to take a back seat, nor should it take place in a completely rendered, virtual environment. Augmented reality will allow teachers, trainers, facilitators and institutions the option to insert the digitally rendered VR elements and graphics into the real world to help students attain learning goals more efficiently.

Engineering and Architecture

Virtual reality plays a major role in simulating 3-dimensional models or designs of infrastructures, which can provide a real-life experience of the physical designs of infrastructures beforehand. This is reducing considerable costs and expenses which can be incurred in a prototype. With the help of VR, cars, machines, aeroplanes etc. can be virtually designed and pretested for factors.

Healthcare

There are some incredibly exciting applications for AR in healthcare from allowing medical students to train in AR environments to telemedicine options that enable medical professionals to interact with patients. In critical situations, augmented reality applications can deliver real-time information to the treatment area to support diagnosis, surgery and treatment plans. AccuVein is a handheld device that can scan the vein network of a patient that leads to a 45% reduction in escalations. Surgeons can plan procedures before making the first cut, models can be made of tumors, and AR diagnostic tools can model disease conditions.

Military

One of the fields where virtual reality has been adopted is in the military. It has been adopted by all the three military services – air force, navy and army. VR is being put to different uses in the military. It is used to train soldiers in a simulated battlefield. This gives soldiers the opportunity to learn without the risk of being killed or injured.

They can simulate many kinds of battle field scenarios. All the scenarios include flight simulation, medical administration in the battlefield, virtual boot camps and several other scenarios. Virtual reality can also be used to treat post-traumatic stress. The triggers of the crisis will be simulated for the purpose of the treatment. When the patients are exposed to the triggers often, they will gradually get over the trauma.

Cinemas

A lot of cinemas have adopted VR technology now. They distribute head mounted display units to all viewers for each movie. When the effect of this unit is combined with powerful speakers that have been scattered all over the hall or theatre, it gives serious immersion. Viewers will be engaged and fully immersed in the movie. In fact, they will feel like they are a part of the movie. This is why movies are six times as interesting when viewed through VR head mounted display units. And horror movies are twenty times more real and scarier when watched on virtual reality platform.

Issues and Challenges

Social Impact

There is high level of concern over the negative influences of interactive VR environments towards social implications. The users who are engage in violence VR video games and television in the virtual world may become desensitized to their violent virtual actions and mimic that behavior in real world. There are other issues like people turning their backs on the real world and wander around the synthetic worlds that fulfill their whims. As of now, violence in VR is nearly inevitable but it is still important to address social issues before they result in crisis or harm.

Health and Safety Issues

Ensuring health and safety of users are important. Developers should ensure that advancement in technology do not come at the expense of human

well-being. When experiencing VR, the brain tends to work harder to integrate the unusual stimuli being presented to the different senses. Therefore, VR has power to affect the senses and brain of a user, leading to fatigue or sickness such as dizziness and nausea unlike any other simpler media. It is due to the problems in hardware, low-level software or carelessness of a VR developer who disregards the side effects of the experience on the user. Prolonged repetitive VR movements can lead to fatigue as the interference requires large amounts of muscular effort. VR users have high chances of affecting their tissues.

Cyber Sickness

Cyber sickness is a form of motion sickness that occurs as a result of exposure to VR. It can range from slight headache to an emetic response. Several factors has been identified that may contribute to cyber sickness such as vection, lag, field of view but it is still an undergoing research to identify the specific causes of cyber sickness and to develop methods to alleviate this ailment. Vection is illusion of self-movement in VR which causes conflicts between the visual and vestibular system in the body because the motion is just illusion. Other indirect consequences of VR exposure are as head spinning, postural ataxia, reduced eye-hand coordination, vestibular disturbances and etc.

Virtual Crimes

Speaking of crimes, how are we going to manage the execution of crimes in a virtual world? Today's video game culture is separated by the veil of screens and controllers; titles like 'Grand Theft Auto' may allow a person's avatar to kill and steal, but using thumb gestures to control an onscreen character is much different than executing a stabbing motion or pulling the trigger yourself in a hyper-realistic environment.

Real World Applications

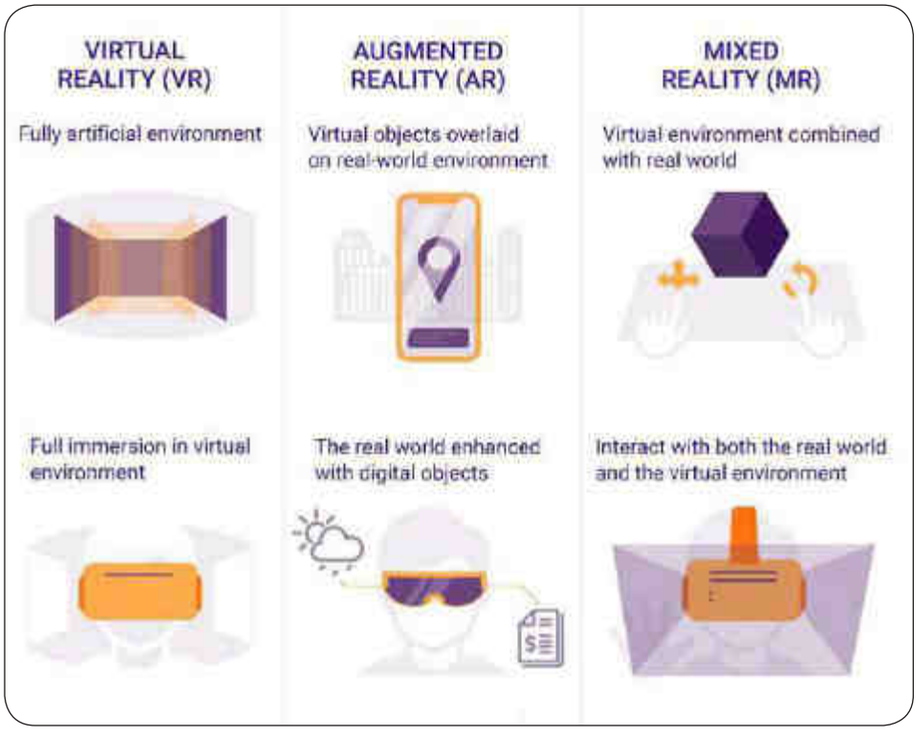
After spending too much time in a virtual environment, it may be difficult for users to return to the real world and behave the same way they did before the virtual experience. They may be desensitized to certain types of violence or interactions, which could damage their social relationships. They may also overestimate their physical abilities, attempting a jump they cannot make or trying a skill they have only perfected in a VR environment.

User Privacy

As with most new technologies, we also need to think about user privacy. Users will be able to take more actions and interact with more types of content than ever before, engaging in behaviors they may avoid in the real world. Who is responsible for ensuring users' privacy, and how could this data be used? Should it be allowed to be given to advertisers, or remain in the individual's control. So without any clear, objectively "correct" answers, how are VR engineers supposed to go about answering these questions?

Way Forward

Virtual reality is the creation of a virtual environment presented to our senses in such a way that we experience it as if we were really there. It uses a host of technologies to achieve this goal and is a technically complex feat that has to account for our perception and cognition. It has both entertainment and serious uses. The technology is becoming cheaper and more widespread. We can expect to see many more innovative uses for the technology in the future and perhaps a fundamental way in which we communicate and work.



General Studies Paper- III

Topic: Science and Technology- developments and their applications and effects in everyday life.

Topic: Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

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2. A CAMPAIGN TO STOP ILLEGAL WILDLIFE TRAFFICKING

Why in News?

On International Day of Biological Diversity celebrated on May 22, UN Environment India and Wildlife Crime Control Bureau (WCCB) of India launched an awareness campaign 'Not All Animals Migrate by Choice' to create awareness and garner public support for the protection and conservation of wildlife, prevention of smuggling and reduction in demand for wildlife products.

Introduction

'Illegal wildlife trafficking (IWT)' describes any environment-related crime that involves the illegal trade, smuggling, poaching, capture or collection of endangered species, protected wildlife (including animals and plants that are subject to harvest quotas and regulated by permits), derivatives or products thereof.

There are many different estimates of the financial value of illicit wildlife trafficking worldwide, however, reliable estimates are hard to find, mainly because the trade is illegal. Unreported and unregulated fisheries trade alone has been estimated at between US$4.2 billion and US$9.5 billion per year, the value of the illegal timber trade as much as US$7 billion per year, and the illicit wildlife trafficking (excluding fisheries and timber) as between US$7.8 billion and US$10 billion per year. Combining these numbers, illicit wildlife trafficking (including timber and fisheries) comprises the fourth largest global illegal trade after narcotics, humans and counterfeit products.

Not AllAnimalsMigrate by Choice

In collaboration with the Airports Authority of India and GMR Group, the campaign will travel across 22 airports across India over the next year. Both WCCB and UN Environment initiated a comprehensive approach with a focus on awareness building of various stakeholders towards the issue of prevention of illegal trade and smuggling of wildlife and wildlife products through exit points. In the first phase of the campaign, tiger, pangolin, star tortoise and tokay gecko have been taken as flagship species as they are highly endangered. The awareness campaign is expected to complement the efforts of the Government Agencies.

Illegal Wildlife Trafficking - A Concern

Former US Secretary of State Hillary Clinton described the illegal wildlife trade in 2012 as 'a global challenge that spans continents and crosses oceans'. This trade can no longer be viewed exclusively as an environmental concern. Although the trafficking of live animals and animal products remains a serious conservation issue, this crime threatens the stability and security of societies involved at every point along the chain. It was the rise in illegal wildlife trade that prompted Mrs Clinton to describe this phenomenon as 'a national security issue, a public health issue, and an economic security issue'.

The illegal wildlife trade involves poachers, armed non-state actors from source nations, international crime groups and institutional corruption across global network chains and a range of players involved in demand countries – from organized crime syndicates and non-state actors to legitimate authorities.

A report titled 'The Environmental Crime Crisis,' which focuses on the consequences of environmental crime, argues that the situation has worsened to the extent that the impacts of illegal wildlife trade are now acknowledged to undermine not only the environmental but also economies, livelihoods, governance, and the rule of law.

Further, the Elephant Action League (EAL) conducted an 18-month undercover investigation into the link between funds of the illegal wildlife trade and the Al-Shabaab terrorist group. Similarly, The National, a newspaper in Dubai, recently reported on how the illegal online wildlife trade was fuelling organised crime in the region.

Drivers for Demand

The demand for wildlife products comes from a number of different consumer groups and is, in some cases, heavily influenced by culture. On one side of the spectrum, there is demand that is fueled by the perceived medicinal value of some products or the social status that is associated with them. On the other side, there is demand that is fueled by opportunistic buying and often ignorant tourists who purchase souvenirs or pets to take home.

For instance, the Indian star tortoise has become the most trafficked tortoise worldwide because of its high demand as a pet. It fetches upwards of Rs25,000 ($358) when smuggled out and sold in the international market. Likewise, the smuggling of the tokay gecko lizard has been on the rise ever since false rumours of it being a cure for AIDS.

Similarly, shark fins, particularly those from highly desirable species, are among the most expensive seafood products in the world, recorded to have retailed at US$400 per kilo in Hong Kong. Demand for shark fins, meat and liver oil, and the gill plates of rays, results in over 100 million sharks killed each year. As a result, global shark populations have declined by an estimated 90% over the last 50 years.

Implications of Illegal Wildlife Trade

- Illicit wildlife trafficking compromises the security of countries. Much of the trade in illegal wildlife products is run by criminal groups with broad international reach, and the profits can be used to finance civil conflicts and terrorist-related activities. Illicit wildlife trafficking is also linked to other forms of illegal trafficking and money-laundering.
- Illicit wildlife trafficking hinders sustainable social and economic development. The corruption that is associated with illicit wildlife trafficking, and the security threat posed by the often violent nature of illegal wildlife product sourcing, deter investment and hinder growth in source, transit and demand countries. They reduce the effectiveness of governments; deter civil engagement; erode the rule of law; harm the reputation of and trust in the state; and affect the growth of local communities.
- Illicit wildlife trafficking destroys natural wealth. Wildlife is considered an important asset by many communities – often the poorest – in the developing world. The illegal exploitation of wildlife is capable of heavily depleting species and, in some cases, of bringing a species close to extinction.
- Illicit wildlife trafficking poses risks to global health. Illicit wildlife trafficking can represent a disease transmission mechanism that threatens the health of humans, livestock and ecosystems, and such trade prevents more effective, regulated and legitimate treatments for disease being sought.

Situation in India

Over the years illegal wildlife trade has emerged as a form of organised transnational crime that has threatened the existence of many wild species across the globe. In India, the trade is expanding rapidly, driven by demand for rare species—headed for the pet market—as well as for species believed to have medicinal properties.A large part of this trade is meant for the international market and has no direct demand in India. The main consumer markets are China and South East Asia, but wildlife—alive or as body parts—is also smuggled to the Gulf, Europe and Northern America. Beyond India, the main transit countries are Nepal, Bangladesh, Bhutan, Sri Lanka and Myanmar.

Indian wildlife species and products commonly smuggled out of the country are tiger and leopard skins, their bones and other body parts, rhino horns, ivory, turtles and tortoises, sea horses, snake venom, mongoose hair, snake skins, tokay gecko, sea cucumber, chiru fleece, musk pods, bear bile, medicinal plants, red sanders timber and caged birds such as parakeets, mynas and munias.

Legal and Statutory Provisions to Curb IWT in India

India's wildlife policies are quite robust. Trade in over 1,800 species of wild animals, plants and their derivative is prohibited under the country's Wildlife (Protection) Act, 1972.

Since 1976, India has also been a member of the Convention on International Trade in Endangered Species of Fauna and Flora, an international agreement that aims to ensure that global trade in specimen of wild animals and plants does not threaten their survival.

Wildlife Crime Control Bureau, statutory multi-disciplinary body, established by the Government of India under the Ministry of Environment and Forests, to combat organized wildlife crime in the country. Under Section 38 (Z) of the Wild Life (Protection) Act, 1972, it is mandated to collect and collate intelligence related to organized wildlife crime activities and to disseminate the same to State and other enforcement agencies for immediate action so as to apprehend the criminals; to establish a centralized wildlife crime data bank; co-ordinate actions by various agencies in connection with the enforcement of the provisions of the Act; assist foreign authorities and international organization concerned to facilitate co-ordination and universal action for wildlife crime control; capacity building of the wildlife crime enforcement agencies for scientific and professional investigation into wildlife crimes and assist State Governments to ensure success in prosecutions related

to wildlife crimes; and advise the Government of India on issues relating to wildlife crimes having national and international ramifications, relevant policy and laws. It also assists and advises the Customs authorities in inspection of the consignments of flora & fauna as per the provisions of Wild Life Protection Act, CITES and EXIM Policy governing such an item.

Further, to bring legal wildlife trade within sustainable levels and stop all illegal wildlife trade that has threatened and even pushed many species towards extinction, TRAFFIC, a wildlife trade monitoring network and a joint programme of WWF, (the global conservation organization) and IUCN, (the International Union for Conservation of Nature) works closely with the National and the State Governments and various agencies to help study, monitor and influence action to curb illegal wildlife trade and bring wildlife trade within sustainable levels.

Why IWT Continues Abated in India?

A lack of knowledge, anonymous e-commerce, greed and low risk-high reward opportunities are coming together in a perfect storm to fuel wildlife crime globally, and India is a major hotspot. While India has a strong legal and policy framework to regulate and restrict wildlife trade,India's biggest challenge is the implementation of laws, due to the paucity of staff among monitoring authorities. The lack of political will and governance failures worsen the situation. Disincentives for over-exploitation and illegal trade, such as penalties for legal infringements are also not strong enough.

There are many bottlenecks in ensuring efficient checks on wildlife trafficking. Among the biggest is the exponentially growing demand for animal trophies in India. The Ministry of Environment, Forest, and Climate Change (MoEFCC) reports a spike in applications from the public for permits to import trophies from African countries such as South Africa, Cameroon, Namibia, and Zimbabwe. While before 2010, there were only a few applications, the number shot up to 250 in 2015. The species that yield trophies are hunted in Africa by Indian hunters and then various parts are imported into India in the form of full animal mounts, shoulder mounts, skulls, skins, horns, scrotum, feet, and hooves. To discourage the practice, the Ministry took a policy decision in 2014 to prohibit the import of trophy articles made of species listed in CITES or lookalikes of any species protected under the Wild Life (Protection) Act, 1972. However, the measure has not been too effective.

Another main reason for the unabated wildlife trafficking across India is its porous international land borders. Native and non-native species are being brought in for illegal trafficking, threatening biodiversity and conservation in the wild.

With coming of ICT revolution, the internet is now fuelling illegal trade of wildlife. As per the MoEFCC, 106 websites are being used for illegal wildlife trade in India. The website list includes Amazon, Quikr, Snapdeal, Ebay and even YouTube.

With regards to the pet trade in India, the Prevention of Cruelty to Animals (Pet Shop) Rules, 2018 was passed to protect animals in the pet trade. The Prevention of Cruelty to Animals (Dog Breeding and Marketing) Rules, 2017 was passed to protect dogs in the breeding process. However, neither of these have been fully-implemented by any state in India. The Prevention of Cruelty to Animals (Aquarium and Fish Tank) Rules, 2017 have been withdrawn by the Government, and fish are openly and rampantly traded with no regard for their lives.

Conclusion

To combat the threat of illegal wildlife trafficking, leaders in the international community – especially from supply and demand countries – need to collectively expand and deepen their levels of cooperation. Better and shared information will position governments to counter this transnational crime more effectively, as will enhancing the design and implementation of national and regional legislation and invoking stricter penalties against illegal traffickers and traders.

According to WWF-India, there is an urgent need for knowledge and action to bring the legal wildlife trade within sustainable levels and stop all illegal trade, which has threatened and even pushed many species towards extinction. Indian government has to do much more to protect and preserve India's wildlife given the enormity and pervasiveness of threat. Climate change, pollution, and loss of forested areas are already wreaking havoc on the ecosystem. Poaching wildlife as well will not only end up killing animals, but also ruin biodiversity, leading to an unbalanced food chain and ultimately threatening all forms of life.

General Studies Paper- III

Topic: Conservation, environmental pollution and degradation, environmental impact assessment.

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3. REDEFINING OF SI UNITS FOR REFINEMENT AND IMPROVEMENT

Why in News?

After decades of ground-breaking laboratory works, the world's scientific and technical community has unanimously adopted the resolution to redefine four of the seven base units, the Kilogram (SI unit of weight), Kelvin (SI unit of temperature), Mole (SI unit of amount of substance) and Ampere (SI unit of current). This decision has now enabled scientists and researchers to base the SI units entirely on fundamental properties of nature, which will ensure their ongoing refinement and improvement for years to come. The fundamental constants are invariants of time and space and successfully replaced the artifact based units and aptly opened up the new era for quantum world by linking all seven base units to fundamental constants/ quantum standards. The new SI has come into force from 20th May 2019 i.e. the World Metrology Day.

Historical Background

Humankind embraced the science of measurement millennia ago, with various civilisations deriving their own units. The Egyptian Pharaohs caused pyramids to be built based on the length of the royal forearm, known as the Royal Cubit. This was kept and promulgated by engineer priests who maintained the standard under pain of death. But the cubit wasn't a fixed unit over time – it was about half a metre, plus or minus a few tens of millimetres by today's measure. The first suggestion of a universal set of decimal measures was made by John Wilkins, in 1668, then Secretary of the Royal Society in London.

The impetus for doing something practical came with the French Revolution. It was the French who defined the first standards of length and mass, with two platinum standards representing the metre and the kilogram on June 22, 1799, in the Archives de la Republique in Paris.

The quest to define units of measurement using constants of nature goes back to the creation of the metric system during the French Revolution. The metric system was created with the intention of liberating the common man and woman from the confusing and inconsistent weights and measures of the Ancien Regime.

It was only in 1875, with the creation of International Bureau of Weights and Measures (BIPM) that measurement began to be standardised internationally. A treaty called Metre Convention was signed among 60 countries, leading to international standards. The original definitions for the most basic units were uncomplicated. Until 1875, the metre was defined as 1/10 million of the distance between the North Pole and the Equator. The Metre Convention adopted a standard artifact (later discarded) — a platinum bar kept in Paris, the international prototype metre. From the metre derives the centimetre, from the centimetre, in turn, derives the litre. Before Le Grand K, the kilogram used to be defined as the mass of one litre of water at freezing point. The second was initially based on the length of a day of 24 hours; in 1956, the standard was set to a fraction of the solar year. It was only in the middle of the 20th century that the more complex definitions began to be adopted. The SI system was adopted in 1960.

New Definitions

Seven main units of measurement are in use at present, including the metre for length, the kilogram for mass, the second for time, the ampere for electric current, the kelvin for temperature, the mole for the amount of a substance and the candela for luminous intensity. As per the recent decision, all SI units will now be defined in terms of constants that describe the natural world. This will assure the future stability of the SI and open the opportunity for the use of new technologies, including quantum technologies, to implement the definitions. The new definitions impact four of the seven base units of the SI: the kilogram, ampere, kelvin and mole; and all units derived from them, such as the volt, ohm and joule.

1. The kilogram -- will be defined by the Planck constant (h).
2. The ampere -- will be defined by the elementary electrical charge (e).

BIPM

The BIPM is an intergovernmental organization established by the Metre Convention, through which Member States act together on matters related to measurement science and measurement standards. It was established under the authority of the General Conference on Weights and Measures (CGPM) and the supervision of the International Committee for Weights and Measures (CIPM). Its vision is to be universally recognized as the world focus for the international system of measurement. As of 14 November 2018, there are 59 Member States and 42 Associate States and Economies. India became a member in 1957.

The objectives of the BIPM are:

- To represent the world-wide measurement community, aiming to maximize its uptake and impact.
- To be a centre for scientific and technical collaboration between Member States, providing capabilities for international measurement comparisons on a shared-cost basis.
- To be the coordinator of the world-wide measurement system, ensuring it gives comparable and internationally accepted measurement results.

3. The kelvin -- will be defined by the Boltzmann constant (k).
4. The mole -- will be defined by the Avogadro constant (NA).

The Kilogram

The kilogram is now defined in terms of the Planck constant, guaranteeing long-term stability of the SI mass scale. The kilogram can be realized by any suitable method, for example the Kibble(watt) balance or the Avogadro (X-ray crystal density) method. Users are able to obtain traceability to the SI from the same sources used as before (the BIPM, national metrologyinstitutes and accredited laboratories). International comparisons will ensure their consistency. The value of the Planck constant was chosen to ensure that there was no change in the SI kilogram at the time of redefinition. The uncertainties offered by NMIs to their calibration customers will also be broadly unaffected.

The Ampere

The ampere and other electrical units, as practically realized at the highest metrological level, have become fully consistent with the definitions of these units. The transition from the 1990 convention to the revised SI has resulted in small changes to all disseminated electrical units. For the vast majority of measurement users, no action need be taken as the volt changed by about 0.1 parts per million and the ohm changed by even less. Practitioners working at the highest level of accuracy will have adjusted the values of their standards and reviewed their measurement uncertainty budgets.

The Kelvin

The kelvin has been redefined with no immediate effect on temperature measurement practice or on the traceability of temperature measurements, and for most users, it will pass unnoticed. The redefinition lays the foundation for future improvements. A definition free of material and technological constraints enables the development of new and more accurate techniques for making temperature measurements traceable to the SI, especially at extremes of temperature. The guidance on the practical realization of the kelvin supports its world-wide dissemination by describing primary methods for measurement of thermodynamic temperature and equally through the defined scales ITS-90 and PLTS-2000.

The Mole

The mole has been redefined with respect to a specified number of entities (typically atoms or molecules) and no longer depends on the unit of mass, the kilogram. Traceability to the mole can still be established via all previously employed approaches including, but not limited to, the use of mass measurements along with tables of atomic weights and the molar mass constant Mu.

Atomic weights are unaffected by this change in definition and Mu is still 1 g/mol, although now with a measurement uncertainty. This uncertainty is so small that the revised definition of the mole does not require any change to common practice.

Remaining Definitions

The revised definitions of the kilogram, ampere, kelvin and mole have no impact on the second, the metre and the candela.

- The second continues to be defined in terms of the hyperfine transition frequency of the caesium 133 atom. The traceability chain to the second is not affected. Time and frequency metrology are not impacted.
- The metre continues to be defined in terms of the speed of light, one of the fundamental constants of physics. Dimensional metrology practice does not need to be modified in any way and will benefit from the improved long-term stability of the system.
- The candela continues to be defined in terms of Kcd, a technical constant for photometry and therefore continues to be linked to the watt. Traceability to the candela is established with the same measurement uncertainty via radiometric methods using absolutely-calibrated detectors.

Kilogram: Biggest Change

The biggest change is to the kilogram. The kilogram has been defined since 1889 by a shiny piece of platinum-iridium kept in a special glass case, the International Prototype of the Kilogram (IPK), also known as Le Grand K. It is made of 90% platinum and 10% iridium and is a cylinder of 39 mm diameter and 39 mm height. Replicas of the IPK are made of the same material and used at BIPM as reference or working standards and national prototype of kilogram (NPK), kept at different National Metrology Institutes (NMIs). NPK further is being utilised through transfer standards of mass to provide unbroken chain of traceability for dissemination of mass through Legal Metrology to the user industries, calibration laboratories etc. The precise and accurate measurements help country in the production of international quality products and help commerce through elimination of the technical barrier to trade.

The IPK was the last physical artifact used to define any of the fundamental units. The problem is, the IPK doesn't always weigh the same. Even inside its three glass bell jars, it picks up microparticles of dirt and is affected by the atmosphere. Sometimes it needs cleaning, which can affect its mass.

That can have profound implications. If the prototype were to lose mass, atoms would, in theory, weigh more since the base kilogram must by definition always weigh a kilogram.

Now, the IPK will be retired. The new definition of a kilogram will be based on three fundamental constants: the speed of light; the cesium atom's natural microwave radiation; and the Planck constant, which describes the size of the packets of energy that atoms and other particles use to absorb and emit energy. The current kilogram mass exerts a specific amount of force in Earth's gravity — in other words, it weighs something. The revised definition replaces this familiar determination of mechanical force with an electromagnetic measurement tied to the Planck constant and based on electrical current and voltage. Using an instrument called a Kibble balance, after its inventor Bryan Kibble, an electric current is generated in a coil to produce a magnetic field strong enough to offset a mass of one kilogram.

Kibble balance, which makes use of the constant to measure the mass of an object using a precisely measured electromagnetic force. Kibble balance is a self-calibrating electromechanical balance and provides the measurements of mass, traceable in terms of electrical parameters and provides linkage of macroscopic mass to the Planck constant (h). The advantages of Kibble balance would be that the NPK need not to be sent to BIPM for calibrations and the accuracy and stability of Kibble balance is very high which is very important where low weights with high accuracies are essential, for example in pharmaceuticals and biotechnologies.

Impact of Changes

- For astronomers calculating the movements of stars and galaxies or for pharmacologists trying to define doses of medications sown to the molecule, the new standard of measurement could change the way they work. But for many metrologists, that day to day work is not necessarily what inspired this change. The metric system was intended to be rational, universal set of units "for all people, for all time".
- This decision has now enabled scientists and researchers to base the SI units entirely on fundamental properties of nature, which will ensure their ongoing refinement and improvement for years to come. The SI unit will finally be truly universal system, free of any human artefacts.
- In India, the Council of Scientific & Industrial Research - National Physical Laboratory (CSIR-NPL) has also prepared documents on:
  - NPL Policy on Metrological Traceability;
  - Recommendations on the proposed changes to be incorporated in the National Council of Educational Research and Training (NCERT) textbooks and implement the new changes to impart cotemporary education to its students;
  - Recommendations on the proposed changes to be incorporated in syllabi of metrology courses in graduate engineering and academic courses being taught in All India Council for Technical Education (AICTE), Indian Institutes of Technology (IITs), National Institutes of Technology (NITs) and other academic institutes.
- The new definition will considerably improve the understanding and elegance of teaching about units. It will open up the way to unlimited improvements in accuracy of measurements; it will improve

greatly the accuracy and extend the possibilities of making accurate measurements at very small and very large quantities.

Way Forward

After the kilogram's definition is changed officially, most people will never notice the difference. It won't change baking ingredients on a kitchen scale, or even have an effect on the tons of goods shipped globally every day. This redefinition is a landmark moment in scientific progress. Using the fundamental constants we observe in nature as a foundation for important concepts, such as mass and time, means that we have a stable foundation from which to advance our scientific understanding, develop new technologies and address some of society's greatest challenges. This redefinition also marked the culmination of decades of work by measurement scientists around the world, the significance of which is immense. We will now no longer be bound by the limitations of objects in our measurement of the world, but have universality accessible units that can pave the way to even greater accuracy and even accelerate scientific advancement.

General Studies Paper- III

Topic: Science and Technology-developments and their applications and effects in everyday life.

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4. THE TEACHINGS OF BUDDHA IN THE 21ST CENTURY

Why in News?

Recently, on May 18, Buddha Purnima was celebrated worldwide. On this day, people celebrate Buddha's choice to embrace a spiritual quest wherein he renounced all worldly pleasures to become a holy man. He chose this life when he witnessed the suffering of common people. He was hence inspired to let go of his royal life. This day is celebrated in accordance to the full moon day of the Vaisakha month of the Buddhist calendar.

Background

Of all the religious preachers of the sixth century BC, Gautama Buddha is the best known. Gautama Buddha or Siddhartha was a contemporary of Mahavira, born in a royal family of the Sakyas at Kapilavastu in the Southern part of present Nepal in the year 566 BC. He renounced the world at the age of twenty nine. He moved from place to place in search of truth for seven years and then attained enlightenment at Bodh Gaya under pipal tree. From this time onwards, he began to be called the Buddha or the enlightened one.

Though his life was spent in royal splendor, it failed to attract the mind of Gautama. As traditions describe, he was deeply affected by the sight of an old man, a sick person, a dead body and an ascetic. The misery of the human life left a deep impact on Gautama. To find a solution to the misery of mankind, he spent years as a wandering ascetic. From a sage called Alara Kalama he learned the technique of meditation and the teachings of the Upnishads. After attaining the supreme knowledge, he proceeded to Sarnath near Varanasi to deliver his first sermon which is known as 'Dharma Chakra Pravartana'(setting in motion the wheel of Dharma). Asvajit, Upali, Magallana, Sariputra and Ananda were the first five disciples of Buddha.

His message laid down the foundation of both Buddhist religion and philosophy which in course of time spread far and wide to Ceylon, Burma, Siam, Tibet, China, Korea, Japan, etc.

Buddhism

The central theme of Buddha's religion is the eight step path (Ashtangika Marg). The first step is the 'proper vision' leading to the realization that the world is full of sorrows caused by desire, greed etc. The second is 'right aim' which seeks to avoid the engagement of the senses and luxury. It aims to love humanity and increase the happiness in others. 'Right speech' is the third step; it implies the practice of truthfulness promoting mutual friendship. 'Right action' includes abstention from killing, stealing and unselfish deeds. 'Right livelihood' instructs a man to live by pure and honest means. 'Right effort' means proper way of controlling one's senses so as to prevent bad thoughts. The seventh step is 'right awareness' or 'right mindfulness' which means understanding the idea that the body is impermanent and meditation is the means for the removal of worldly evils. The last step is 'right concentration' which will lead to removal of evils generated by attachment to the body and the mind. This will lead to peace and unravel the real truth. Anyone who would follow the noble eightfold path would attain 'nirvana' irrespective of his social origin.

Buddhism stood between the two extremes: unrestrained individualistic self-indulgence and equally individualistic but preposterous ascetic punishment of the body. Hence it's steady rise and its name 'The Middle Way'. The moral doctrines of Buddha were simple. He believed that every individual is the maker of his own destiny. We are born time and again to reap the fruits of our Karma'. Good deeds, lead to higher life till salvation is achieved while evil deed hinderour spiritual elevation. One should neither lead a life of luxury nor a life of severe ascetism. The best course to be pursued by an individual is the Middle Path (Madhyama Pratipat or Tatha Grah Marg).

Teachings of Buddha

Lord Buddha emphasized four noble truths to mankind. He said that the world is full of suffering. All sufferings have a cause: desire, ignorance and attachment are the causes of suffering. The suffering could be removed by destroying its cause. In order to end suffering, one must know the right path. This path is the 'Eight Fold Path'.

Buddhism laid emphasis on the law of 'Karma' by which the present is determined by the past actions. If an individual has committed no sins, he is not born again. This is an important part of Lord Buddha's teachings. Buddha preached that the ultimate goal of one's life is to attain Nirvana, the eternal state of peace and bliss, which is free from desire and sorrow, decay or disease and of course from birth and death. Therefore, annihilation of desire is the real problem. Prayers and sacrifices will not end desire nor will rituals and ceremonies as emphasized by Vedic religion but he stressed on moral life of an individual.

The teaching of Buddha put forward a serious challenge to the existing Brahmanical order. Buddha's liberal and democratic approach quickly attracted the people of all sections. His attack on the caste system and the supremacy of the Brahmanas was welcomed by the lower orders. Irrespective of caste, creed and sex,

people were welcomed in the new order. Buddha rejected the authority of the Vedas and condemned animal scarifies. He detested the complex and meaningless rituals. He strongly believed that sacrifices and rituals could neither help a person to wash away his sins nor benefit any sinner by performing various ritualistic practices. The practice of social equality on which Buddhism was based was the call of the day. Buddha understood and preached what masses desired at that time. Thus Buddhism represented the sprit of its age.

However, the teachings of Buddha is not only for the 6th century B.C., but it is a timeless (akalika) teaching, surely it can be practised by the wise during 21st century as well and in many more centuries or millennia to come.

The Four Noble Truths

The Four Noble Truths contain the essence of the Buddha's teachings. It was these four principles that the Buddha came to understand during his meditation under the bodhi tree.

1. The truth of suffering (Dukkha)
2. The truth of the origin of suffering (Samudaya)
3. The truth of the cessation of suffering (Nirodha)
4. The truth of the path to the cessation of suffering (Magga)

The Buddha is often compared to a physician. In the first two Noble Truths, He diagnosed the problem (suffering) and identified its cause. The third Noble Truth is the realisation that there is a cure. The fourth Noble Truth, in which the Buddha set out the Eightfold Path, is the prescription, the way to achieve a release from suffering.

Relevance of Buddhism in Modern World

The Buddha was one of those who were very conscious of the many effects of hatred. He had seen people ruining themselves as a result of hatred. Buddha believed that hatred never ceases by hatred. To the Buddha the only way to solve it is that one party must stop. Loving-kindness, which is the cornerstone of Buddhism, has not been taken by the Buddha as merely a simple ethical principle. He had analysed the principle of loving-kindness into sublime life. A basic concept taught by the Buddha; the four sublime states of mind: Love or Loving-kindness (metta), Compassion (karuna), Sympathetic Joy (mudita), Equanimity (upekkha) provides the answer to all situations arising from social contact. They are great removers of tension, the great peace-makers in social conflict, and the great healers of wounds suffered in the struggle of existence.

In today's increasingly complex and interdependent world, we have to acknowledge the existence of other cultures, different ethnic groups and of course other religious faiths. Whether we know it or not, most of us experience this diversity on a daily basis. The conflicts among various regions such as Syria conflict, Arab Spring, unrest in Africa, etc. are the greatest sources of violence in the world and exist solely to kill human beings. Gautam Buddha's teachings of non-violence and belief in the oneness of humanity, contending that many of the world's problems and conflicts arise because man has left those basic tenets behind. Thus, Buddha's message of non-violence,

Schools of Buddhism

Theravada Buddhism

- Oldest surviving school of Buddhism.
- Considered closest to early Buddhism.
- Emerged from the Third Buddhist Council held under Asoka at Pataliputra (c. 250 BCE).
- Introduced to Sri Lanka by Mahinda, the son of Asoka, during the reign of DevanampiyaTissa.
- Based on the Pali Canon.
- Practiced today in Sri Lanka, Burma, Laos, Cambodia and Thailand.

Mahayana Buddhism

- Flourished from the 5th century CE onwards.
- Patronized by the Gupta dynasty.
- Nalanda University was a centre of Mahayana learning.
- Practiced today in Japan, China, Korea, Singapore and Vietnam.

Vajrayana Buddhism

- Involves tantric practices.
- Became prominent after the fall of the Gupta dynasty.
- Tibetan Buddhism belongs to this tradition.

love and compassion is "extremely relevant" in the current environment of insecurity and unrest.

The Buddha's teachings resonate, to a surprising extent, with a secular outlook. He didn't believe in a creator God or insist on the need for a saviour. He said reality was impermanent and insubstantial, and suggested that our failure to live in accordance with it produces suffering . Then he taught practices like meditation that reshape our minds accordingly. Their continuing relevance is seen in the current popularity of mindfulness practices. These have served centuries of Buddhist practitioners and are now being adopted in secular settings from Parliament to schools as an antidote to our speedy, stressful lives.

Meditation techniques like Vipassana, Yoga can help us to connect with our inner selves. These techniques are an effective way to cleanse our mind and body and equip us to face the stress of modern life.

Today in scientifically and technologically developed age, though there are many amenities, for easy living and pleasure , people are both physically and mentally not satisfied and do not have a feeling of security. In the world today, there are many multinational and multipurpose projects which are vast for the development of countries. But people are not satisfied with what they have. There is no contentment. Craving, grasping, arising and perishing are the main features in the world. Thus Buddhism has an application today because of its timeless relevance, emanating from a set of eternal values.

The ideals of Buddhist philosophy are reflected in the Constitution, especially in the stated principles of equality, fraternity and social justice.

Conclusion

Critiques of modernity say that modern developments have nothing to offer but insecurity and competitiveness as well as tensions and boredom associated with them. Somethimes it appears true. The teachings of Gautam Buddha offer a few very simple and efficacious methods to combat that. His eternal message of non-violence and compassion continues to inspire humanity across the globe to strive towards a more fulfilling life and a world where all people live together and shape it together into a peaceful, inclusive and sustainable globe.

General Studies Paper- IV

Topic: Contributions of moral thinkers and philosophers from India and world.

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5. FULL MAJORITY GOVERNMENT : AN ANALYSIS

Why in News?

In a recently concluded Lok Sabha elections, the Bhartiya Janata Party (BJP) led National Democratic Alliance (NDA) government has become the only non-Congress government to return to power consecutively in the Indian political history. The BJP has won 303 seats and NDA won 352 seats in the 543-member Lower House of Parliament.

As far as Prime Minister (PM) is concerned Narendra Modi, after Jawaharlal Nehru and Indira Gandhi, became the third PM of India who has been able to retain power for a second term with full majority in Lok Sabha.

Background

In the first general election (1952), the Congress had won 398 of 543 seats under the leadership of Prime Minister JawaharLal Nehru. Nehru repeated the feat in 1957, by winning 395 of 537 seats and in 1962, by bagging 394 of 540 seats. After 20 years of Independence, the Congress's hegemony in the country's politics finally started breaking down in 1967 when it lost six state assembly elections. Out of this six, Tamil Nadu and West Bengal was lost by the Congress for the very first time. However, in 1967 elections, Indira Gandhi was able to get 283 seats out of total 520 seats. This was Indira Gandhi's first electoral victory in general elections. In 1969, Indira expelled the old guard of the party, which were called as Congress (O). This section of Congress was led by Morarji Desai. It was during this time that Indira coined the slogan "Garibi hatao", which found a wide emotive appeal among the Indian voters. As a result, she was able to increase her tally to 352 in 1971 elections for her second term. After the Emergency, in 1977, when the sixth Lok Sabha election was held, the Janata Party, formed through the merger of four anti-Congress parties, won 302 seats out of 557. This government, however, was unstable and fresh elections were held in 1980, in which the Congress stormed to power yet again with 377 seats of 566. In 1984, after the assassination of Indira Gandhi, the sympathy wave helped the Congress led by her son Rajiv Gandhi win 426 of 567 seats. After that, from 1989 to 2009, no single party emerged as a winner and all the governments formed were coalitions.

After 30 years, in 2014 NDA led by BJP had taken a clear parliamentary majority in India's national elections with 336 seats, while BJP alone took

282 seats. The party's majority had historic implications and marked the first time a non-Congress party has achieved the feat.

Majority Government vs Coalition Government: An Analysis

According to the conventional wisdom, a single-party government with a strong mandate will have the ability to place economics above politics and pursue the reform agenda that India needs to boost growth. Coalitions are viewed unfavourably – among pundits, financial analysts and armchair economists – as they might let political considerations trump sound economics. India over the years has tested many coalition governments and single party governments. Now the question is not which is good for democracy but how much successful they were in past.

Arguments in favour of Majority Government

Stability

A majority government might not be a panacea for country's problems, but it will certainly correct the many factors that have been hitherto causing the country to lose steam such as political unstability, time taking decision making process, policy paralysis, etc. A majority government took bold decisions like implementation of Goods and Service Tax (GST), demonitisation, implementation of Insolvency and Bankruptcy Code and Fugitive Economic Offenders Act, among others, which were impossible if coalition government was on rule. Thus, a stable government will provide a more conducive environment for a relatively smoother rollout of reforms.

Consistency

A majority government can pursue a consistent government policy throughout the whole term because they don't have to compromise with any other parties. For example, previous government was able to pass 133 bills. Key bills piloted by the finance and social justice ministries were approved by Parliament. These included bills like GST, insolvency and bankruptcy code, Aadhaar, increase in maternity benefit for women, reservation for the economically weaker section and constitutional status for the OBC Commission. However, it was not smooth sailing for the government's legislative agenda. The opposition either successfully blocked or delayed many government bills.

Productivity of Parliament

A majority government can enhance productivity of the Parliament. Parliament is a platform for debating, monitoring progress and making sure that the mandated will and wishes of the people are fulfilled. For example the last five years have seen some work being done on the floor of Parliament – from the number of bills that were tabled and passed to the quality of debate. Even on difficult issues, Parliament came together and delivered.

Economic Growth

A stable and full majority government at the centre can boost the growth of the country and lead to higher foreign fund inflows with the help of bold reforms and decisions. We can put an example of stock market of India. When the results to the Lok Sabha 2019 elections were announced on May 23, Sensex gained over 1,000 points to breach the historic 40,000 mark for the first time while Nifty also surged beyond the 12,000 mark reclaimed the psychologically important 10,500-mark.

According to the experts, a stable government can lead India to become the world's fifth-largest economy in 2019, reaching a total GDP size exceeding US $3 trillion and overtaking the United Kingdom. By 2025, Indian GDP is also forecast to surpass Japan, which will make India the second-largest economy in the Asia-Pacific region.

Policy Paralysis

The majority government can make swift decisions on pressing issues without long and drawn out negotiations. Again we can put the example of GST. GST, which was stuck for almost two decades in a political gridlock, rolled out by previous NDA government in July 2017, which enjoys a clear majority.

Demonitisation is another example of a strong decision taken by clear majority previous NDA government. However, demonitisation is still a matter of debate whether it is successful or not. But its implementation reflects the strong will power and aggresive decisiveness of the majority government.

Argument against Majority Government

But till now, we saw only one side of the picture, another side is open to debate, whether coalition government is effective for the country like India or majortiy governmet. Under this head we will discuss the same.

Conventional wisdom in India supports a single party emerging as the victor in elections and a large party as opposition for the optimal functioning of Parliament and the government. A single-party government reduces the need to make political deals with coalition partners, and the legislative agenda of the government can be passed without any hold-outs. But several regional political parties and experts believe that coalition governments have been found to be far more inclusive than single party majority governments in India. Here we will take some examples.

First, there is the paradox of representation. In our first-past-the-post electoral system, a large majority in Parliament might actually be a reflection of the viewpoint of only a minority of the population. In other words, a strong mandate can coexist with divisive and inefficient policies. The 16th Lok Sabha is a case in point. While it represented the ruling party overwhelmingly, it was less representative of the country on important demographic aspects such as religious, diversity and age.

Second, single-party majorities face no compulsions like to negotiate with opposition and build consensus before Parliament. Historically, single-party governments have had a greater proclivity to expend political capital on policy measures that only hurt the economy. The implementation of demonetisation is a prime example. The previous government embarked on a policy that virtually no credible macroeconomist would have supported. In a coalition government, more rigour would have been applied to the policy to ensure alliance partners' support before implementation.

Third, if a majority government can enhance productivity of the Parliament, it can also undermine the voice of the opposition parties. According to the study, the 16th Lok Sabha was more productive than in the UPA II years, while the Rajya Sabha has been less productive. In this Lok Sabha too many Bills are passed without debate and discussion and without being referred to standing committees for deeper deliberation. Prime example of this is the bill to provide reservations for the economically disadvantaged amongst the general category that was pushed through on the last day of the session, without advance notice and by extending the Rajya Sabha by just a day.

Fourth, comparing the economic performance of coalition governments with single-party governments, a different picture starts to emerge. Average GDP growth rates under single-party majorities, including previous government's growth rates, have not outperformed coalitions. In fact, they are marginally lower than the average growth rates under ruling coalitions. According to the study, the coalition governments, which ruled India for 25 years after 1989, are regarded as a terrible thing politically, they delivered the best economic results, including 1991 economic reforms.

Way Forward

A majority government might not be a panacea for country's problems, but it will certainly correct the many factors that have been hitherto causing the country to lose steam such as political unstability, time taking decision making process, policy paralysis, etc. A majority government took bold decisions which were impossible if coalition government was on rule.

However, democracy is strengthened when there is consensus and discussion. In a democracy like India where consensus is more important than majority rule, majority doesn't give (the government) the right to impose its views. Majority and minority is the last step because we have to promote consensus, debate and discussion.

General Studies Paper- II

Topic: Functions and responsibilities of the Union and ihe States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges there in.

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6. FORENSIC SCIENCE : A TOOL FOR SCIENTIFIC INVESTIGATION

Context

Over the years, the police have been using a variety of tools to aid their investigations from using technology like Call Data Records to DNA tests. Since the past year, the Mumbai police has started using Forensic Facial Reconstruction (FFR) in cases where the face of the body found has been disfigured and there is no other way to identify the person.

Introduction

The term forensic science involves forensic (or forensis, in Latin), which means a public discussion or debate. Forensic science deals with the application of the knowledge and methodology of various disciplines of science to legal matters. It involves the use of multiple disciplines such as physics, chemistry, biology, computer science and engineering for evidence analysis. For instance, physics is used to understand the pattern of a blood spatter, biology to establish the source of an unidentified suspect and chemistry to determine the composition of drugs.

Forensic science is an amalgamation of almost all faculties of knowledge, is an essential and efficient enabler in the dispensation of justice in criminal, civil, regulatory and social contexts.

It includes all well-known techniques such as fingerprint analysis, DNA analysis, ballistic, firearms or explosive culture etc. It helps to convict those guilty of crime as well as can exonerate the innocent.

Modern forensic science has a broad range of applications. It is used in civil cases such as forgeries, fraud or negligence. It can help law enforcement officials determine whether any laws or regulations have been violated in the marketing of foods and drinks, the manufacture of medicines or the use of pesticides on crops. It also can determine whether automobile emissions are within a permissible level and whether drinking water meets legal purity requirements.

Forensic science is used in monitoring the compliance of various countries with such international agreements as the Nuclear Non-Proliferation Treaty and the Chemical Weapons Convention and to learn whether countries are developing secret nuclear weapons programs. However, forensic science most commonly is used to investigate criminal cases involving a victim, such as assault, robbery, kidnapping, rape or murder.

Scope of Forensic Science

The field of forensic science draws from a number of scientific branches. It has become an essential part of the judicial system, as it utilizes a broad spectrum of sciences to achieve information relevant to criminal and legal evidence.

Forensic Biology

Apart from fingerprint analysis, DNA profiling is the other commonly used forensic technique in criminal investigations. DNA being as unique to an individual as fingerprints, help forensic professionals identify or confirm an unidentified person, or to eliminate suspects from a list of accused. The biological evidence most commonly used for DNA profiling includes blood, saliva, semen, skin, urine, and hair. However, DNA fingerprints are usually never used as the single piece of evidence in the court of law.

Forensic Odontology

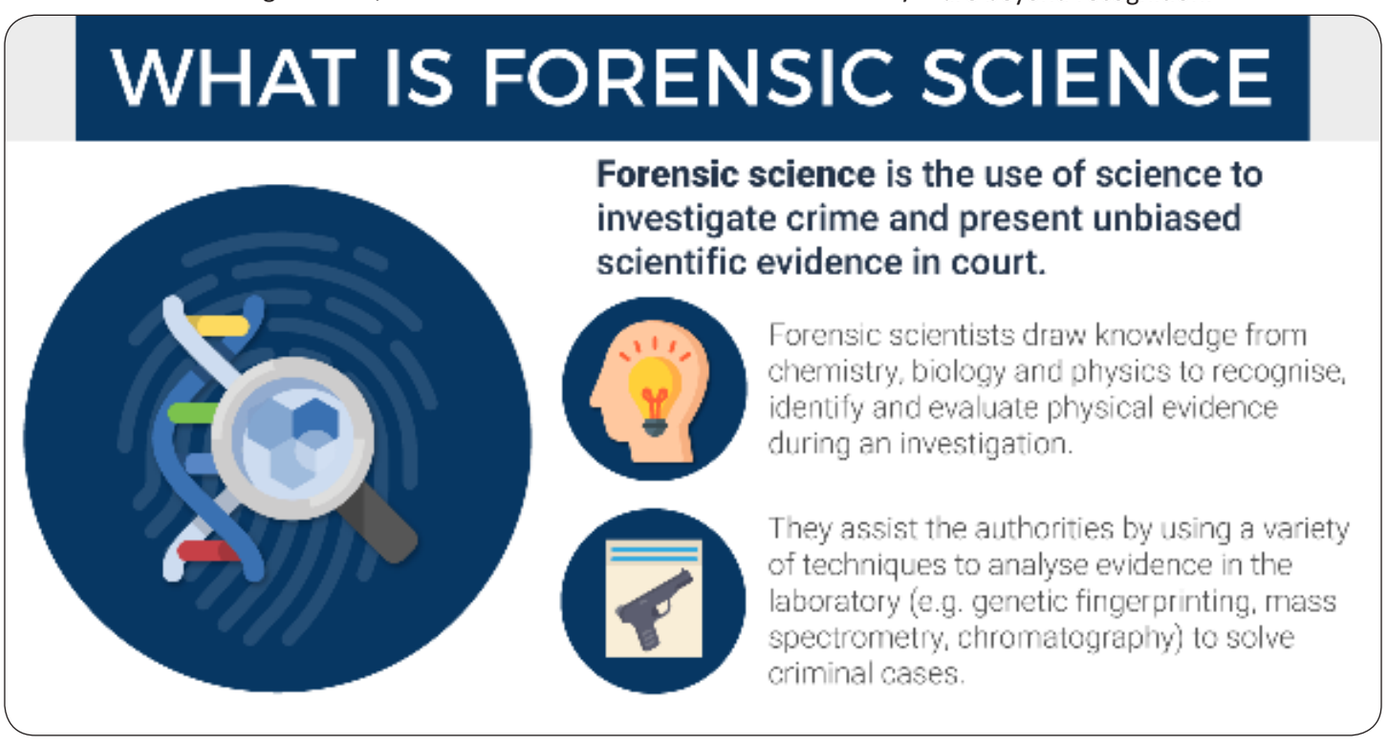
Forensic odontology helps in the identification of victims when the body is left in an unrecognizable state. This is achieved through an examination of their teeth, the alignment and overall structure of the mouth. It is often applied to criminal investigations for bite mark analysis.

Controlled Substances

Chemicals that are legally recognized as having the potential for abuse are called controlled substances. This includes 'street drugs' such as heroin and prescription drugs such as oxycodone. The ability to detect and identify such controlled substances plays a crucial role in aiding law enforcement agencies in their fight against drug abuse and drug-based violence.

Forensic Anthropology

This deals with the examination of compromised human remains or skeletons to determine the age, height, gender and ancestry. It also helps to establish the time since death by identifying and examining injuries, if any. These analyses give valuable leads to investigators on identifying victims, especially in cases where the bodies are beyond recognition.



Forensic Pathology and Medico-legal Death Investigation

Forensic pathology is a branch of pathology that helps to determine the cause of death by examining a corpse. Forensic medicine thus involves the collection and analysis of medical samples to deduce facts admissible in the court of law. For instance, identification of wound patterns can help determine the weapon used to inflict the wound.

Cyber Forensics

Cyber Forensics involves the analysis of evidence found in computers and digital storage media like pen drives hard disks etc. Its major objective is identifying, preserving, recovering, analyzing, and presenting facts and opinions about the digital information. Although it is mostly used for the investigation of cyber-crimes, it also widely used in civil proceedings.

Ballistics

Ballistics is a specialized forensic science that deals with the motion, behavior, dynamics, angular movement and effects of projectiles, such as bullets, rockets, missiles, bombs etc. The use of ballistics in forensics is mainly in criminal investigations. In fact, ballistic details are documented in a large database that is accessible by law enforcement agencies across the globe.

Role of Forensic Science in Legal System

Forensic science involves the collection, preservation, and analysis of evidence suitable for prosecuting an offender in the court of law. The application of forensic science in the criminal justice system therefore, gives a clear picture. The legal system widely recognizes the role of forensic evidence in the trial of criminal offenders. This is because when scientific techniques and methods are used, there is not much scope for bias or injustice. That is why DNA profiling and a host of other forensic evidences are widely accepted in courts across the world.

Criminal Investigation

Forensic science plays a vital role in the criminal justice system by providing scientifically based information through the analysis of physical evidence, the identity of the culprit through personal clues like fingerprint, footprints, blood drops or hair. It links the criminal with the crime through objects left by him at the scene and with the victim or carried from the scene and the victim. On the other hand, if the clues recovered do not link the accused with the victim or the scene of occurrence, the innocence of the accused is established. Forensic science, thus, also saves the innocent. After the emergence of DNA technology as a latest method of forensic science, it provides tremendous amount of information to the investigating officers that enable him to find the criminal purely from evidence which he has left at the scene of crime.

Civil Investigation

While there is no argument that forensics plays a significant role in situations involving violent crimes and murder, often people don't realize the value that forensic techniques have for other types of scenarios. Criminal forensics is only one kind of forensic science; another legal area that can benefit greatly from forensic analyses is civil law. Civil investigation involves disputes between parties where compensation rather than punishment is the focus, including anything from various torts to contract laws to property laws to paternity suit. Just as in criminal law, civil law needs evidence to prove a case.

Many types of evidence found in civil cases can been analyzed and interpreted in the same fashion as criminal evidence. In short, forensic science is simply utilizing methodologies to evaluate evidence and determine facts about that evidence, whether it's criminal or civil.

Legal Provision

In India, the application of forensic science to crime investigation and trial has to stand the limitation of law.

- Article 20 (3) of the Constitution of India guarantees fundamental right against self-incrimination and guards against forcible testimony of any witness. The fundamental right guaranteed under Article 20 (3) is a protective umbrella against testimonial compulsion in respect of persons accused of an offence to be witness against themselves. The protection is available not only in respect of evidence given in a trial before Court but also at previous stage. The protection against self-incrimination envisaged in Article 20 (3) is available only when compulsion is used and not against voluntary statement, disclosure or production of document or other material.
- Under Indian Evidence Act, 1872, forensic report is considered as opinion tendered by expert. An expert may be defined as a person who, by practice and observation, has become experienced in any science or trade. He is one who has devoted time and study to a special branch of learning, and is thus especially skilled in that field wherein he is called to give his opinion. The real function of the expert is to put before the court all the materials, together with reasons which induce him to come to the conclusion, so that the court, although not an expert, may form its own judgment by its own observation of those materials. The credibility of an expert witness depends on the reasons stated in support of conclusion and the tool technique and materials, which form the basis of such conclusion. However, the court is free to

disagree with the conclusions drawn by the expert and rely on other evidences for the purpose of decision.

However, the National Draft Policy on Criminal Justice Reforms has suggested that Indian Evidence Act needs to be amended to make scientific evidence admissible as 'substantive evidence' rather than 'opinion evidence' and establish its probative value, depending on the sophistication of the concerned scientific discipline.

Restrictive use of Forensic Evidence in Indian Legal Scenario

The most important function of scientific investigation is to convert suspicion into reasonable certainty of either guilt or innocence. However, till recently, the courts had to rely heavily on the non-scientific evidences because of the non-availability of proper technologies. According to the Ministry of Women and Child Development, there is no forensic analysis in 13,000 rape cases every year as the country's laboratories lacked the capacity. Forensic labs in the whole country are able to conduct analysis of 3,000 cases only out of 16,000 rape cases each year.

The reasons for reluctance of courts to use forensic evidence in criminal investigation are various. Mismanagement of physical evidence, including improper collection, preservation, non-collection of clue evidence, non-maintenances of chain of custody, as well as delayed dispatch of physical evidence for scientific analysis has been repeatedly commented upon by the courts.

Sometimes scientific evidence suffers from some kind of technical lacunas such as non-mention of blood group in report, tests were not done meticulously, no supportive data were provided by the expert along with report, delayed examination of exhibits at the laboratory, etc. Delayed examination of exhibits at the laboratory can turn the merit of a case into a negative version.

Other Challenges

Modern techniques of investigation are an area still unknown to the police. They are not taught about them. The police are accused of investigating crimes by using traditional methods and techniques. It has been maintained that improper scientific knowledge with the investigation officer, the first respondent to the crime coupled with improper handling of scene of crime, may either contaminate the samples required to be tested or destroy the evidentiary value, which could be obtained on proper lifting, sealing, forwarding for examination.

In India, a serious concern is also about the independence of forensic labs and its self-regulation. The state and central forensic science laboratories are under the direct administrative control of the law enforcement authorities. Forensic science institutions are part of police setup and therefore, cannot maintain absolute independence at all levels.

Forensic labs lack the necessary manpower and infrastructure. They are staff served. Sometimes proper infrastructure and equipments are missing. They lack proper funding also. Surprisingly, there is also a lack of co-ordination between these two wings, i.e. forensic expert and police.

Way Forward

As the new age crime methods has grown more complex, the scientific foundation of some currently available forensic science methods needs strengthening because reliable and valid forensic science analytic techniques are critical to a credible, fair and evidence-based criminal justice system. These needs can only be met through sustained research programs explicitly designed to ensure and improve the reliability and validity of current methods and to foster the development and use of new and better techniques.

General Studies Paper- III

Topic: Science and Technology- developments and their applications and effects in everyday life.

Topic: Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

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7. WOMEN'S PARTICIPATION IN INDIAN POLITICS : A LONG WAY TO GO

Why in News?

The 17th Lok Sabha has 78 women Members of Parliament (MPs). This is the highest number of women representatives ever. They will account for 14.39% of the entire strength of the Lok Sabha, which was at 12.5% with a total 65 women MPs in the previous Lok Sabha.

Introduction

India ranks 153 out of 190 nations in the percentage of women in the lower house of world parliaments. According to a list compiled by the Inter-Parliamentary Union, Rwanda ranks first with 61% of its lower house representatives being women.

In more than six decades till 2018, as women's share in India's population remained at 48.5%, the share of women MPs increased only to 14.39% between the first (1952) and the 17th Lok Sabha (2019). As per data compiled by Association for Democratic Reforms, with 40 women MPs, BhartiyaJanata Party (BJP) has sent the largest number of elected women representatives to Lok Sabha. It is followed by Trinamool Congress (TMC) (9), Congress (6), BJD (5) and YSRCP (4). However, it is the regional parties that boast of a higher ratio of women MPs to their total MPs in the new Lok Sabha. Women account for 41.6% of BJD's total strength in Lok Sabha and 40.9% of TMC's strength in the House. TMC and BJD had pledged to give tickets to 40% and 30% of party candidates before the elections started. As far as the national parties are concerned, women MPs account for a mere 13.28% of the total winning candidates of BJP and 11.76% of that of Congress. Women candidates also displayed a higher winnability factor. The 78 elected women MPs emerged winners out of the total 716 women candidates who fought during the 2019 Lok Sabha elections, which is a success rate of 10.89%. This is much higher than the success rate shown by male candidates of 6.41% with 462 male candidates winning out of the total 7,207 men who fought for a Lok Sabha seat this election season.

The representation of women in state assemblies is also lower. According to the 2017 data released by the Ministry of Statistics and Programme Implementation, over five years to 2017, female representation in state assemblies was the highest in Bihar, Haryana and Rajasthan (14%); while Mizoram, Nagaland and Puducherry had no elected women representatives in their assemblies. The national average of women in state assemblies and state councils (upper house of the state legislatures) was 9% and 5%, respectively.

As far as the representation of women in three tier panchayati raj system, women constitute around 44 per cent of the total grassroots elected representatives and 43 per cent of the elected heads of villages.

So these figure are indicating that women are still facing a number of challenges for their engagement in political spaces such as inadequate education, lack of financial independence, burden of productive and reproductive roles and opposition stemming from entrenched patriarchal views among others.

Reasons behind Low Participation

Despite a constitutional provision that reserves one-third of seats for women in village governments and after almost 70 years of universal suffrage, women's participation have been historically low in Indian politics. Low representation of women in the legislature can be traced to the patriarchal structure of Indian politics. However other reasons are also present such as lack of reservation for women in Parliament and state assemblies, unwillingness among political parties to give tickets to women, a general lack of awareness of electoral politics among women and the lack of family support among others.

Economic Survey 2017-18 also highlighted various factors that determine women's participation in public services, especially in societies that follow patriarchal norms and prejudices. These factors are domestic responsibilities; prevailing cultural attitudes regarding roles of women in society and lack of support from family were among main reasons that prevented them from entering politics.

Gender roles have become major obstacles in women's political empowerment. Traditional division of labour, illiteracy, economic barriers, the type of electoral system, lack of sufficient training etc. have been keeping women away from politics. Apart from this, elections have become a very costly affair. Women are not able to generate large amount of money required to fight elections. Centralization of powers and corruptions has become major obstacles for women to participate in politics.

Further the political participation has been primarily perceived as belonging to the private or the private realm. This perception has influenced women's attitudes towards politics and political participation and created hesitancy among women to involve themselves with "what was perceived as politics". Hence, the women are just not interested in politics.

Max Weber, the German sociologist, spoke of politics as vocation and represented it as a male profession. Therefore, women's access to political office is hampered by the belief that a woman cannot hold a difficult job. Women in the political affairs face peculiar problems that are unknown to their male counterparts. Variety of reasons account for women's diminished role in their political arena. They include tradition, physiology, and lack of vertical mobility, psychology and lack of patronage, particularly senior women politicians.

Benefits of Women's Political Participation

As per the 2018 study by the United Nations University World Institute for Development Economics Research, there is evidence of significantly higher growth in economic activities in constituencies that elect women. It examined data for 4,265 state assembly constituencies-over two decades to 2012-where the share of state legislative assembly seats won by women increased from about 4.5% to close to 8% and focussed on the increase of luminosity, or night light, in these constituencies as a proxy for economic activity. In constituencies run by women, this growth was 15.25 percentage points higher than those run by men, which translated to a 1.85% rise in the gross domestic product (GDP) growth compared to constituencies that voted for men. This is because women legislators are likely to be less criminal and corrupt, more efficient and less vulnerable to political opportunism or attempts by politicians (mostly male) to stay in power.

Analysing the affidavits of elected MLAs, the study found that while, overall, men are twice as likely to have criminal charges pending against them and this was significantly higher for elected male MLAs compared to women. Women MLAs were also, on average, also younger. The study also found the annual rate at which women MLAs accumulate assets while in office is 10 percentage points lower than it is for men. These findings align with experimental evidence that women are fairer, more risk-averse, and less likely to engage in criminal and other risky behaviour than are men.

While male and female politicians are both likely to attract federally funded road building projects in their constituencies, women MLAs are more likely to oversee completion, the study's data showed. The share of incomplete road projects in constituencies run by women was 22 percentage points lower than those run by men. The study did not find any significant difference in the size or cost of projects undertaken, suggesting women are more effective at completing projects.

The another 2018 study on the impact of women's reservation on policy making in villages of West Bengal and Rajasthan revealed that village councils inWest Bengal reserved for women, on average, invested in nine more drinking water facilities and improved road conditions by 18%. The study found that women constituents were more concerned about issues like water supply and road connectivity than men. In Rajashthan, village councils reserved for women invested in 2.62 more drinking water facilities, on average, and made fewer improvements in road conditions.

Constitutional Provisions for Women

In the preamble of the Indian Constitution, in the Fundamental Rights, in the Fundamental Duties and in the Directives Principles, the provisions of gender equality are enshrined. The following are the various provisions in the constitution which ensures equality between men and women. Article 14 provides for equality before law; Article 39 (a) guarantees right to an adequate means of livelihood for all citizens; Article 39 (b) guarantees equal pay for equal work for both men and women; Article 42 guarantees just and humane condition of work and maternity relief. This is in accordance with Article 23 and 25 of Universal Declaration of Human Rights and Article 51A (e) refers to the fundamental duty of citizens to renounce practices derogatory to the dignity of women.

At the local level the 73rd and 74th Constitutional Amendment Act, of 1992 have made two important provisions for the involvement of women in decision making and preparation of plan for development. These Amendments have made a provision that at least one-third of women would be members and chair persons of panchayats and urban local bodies.

Article 243D (3) of the Constitution of India provides that not less than one third of the total number of seats be reserved for women. Further, Article 243 D (4) of the Constitution of India provides that not less than one third of the total offices of Chairpersons in Panchayats at each level shall be reserved for women.

Initiatives of Government for Women's Political Empowerment

Empowerment of women in all spheres, in particular the political sphere is critical for their advancement and the foundation of a gender-equal society. Women's political empowerment is premised on "three fundamental and non-negotiable principles: (a) the equality between women and men; (b) Women's right to the full development of their potentials; and (c) women's right to selfrepresentation and self-determination". The Government of India has declared the year 2001 as year for the Empowerment of Women, but the struggle to reach this stage has been long and arduous.

The political participation and grassroots democracy have been strengthened considerably by the 73rd and 74th Constitutional Amendments that have created new democratic institutions for local governance. However, a few states have gone beyond the mandated 33 per cent and provided more reservation for women. For instance Bihar, Madhya Pradesh, Uttarakhand and Rajasthan have reserved 50 per cent seats for women in panchayats and Sikkim has reserved 40 per cent seats for women. Women have, however, not found adequate representation in Parliament.

Further, for leadership development and to address women's issues at village levels, 'Mahila Shakti Kendra' scheme has been launched at the village level. Over three hundred thousand student volunteers are being sent out in 115 most backward districts under this new scheme. District Level Centres for Women are also being set up in 640 districts under this scheme, which will provide convergence at the district level for all initiatives related to women.

Besides, 'NaiRoshni', a leadership development programme, is also operational for benefiting the women belonging to minority communities.

The Constitution (108th Amendment) Bill, 2008

Commonly known as the Women's Reservation Bill, it seeks to reserve one-third of all seats for women in the Lok Sabha and the state legislative assemblies. Introduced by the UPA-I government in May 2008, it also provides that one third of the total number of seats reserved for Scheduled Castes and Scheduled Tribes shall be reserved for women of those groups. However, it has been pending for passage in Parliament for the past ten years. Similar Bills have been introduced thrice before in the late 90's but lapsed with the dissolution of their respective Lok Sabhas.

Key Issues and Analysis

There are divergent views on the reservation policy. Proponents stress the necessity of affirmative action to improve the condition of women. Some recent studies on panchayats have shown the positive effect of reservation on empowerment of women and on allocation of resources.

Opponents argue that it would perpetuate the unequal status of women since they would not be perceived to be competing on merit. They also contend that this policy diverts attention from the larger issues of electoral reform such as criminalisation of politics and inner party democracy.

Reservation of seats in Parliament restricts choice of voters to women candidates. Therefore, some experts have suggested alternate methods such as reservation in political parties and dual member constituencies.

Rotation of reserved constituencies in every election may reduce the incentive for an MP to work for his constituency as he may be ineligible to seek re-election from that constituency.

The report examining the 1996 Women's Reservation Bill recommended that reservation be provided for women of Other Backward Classes (OBCs) once the Constitution was amended to allow for reservation for OBCs. It also recommended that reservation be extended to the Rajya Sabha and the Legislative Councils. Neither of these recommendations has been incorporated in the Bill.

Way Forward

Despite the increasing trend of women's representation in political sphere of India, there is a need for more representation of women in decision making process in the country. The strengthening the roles of women in decision making process in the society are critical to strengthen women's agencies for building a progressive society with equality of opportunities among all citizens. Political parties should come forward to increase women representatives.

As far as Women Reservation Bill is concerned it should not just be confined to time of elections. It should be in fact part of political discourse throughout. So that it has to be passed soon in the Parliament.

General Studies Paper- I

Topic: Role of women and women's organizations, Population and associated issues, Poverty and developmental issues, Urbanization, their problems and their remedies.

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SEVEN SUBJECTIVE QUESTIONS WITH MODEL ANSWERS

A world of Virtual Realty : An Understanding

Q1. What do you understand by 'virtual reality'? Discuss the issues and challenges related to it.

Hints:

- VR is the most widely known of these technologies. It is fully immersive, which tricks your senses into thinking you're in a different environment or world apart from the real world. Using a head-mounted display (HMD) or headset, you'll experience a computer-generated world of imagery and sounds in which you can manipulate objects and move around using haptic controllers while tethered to a console or PC.
- There is high level of concern over the negative influences of interactive VR environments towards social implications. The users who are engage in violence VR video games and television in the virtual world may become desensitized to their their violent virtual actions and mimic that behavior in real world.
- Cyber sickness is a form of motion sickness that occurs as a result of exposure to VR. It can range from slight headache to an emetic response. Several factors has been identified that may contribute to cyber sickness such as vection, lag, etc.
- Speaking of crimes, how are we going to manage the execution of crimes in a virtual world? Today's video game culture is separated by the veil of screens and controllers; titles like 'Grand Theft Auto' may allow a person's avatar to kill and steal, but using thumb gestures to control an onscreen character is much different than executing a stabbing motion or pulling the trigger yourself in a hyper-realistic environment.
- After spending too much time in a virtual environment, it may be difficult for users to return to the real world and behave the same way they did before the virtual experience. They may be desensitized to certain types of violence or interactions, which could damage their social relationships.

A Campaign to Stop Illegal Wildlife Trafficking

Q2. "Poaching wildlife will not only end up killing animals, but also ruin biodiversity, leading to an unbalanced food chain and ultimately threatening all forms of life." Discuss.

Hints:

- The illegal wildlife trade involves poachers, armed non-state actors from source nations, international crime groups and institutional corruption across global network chains and a range of players involved in demand countries – from organized crime syndicates and non-state actors to legitimate authorities.
- Illicit wildlife trafficking destroys natural wealth. Wildlife is considered an important asset by many communities – often the poorest – in the developing world. The illegal exploitation of wildlife is capable of heavily depleting species and, in some cases, of bringing a species close to extinction.
- Illicit wildlife trafficking poses risks to global health. Illicit wildlife trafficking can represent a disease transmission mechanism thatthreatens the health of humans, livestock and ecosystems, and such trade prevents more effective, regulated and legitimate treatments for disease being sought.
- There is an urgent need for knowledge and action to bring the legal wildlife trade within sustainable levels and stop all illegal trade, which has threatened and even pushed many species towards extinction. Indian government has to do much more to protect and preserve India's wildlife given the enormity and pervasiveness of threat.
- Climate change, pollution, and loss of forested areas are already wreaking havoc on the ecosystem. Poaching wildlife as well will not only end up killing animals, but also ruin biodiversity, leading to an unbalanced food chain and ultimately threatening all forms of life.

Redefining of SI Units for Refinement and Improvement

Q3. The world's scientific and technical community has redefined four of the seven base units, the kilogram, Kelvin, mole and ampere. Discuss the impact of changes.

Hints:

- The world's scientific and technical community has unanimously adopted the resolution to redefine four of the seven base units, the kilogram, Kelvin, mole and ampere.
- The new definitions impact four of the seven base units of the SI: the kilogram, ampere, kelvin and mole; and all units derived from them, such as the volt, ohm and joule.The kilogram will be defined by the Planck constant (h), the ampere will be defined by the elementary electrical charge (e), the kelvin will be defined by the Boltzmann constant (k) and he mole will be defined by the Avogadro constant (NA).
- For astronomers calculating the movements of stars and galaxies or for pharmacologists trying to define doses of medications sown to the molecule, the new standard of measurement could change the way they work. But for many metrologists, that day to day work is not necessarily what inspired this change. The metric system was intended to be rational, universal set of units "for all people, for all time".
- The new definition will considerably improve the understanding and elegance of teaching about units. It will open up the way to unlimited improvements in accuracy of measurements; it will improve greatly the accuracy and extend the possibilities of making accurate measurements at very small and very large quantities.

The Teachings of Buddha in the 21st Century

Q4. Discuss the relevance of the teachings of Buddha in the 21st century.

Hints:

- Lord Buddha emphasized four noble truths to mankind. He said that the world is full of suffering. All sufferings have a cause: desire, ignorance and attachment are the causes of suffering. The suffering could be removed by destroying its cause. In order to end suffering, one must know the right path. This path is the 'Eight Fold Path'.
- In today's increasingly complex and interdependent world, we have to acknowledge the existence of other cultures, different ethnic groups and of course other religious faiths. Whether we know it or not, most of us experience this diversity on a daily basis. The conflicts among various regions such as Syria conflict, Arab Spring, unrest in africa, etc. are the greatest sources of violence in the world and exist solely to kill human beings.
- In the world today, there are many multinational and multipurpose projects which are vast for the development of countries. But people are not satisfied with what they have. There is no contentment. Craving, grasping, arising and perishing are the main features in theworld. Thus Buddhism has an application today because of its timeless relevance, emanating from a set of eternal values.
- Modern developments have nothing to offer but insecurity and competitiveness as well as tensions and boredom associated with them. The teachings of Gautam Buddha offer a few very simple and efficacious methods to combat that.

Full Majority Government : An Analysis

Q5. "Conventional wisdom in India supports a single party emerging as the victor in elections and a large party as opposition for the optimal functioning of Parliament and the government." Critically analyse.

Hints:

- Conventional wisdom in India supports a single party emerging as the victor in elections and a large party as opposition for the optimal functioning of Parliament and the government. A single-party government reduces the need to make political deals with coalition partners, and the legislative agenda of the government can be passed without any hold-outs. But several regional political parties and experts believe that coalition governments have been found to be far more inclusive than single party majority governments in India.
- A majority government might not be a panacea for country's problems, but it will certainly correct the many factors that have been hitherto causing the country to lose steam such as political unstability, time taking decision making process, policy paralysis, etc.
- A stable and full majority government at the centre can boost the growth of the country and lead to higher foreign fund inflows with the help of bold reforms and

decisions.The majority government can make swift decisions on pressing issues without long and drawn out negotiations.

- Single-party majorities face no compulsions like to negotiate with opposition and build consensus before Parliament. Historically, single-party governments have had a greater proclivity to expend political capital on policy measures that only hurt the economy.
- Comparing the economic performance of coalition governments with single-party governments, a different picture starts to emerge. Average GDP growth rates under single-party majorities, including previous government's growth rates, have not outperformed coalitions. In fact, they are marginally lower than the average growth rates under ruling coalitions.

Forensic Science : A Tool for Scientific Investigation

Q6. What do you understand by 'forensic science'? Discuss its role in legal system and challenges associated with it.

Hints:

- Forensic science includes all well-known techniques such as fingerprint analysis, DNA analysis, ballistic, firearms or explosive culture etc. It helps to convict those guilty of crime as well as can exonerate the innocent.
- The field of forensic science draws from a number of scientific branches such as Forensic Biology, Forensic Odontology, Controlled Substances, Forensic Anthropology, Forensic Pathology and Medico-legal Death Investigation, Cyber Forensics and Ballistics.
- Forensic science involves the collection, preservation, and analysis of evidence suitable for prosecuting an offender in the court of law. The application of forensic science in the criminal justice system therefore, gives a clear picture. The legal system widely recognizes the role of forensic evidence in the trial of criminal offenders.
- The reasons for reluctance of courts to use forensic evidence in criminal investigation are various. Mismanagement of physical evidence, including improper collection, preservation, non-collection of clue evidence, non-maintenances of chain of custody, as well as delayed dispatch of physical evidence for scientific analysis has been repeatedly commented upon by the courts.
- In India, a serious concern is also about the independence of forensic labs and its self-regulation. The state and central forensic science laboratories are under the direct administrative control of the law enforcement authorities. Forensic science institutions are part of police setup and therefore, cannot maintain absolute independence at all levels.

Women's Participation in Indian Politics : A Long Way to Go

Q7. "Despite the increasing trend of women's representation in political sphere of India, there is a need for more representation of women in decision making process in the country." Critically discuss.

Hints:

- The 17th Lok Sabha has 78 women Members of Parliament (MPs). This is the highest number of women representatives ever. They will account for 14.39% of the entire strength of the Lok Sabha, which was at 12.5% with a total 65 women MPs in the previous Lok Sabha.
- Economic Survey 2017-8 also highlighted various factors that determine women's participation in public services, especially in societies that follow patriarchal norms and prejudices. These factors are domestic responsibilities; prevailing cultural attitudes regarding roles of women in society and lack of support from family were among main reasons that prevented them from entering politics.
- As per the 2018 study, there is evidence of significantly higher growth in economic activity in constituencies that elect women. In constituencies run by women, this growth was 15.25 percentage points higher than those run by men, which translated to a 1.85% rise in the gross domestic product (GDP) growth compared to constituencies that voted for men. This is because women legislators are likely to be less criminal and corrupt, more efficient and less vulnerable to political opportunism or attempts by politicians (mostly male) to stay in power.
- Despite the increasing trend of women's representation in political sphere of India, there is a need for more representation of women in decision making process in the country. The strengthening the roles of women in decision making process in the society are critical to strengthen women's agencies for building a progressive society with equality of opportunities among all citizens. Political parties should come forward to increase women representatives.
- As far as women reservation bill is concerned it should not just be confined to time of elections. It should be in fact part of political discourse throughout. So that it has to be passed soon in the Parliament.

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SEVEN IMPORTANT NEWS

1. DRDO has test fired Guided Bomb

The Defence Research and Development Organisation (DRDO) has successfully test fired an indigenously-developed 500 kg inertially-guided bomb from Su-30 MKI Aircraft at the Pokhran test range in Rajasthan. The bomb hit its target at 30 km with high precision. According to the Ministry of Defence, all the mission objectives have been met during the test firing of the bomb, adding it is capable of carrying different warheads.

What is Guided Bomb?

A guided bomb is also known as a smart bomb or guided bomb unit (GBU). It is a precision-guided munition designed to achieve a smaller circular error probable (CEP). Because the damage effects of explosive weapons fall off with distance according to a power law, even modest improvements in accuracy (and hence reduction in miss distance) enable a target to be effectively attacked with fewer or smaller bombs. Therefore, with guided weapons, fewer air crews are put at risk, less ordnance spent, and collateral damage reduced. The creation of precision-guided munitions resulted in the retroactive renaming of older bombs as unguided bombs or "dumb bombs".

A smart bomb has an electronic sensor system, a built-in control system (an onboard computer), a set of adjustable flight fins and a battery.

About DRDO

DRDO was formed in 1958 from the amalgamation of the then already functioning Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) with the Defence Science Organisation (DSO). It is engaged in developing defence technologies covering various disciplines, like aeronautics, armaments, electronics, combat vehicles, engineering systems, instrumentation, missiles, advanced computing and simulation, special materials, naval systems, life sciences, training, information systems and agriculture. ■

2. Masala Bonds

The Kerala Infrastructure Investment Fund Board has issued 'Masala Bonds' to raise funds from the overseas market.

What are Masala Bonds?

Masala Bonds are rupee-denominated bonds i.e the funds would be raised from overseas market in Indian rupees. According to Reserve Bank of India, any corporate, body corporate and Indian bank is eligible to issue Rupee denominated bonds overseas. While companies can raise funds through these bonds, there are limitations for the use of such proceeds.

Limitations

RBI mandates that the money raised through such bonds cannot be used for real estate activities other than for development of integrated township or affordable housing projects.

It also can't be used for investing in capital markets, purchase of land and on-lending to other entities for such activities as stated above.

Where can these bonds be issued and who can subscribe?

The Rupee denominated bonds can only be issued in a country and subscribed by a resident of such country that is a member of financial action task force and whose securities market regulator is a member of International Organisation of Securities Commission. While residents of such countries can subscribe to the bonds, it can also be subscribed by multilateral and regional financial institutions where India is a member country.

What is the minimum maturity of such bonds?

According to RBI, the minimum maturity period for Masala Bonds raised up to Rupee equivalent of USD 50 million in a financial year should be 3 years and for bonds raised above USD 50 million equivalent in INR per financial year should be 5 years. The conversion for such bonds will happen at the market rate on the date of settlement of transactions undertaken for issue and servicing of the bonds, including its redemption.

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3. Remains of 20,000 year old Seawater from Ice Age found in Indian Ocean

In a first, scientists from the University of Chicago have discovered the remnants of seawater dating back to the Ice Age, tucked inside rock formations in the middle of the Indian Ocean. Researchers made the discovery on a months-long scientific mission exploring the limestone deposits that form the Maldives.

The ship, the JOIDES Resolution, is specifically built for ocean science and is equipped with a drill that can extract cores of rock over a mile long from up to three miles beneath the seafloor. The scientists were actually studying those rocks to determine how sediments are formed in the area, which is influenced by the yearly Asian monsoon cycle. However, when they extracted the water, they noticed their preliminary tests were coming back salty–much saltier than normal seawater. Further studies showed that the water was not from today's ocean, but the last remnants of a previous era that had migrated slowly through the rock. Scientists are interested in reconstructing the last Ice Age because the patterns that drove its circulation, climate and weather were very different from today's. The properties of the seawater found in the Maldives suggests that salinity in the Southern Ocean may have been more important in driving circulation than it is today.

The findings may also suggest places to search for other such pockets of ancient water.

■

4. Ozone Depleting Chemical - CFC-11

According to a new study, there has been a rise in the emission of an illegal greenhouse gas that destroys the earth's ozone layer and China is responsible for "a substantial fraction" of that increase.

Key Highlights

China accounted for 40% to 60% of the global increase in trichlorofluoromethane (CFC-11), emissions between 2014 and 2017.

China has the world's largest polyurethane foam market, accounting for about 40 per cent of the world's consumption. According to Environmental Investigation Agency (EIA), the Chinese foam manufacturers have been using CFC-11 illegally to save on the higher cost of alternatives, such as hydrochloro-fluorocarbons like HCFC-141b, which is to be phased out in China by 2026.

The hole in the ozone is on the path to recovery according to the World Meteorological Organization's (WMO's) assessment; and reduction in the atmospheric concentration of CFC-11 has made the second-largest contribution to the decline in the total atmospheric concentration of ozone-depleting chlorine since the 1990s. But this gas still contributes one-quarter of all chlorine reaching the stratosphere, and a timely recovery of the stratospheric ozone layer depends on a sustained decline in CFC-11 concentrations.

About Montreal Protocol

The Montreal Protocol was adopted in 1987. It is an agreement signed by all 197 member states of the United Nations — including China — to regulate the production and consumption of chemicals that harm Earth's protective layer.

■

5. UAE has Launched 'Golden Card' Scheme

The United Arab Emirates has launched a permanent residency scheme to woo wealthy individuals and exceptional talents, a move that could attract more Indian professionals and businessmen to the Gulf nation.

Key Highlights

The "Golden Card" visa categories include general investors who will be granted a 10-year visa, real estate investors, who can get a visa for five years, along with entrepreneurs and talented professionals such as doctors, researchers and innovators 10 years.

The Golden Card offers unprecedented benefits to the cardholders and their families while creating an attractive environment for business and growth.

It will attract greater foreign investment and stimulate the local economy, making it more efficient and attractive for investors. It will also increase the UAE's competitiveness and reaffirms the country's position as a global incubator.

The benefits of the permanent residency also include the spouse and children of the cardholder to ensure

cohesive social ties. The first group of 6,800 investors from over 70 countries with investments totalling 100 billion dirhams (USD 27 billion) were being given permanent residency.

The latest announcement came after the UAE announced last year that it would grant five or 10-year residency visas to investors, entrepreneurs, specialists in the medical, scientific, research and technical fields, and 'outstanding' students to "facilitate business and create an attractive and encouraging investment environment". ■

6. NewSpace India Limited

NewSpace India Limited (NSIL), the commercial arm of Indian Space Research Organisation (ISRO), was inaugurated in Bengaluru.

Key Highlights

NSIL's main objective is to scale up industry participation in Indian space programmes.

NSIL was incorporated on March 6 2019, for commercially utilising research and development activities carried out by ISRO in the area of space with an authorised share capital of Rs 100 crore and initial paid up capital of Rs 10 crore. It will act as an aggregator for all space related activities in industry and develop private entrepreneurship in space related technologies.

It will be responsible for manufacturing the and production of Small Satellite Launch Vehicle (SSLV) and Polar Satellite Launch Vehicle (PSLV) through technology transfer mechanisms.

It will also cater to emerging global commercial SSLV market demand, providing satellite building and satellite-based services, including supply of sub-systems for various domestic and international application needs and will enable space technology spin-offs through Indian industry interface.

About PSLV

Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages. After its first successful launch in October 1994, PSLV emerged as the reliable and versatile workhorse launch vehicle of India with 39 consecutively successful missions by June 2017. During 1994-2017 period, the vehicle has launched 48 Indian satellites and 209 satellites for customers from abroad. Besides, the vehicle successfully launched two spacecraft – Chandrayaan-1 in 2008 and Mars Orbiter Spacecraft in 2013 – that later traveled to Moon and Mars respectively.

About SSLV

Small Satellite Launch Vehicle (SSLV), the 'baby rocket' billed as the quickest way to space for small-size satellites. On the launchpad, the SSLV will stand 34 metres tall, 10 metres shorter than the Polar Satellite Launch Vehicle (PSLV) and around 15 metres shorter than the Mk-II version of the Geosynchronous Satellite Launch vehicle (GSLV). It is also a 'thinner' launch vehicle, possessing a diameter of just two metres. ■

7. Akash-1S Surface to Air Defence Missile

The Defence Research and Development Organisation (DRDO) has successfully test fired the Akash-1S surface to air defence missile system.

Key Highlights

The Akash missile system has the capability to neutralise aerial targets such as fighter jets, cruise missiles and air-to-surface missiles as well as ballistic missiles.

Akash-1S is capable of striking down enemy fighter jets and drones very effectively and accurately. The Akash surface-to-air missile was designed to intercept enemy aircraft and missiles from a distance of 18 to 30 km.

This is a new version of the missile fitted with an indigenous seeker.

The missile was developed as part of Integrated Guided-Missile Development Programme (IGMDP) other than Nag, Agni, Trishul, and Prithvi missiles.

The supersonic Akash missile has a range of around 25 km and up to the altitude of 18,000m.

The missile uses high-energy solid propellant for the booster and ramjet-rocket propulsion for the sustainer phase. The missile system is said to be highly mobile.

Several variants of the missile-Akash MK1, Akash-MK2 with improved accuracy and higher ranges are under development by DRDO.

Background

The Akash missile system was formally inducted into the Indian Air Force on July 10, 2015, and in Indian Army on May 5, 2015. In September that year, the Defence Acquisition Council cleared seven additional squadrons of the missile for the Air Force. ■

Madden Julian Oscillation

What is MJO?

2.1 MJO is an eastward moving disturbance of clouds, rainfall, winds and pressure

2.2 It circles the planet along the tropical belt in 30-80 days

2.3 During its global ride, it intensifies over three regions - the eastern Indian Ocean, south of the maritime continent and the western Pacific Ocean and transfers a part of its energy to the underlying ocean

2.4 It consists of two phases : One is the enhanced rainfall (or convective) phase and the other is the suppressed rainfall phase

2.4.1 Strong MJO activity often dissects the planet into halves: one half within the enhanced convective phase and the other half in the suppressed convective phase

2.4.2 These two phases produce opposite changes in clouds and rainfall and this entire dipole (i.e., having two main opposing centers of action) propagates eastward

Why in News?

1.1 Indian scientists have discovered a hitherto unknown effect of the tropical weather phenomenon known as Madden-Julian Oscillation (MJO), which plays an important role in determining the fate of Indian summer monsoon

Mechanism

3.1 When winds of MJO reach eastern Indian Ocean, particularly over the North West Australian Basin, its energy gets transferred down to the ocean bottom, leading to an oscillation of the entire water column

3.1.1 This results in an inter- play of underlying topography of the basin and non-uniform density of seawater across the water column

3.2 It subsequently gets radiated out through fast-moving ocean waves that eventually invade the entire tropical Indian Ocean within some hours

3.2.1 These waves carry a lot of energy and momentum

3.2.2 The kinetic energy contained within the North Indian Ocean due to these waves is about 20 Peta Joules – similar to explosion of hundreds of atomic bombs

3.3 The scientists have found that the sea level in the Indian Ocean rises and falls by up to four cm every 30 to 80 days because of the movement of the water column

3.3.1 This assumes importance in the context of forecasting impact of cyclonic storms because MJO is a low-pressure system that facilitates cyclone formation over Indian Ocean

3.3.2 In addition, the rise and fall of sea level leads to exchange of as much as three trillion tons of water between the Indian Ocean and the Pacific Ocean

3.3.3 Such large mass exchange can influence polar motion of the Earth

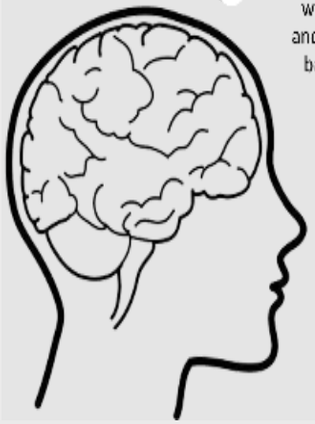
Indian Monsoon and IMO

4.1 The Indian Ocean Dipole (IOD), El Nino and MJO are all oceanic and atmospheric phenomena, which affect weather on a large scale

4.1.1 IOD and El Nino remains over their respective positions, while MJO is a traversing phenomenon

4.2 When it is over the Indian Ocean during the Monsoon season and stats for a period of nearly 30 days then it brings good rainfall over the Indian subcontinent

4.3 On the other hand, when MJO witnesses a longer cycle above 40 days and stays over the Pacific Ocean, it brings bad news for the Indian Monsoon and could even lead to a dry Monsoon



WTO's Dispute Settlement Mechanism

Why in News?

1.1 More than 20 developing countries met in India to discuss ways to prevent the World Trade Organisation's (WTO) dispute resolution system from collapsing due to the logjam in the appointment of new members to its understaffed Appellate Body that hears appeals in trade

What is the Problem?

2.1 Over the last two years, the membership of the body has dwindled to just three persons instead of the required seven

2.1.1 This is because the United States, which believes the WTO is biased against it, has been blocking appointments of new members and reappointments of some members

2.2 Two members will complete their tenures in December this year, leaving the body with just one member

2.3 At least three people are required to preside over an appeal, and if new members are not appointed, the body will cease to be relevant

2.4 Between 1995 and 2014, around 68% of the 201 panel reports adopted were appealed

2.5 While the US is directly involved in more disputes than other WTO member countries, several countries—including India—enter disputes as third parties

2.6 The understaffed appeals body has been unable to stick to its 2-3 month deadline for appeals filed in the last few years

2.6.1 And the backlog of cases has prevented it from initiating proceedings in appeals that have been filed in the last year

2.7 The body has so far been unable to review at least 10 appeals that have been filed since July 2018

Impact on India

3.1 India has so far been a direct participant in 54 disputes, and has been involved in 158 as a third party

3.2 In February 2019, the body said it would be unable to staff an appeal in a dispute between Japan and India over certain safeguard measures that India had imposed on imports of iron and steel products

3.2.1 The panel had found that India had acted "inconsistently" with some WTO agreements

What can happen?

4.1 If this situation is not addressed in time

4.1.1 The body willbe declared non-functiona in December 2019

4.1.2 The body will unable to review new applications and countries locked in internationa trade disputes will be left with no forum for recourse

4.1.3 It will not go well for country like India, which is facing a rising number of dispute cases, especially on agricultural products

4.1.4 It will affect the WTO's two decades of efforts to avoid protectionism in global trade

4.1.5 This is a major concern currently, as trade tensions, for example between the US and China and the US and India, are on the rise

About WTO's Appellate Body

5.1 It was set up in 1995

5.2 It is a standing committee of seven members that presides over appeals against judgments passed in trade-related disputes

5.3 Countries involved in a dispute over measures purported to break a WTO agreement can approach the Appellate Body if they feel the report of the panel set up to examine the issue needs to be reviewed on points of law

5.4 It can uphold, modify, or reverse the legal findings of the panel that heard the dispute

5.5 Countries on either or both sides of the dispute can appeal

5.6 The reports, once adopted by the WTO's disputes settlement body, are final and binding on the parties

NOTA in Lok Sabha Election - 2019

Why in News?

1.1 Election Commission of India (ECI) has released a report on None of The Above (NOTA) votes cast in Lok Sabha 2019 elections

Key Findings

2.1 In 2019, about 1.04% of the voters felt that none of the candidates deserved their vote

2.1.1 In the 2014 Lok Sabha election, this was around 1.08% of the voters

2.2 Bihar saw about 8.17 lakh voters opting for the NOTA option - the highest in the country

2.2.1 The NOTA vote share of Bihar stood at two per cent of the total votes polled in the state that has 40 Lok Sabha seats

2.3 Daman and Diu (1.7 per cent), Andhra Pradesh (1.49 per cent) and Chhattisgarh (1.44 per cent) followed Bihar in the list with reference to per cent of the total votes polled

2.4 Over 45,000 voters in the Delhi chose the NOTA option in this polls, an increase of over 6,200 votes polled under the category compared to the 2014 general elections

2.5 More than 1.54 lakh voters exercised NOTA option in Punjab

2.6 Gujarat, where the highest of 3% was seen in Dahod, had only eight constituencies where the NOTA share was below 1%

2.7 In Haryana, nine of the 10 seats registered less than 1% voters rejecting all candidates

2.8 In as many as 23 constituencies of Karnakata, NOTA vote share was again less than 1% and the highest of 1.39% was in Uttara Kannada in the State

2.9 In Maharashtra, there were only two constituencies — Gadchiroli-Chimur and Palghar — where the figure was above 2%

About NOTA

3.1 The NOTA option was introduced in India following a 2013 Supreme Court directive in the People's Union for Civil Liberties v Union of India judgment

3.2 It was first used in the 2013 Assembly elections in Chhattisgarh, Mizoram, Rajasthan and Madhya Pradesh and the Union Territory of Delhi

3.2.1 The option of NOTA in RS polls was introduced by the EC in 2014

What difference do NOTA make?

4.1 The Election Commission clarified that votes cast as NOTA are counted, but are considered 'invalid votes'

4.1.1 Therefore, votes made to NOTA will not change the outcome of the election

4.2 Even if the maximum number of votes cast is for NOTA, the candidate getting the most of the remaining votes would be declared the winner

Why have NOTA if there's 'no electoral value'?

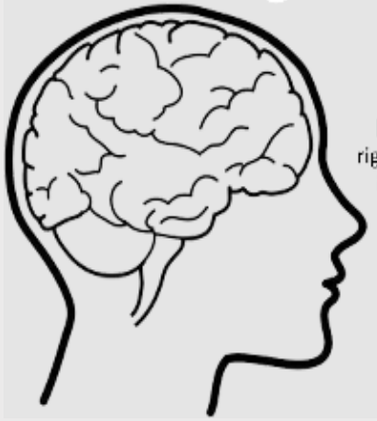
5.1 The Supreme Court had said negative voting would even encourage people who are not satisfied with any of the candidates to turn up to express their opinion and reject all contestants

5.2 Negative voting will lead to a systemic change in polls and political parties will be forced to project clean candidates

5.3 If the right to vote is a statutory right, then the right to reject a candidate is a fundamental right of speech and expression under the Constitution

5.4 The bench also pointed out that the system of negative voting existed in several other countries

5.5 Even in Parliament, the MPs have the option to abstain during a vote



Chagos Archipelago

Why in News?

1.1 The United Nation General Assembly (UNGA) has passed a resolution asking United Kingdom (UK) to return Chagos Archipelago in Indian Ocean to Mauritius

Key Highlights

2.1 The UN resolution backed a non-binding advisory opinion issued by the International Court of Justice (ICJ), which found Britain had acted unlawfully in the decolonisation process and should relinquish control

2.2 India was among 116 nations to vote in favour of a UN resolution

2.2.1 Only six countries, including Britain, the United States, Israel, Australia, Hungary and the Maldives voted against the measure in the assembly, while 56 nations abstained, including Canada, France and Germany etc.

2.3 The UNGA had said that the UK Government is "under an obligation" to end its administration of the Chagos Archipelago "as rapidly as possible"

2.4 The resolution affirmed, in accordance with the advisory opinion of the ICJ, that the Chagos Archipelago forms an integral part of the territory of Mauritius

2.5 It demanded that the UK withdraw its colonial administration from the Chagos Archipelago un-conditionally within six months

2.5.1 And enabling Mauritius to complete the decolonization of its territory as rapidly as possible

What is the Issue?

3.1 Britain, which has overseen the region since 1814, detached the Chagos islands in 1965 from Mauritius to create British Indian Ocean Territory (BIOT)

3.2 The UK retained sovereignty over the islands after Mauritius gained its independence from Britain in 1968

3.3 Britain leased the Chagos archipelago's biggest island, Diego Garcia, to the United States in 1966

3.3.1 The islands have since been used for defence purposes by the UK and the United States

3.4 The entire Chagossian population was forcibly removed from the territory between 1967 and 1973 and prevented from returning

3.5 In 2016, after several judicial challenges, Britain extended Diego Garcia's lease until 2036 and declared that the expelled islanders would not be allowed to go back

3.6 In 2017, Mauritius successfully petitioned the United Nations to seek an ICJ advisory opinion on the legality of the separation

Mauritius Claim

4.1 The crux of the Mauritian claim is the right of self-determination

4.2 The Mauritian government claimed that the separation of the islands from Mauritius was in clear breach of UN resolution 1514, also known as the Colonial Declaration (1960)

4.2.1 It enshrined the right of self-determination for colonial peoples and specifically banned the breakup of colonies prior to independence

4.2.2 This was intended to keep borders stable and to prevent colonial powers from simply absorbing colonial territory into their overseas territory so as to retain their sovereignty

4.2.3 Yet in spite of this resolution, a number of states (including France and the UK) kept possession of parts of their former colonies following the decolonisation process

ARTEMIS Mission

Why in News?

1.1 NASA has unveiled the calendar for the 'Artemis' program that will return astronauts to the Moon for the first time in half a century, including eight scheduled launches and a mini-station in lunar orbit by 2024

Key Highlights

2.1 'Artemis 1' will be an uncrewed mission around the Moon planned for 2020

2.1.1 The next will come'Artemis 2', which will orbit Moon with a crew around 2022; followed finally by 'Artemis 3' that will put astronauts on lunar soil in 2024, including the first woman

2.1.2 The three will be launched into space by the biggest rocket of all time, the Boeing-led Space Launch System (SLS)

2.2 In addition to these missions, there will be five launches carrying the building blocks of the lunar mini-station "Gateway" which will serve as a staging point for the Moon landing

2.2.1 These will be carried out between 2022 and 2024 by private space companies, which NASA will pay for their services

2.3 The orbital station will initially consist of a simple power and propulsion element and a small habitat module

2.4 In 2024, astronauts will stop there en route to the Moon

About Artemis Mission

3.1 ARTEMIS stands for Acceleration, Reconnection, Turbulence and Electrodynamics of the Moon's Interaction with the Sun

3.2 Artemis was the twin sister of Apollo and goddess of the Moon in Greek mythology

3.3 It consists of spacecraft to measure what happens when the Sun's radiation hits our rocky moon, where there is no magnetic field to protect it

3.4 This mission will use two of the five in-orbit spacecraft from another NASA Heliophysics constellation of satellites (THEMIS) that were launched in 2007

3.5 As a result of Artemis, NASA will be able to establish a sustainable human presence on the Moon by 2028

3.5.1 It will uncover new scientific discoveries, demonstrate new technological advancements and lay the foundation for private companies to build a lunar economy

What is THEMIS?

4.1 It stands for Time History of Events and Macroscale Interactions during Substorms

4.2 It aims to resolve one of the oldest mysteries in space physics, namely to determine what physical process in near-Earth space initiates the violent eruptions of the aurora that occur during substorms in the Earth's magnetosphere

4.3 It is the fifth medium-class mission under NASA's Explorer Program, which was conceived to provide frequent flight opportunities for world-class scientific investigations from space within the Heliophysics and Astrophysics science areas

Athena and LISA Missions

Introduction

2.2 The main goal of two future missions is to answer the open question such as :

2.2.1 How these huge, enormously dense objects took shape, or what triggers a fraction of them to start devouring the surrounding matter at extremely intense rates, radiating copiously across the electromagnetic spectrum and turning their host galaxies into 'active galactic nuclei'

2.1 Supermassive black holes, with masses ranging from millions to billions of Suns, sit at the core of most massive galaxies across the Universe

About Athena

3.1 It stands for Advanced Telescope for High-ENergy Astrophysics

3.2 It will be the largest X-ray observatory ever built, investigating some of the hottest and most energetic phenomena in the cosmos with unprecedented accuracy and depth

3.3 It is designed to answer two fundamental questions:

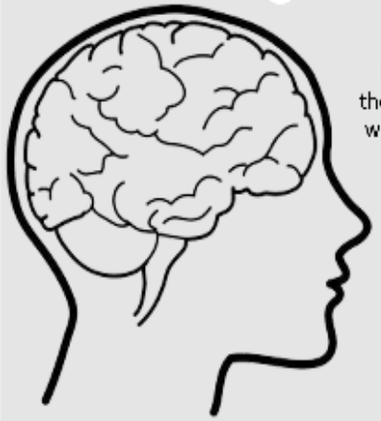
3.3.1 How supermassive black holes at the centre of galaxies form and evolve

3.3.2 How 'ordinary' matter assembles, along with the invisible dark matter to form the wispy 'cosmic web' that pervades the Universe

3.4 It is going to measure several hundreds of thousands of black holes, from relatively nearby to far away, observing the X-ray emission from the million-degree-hot matter in their surroundings

Why in News?

1.1 These two future missions in European Space Agency's (ESA) space science programme will investigate some of the most extreme phenomena in the Universe i.e. collision of super-massive black holes



About LISA

4.1 It stands for Laser Interferometer Space Antenna

4.2 It will be the first space-borne observatory of gravitational waves—fluctuations in the fabric of spacetime produced by the acceleration of cosmic objects with very strong gravity fields, like pairs of merging black holes

4.3 It will detect low-frequency gravitational waves, such as the ones released when two supermassive black holes collide during a merger of galaxies

4.4 It will detect the gravitational waves emitted by the spiralling black holes about a month before their final coalescence, when they are still separated by a distance equivalent to several times their radii

Significance

6.1 Scientists expect that a fraction of the mergers found by LISA, especially those within distances of a few billion light years from us, will give rise to an X-ray signal that can be eventually seen by Athena

How both will Work?

5.2 Then Athena will observe it with high precision in X-rays to see how the mighty collision affects the gas surrounding the black holes

5.1 First, LISA will detect the gravitational waves and tell Athena where to look in the sky

Shanghai Cooperation Organization

Why in News?

1.1 Recently, Council of Foreign Ministers (CFM) of Shanghai Cooperation Organization Council (SCO) and second SCO Mass Media Forum was held in Bishkek, Kyrgyzstan

Key Highlights of CFM

2.1 The ministers are convinced that in conditions of deep transformations in global politics and the economy, the priority goal is to create a multi-polar world arrangement

2.2 The ministers supported the creation of a united global anti-terrorism front with the UN playing a central coordinating role

2.3 The ministers emphasised that global challenges such as extremism, the proliferation of weapons of mass destruction, illegal drug trafficking, regional conflicts and climate change require the heightened attention

2.4 The ministers emphasised that keeping outer space free of weapons and an arms race meets the interests of all of humanity

2.5 The ministers noted the need to step up efforts to improve the architecture of global economic management and develop trade, economic and investment cooperation

CFM and India

3.1 India is open to strengthen the Regional Anti-Terror Structure (RATS) of SCO to fight terrorism and security challenges in the region

3.2 India stands committed to any process, which can help Afghanistan emerge as a united, peaceful, secure, stable, inclusive and economically vibrant nation, with guaranteed gender and human rights

3.3 India's commitment to regional connectivity is evident from its involvement in the International North-South Transport Corridor, Chabahar Port, Ashgabat Agreement and India Myanmar-Thailand Trilateral Highway

3.4 An SCO Action Plan for environment protection for 2019-2021 has been finalised and India looks forward to continuing its participation with a keen interest in this area

Key Highlights of Mass Media Forum

4.1 It highlighted the importance of Mass Media organizations of SCO countries in accomplishing the SCO objectives of mutual trust, friendly relations with neighbors and regional security in line with the "Shanghai Spirit"

4.2 It aims to strengthen the exchange and cooperation in the field of mass media amongst SCO countries

4.3 It offers a unique platform for active work through mass media to create an objective vision of the organization and strengthen its positive image in the global information space

4.4 The SCO Member States also adopted the Resolution of Media Forum which calls for establishing successful collaborations of Mass Media Organizations of the SCO member Countries

About SCO

6.1 The SCO was founded at a summit in Shanghai in 2001 by the presidents of Russia, China, Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan

6.2 India was an observer at the SCO since 2005

6.3 India became a full member of the China-dominated grouping in 2017

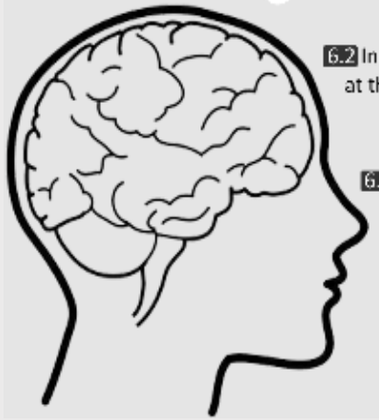
Mass Media Forum and India

5.1 The Delegation suggested that media personnel exchange programmes may be undertaken along with joint international press conferences

5.2 The idea of working together to counter the problem of fake news was also highlighted

5.3 The delegation invited all the SCO member delegates to the Golden Jubilee edition of International Film Festival of India to be held in Goa in November 2019

5.4 The Indian delegation emphasized the need for media collaborations and exchange of best practices amongst the various mass media agencies, organizations and associations across the SCO partner states



SEVEN MCQ's WITH EXPLANATORY ANSWERS (Based on Brain Boosters)

Madden Julian Oscillation

Q1. Consider the following statements in respect of Madden-Julian Oscillation (MJO):

1. MJO is a westward moving disturbance of clouds, rainfall, winds and pressure.
2. When MJO witnesses a longer cycle and stays over the Pacific Ocean, it brings good news for the Indian Monsoon.

Which of the statements given above is/are correct?

a) 1 only b) 2 only

c) Both 1 and 2 d) Neither 1 nor 2

Answer: (d)

Explanation: Statement 1 is not correct. MJO is an eastward (not westward) moving disturbance of clouds, rainfall, winds and pressure.

Statement 2 is not correct. When MJO witnesses a longer cycle and stays over the Pacific Ocean, it brings bad news (not good news) for the Indian Monsoon.

WTO's Dispute Settlement Mechanism

Q2. Consider the following statements in respect of the World Trade Organisation's (WTO) dispute resolution system:

1. It is a standing committee that presides over appeals against judgments passed in trade and environment related disputes.
2. The reports, once adopted by the WTO's disputes settlement body, are final and binding on the parties.

Which of the statements given above is/are correct?

a) 1 only b) 2 only

c) Both 1 and 2 d) Neither 1 nor 2

Answer: (b)

Explanation: Statement 1 is not correct. It is a standing committee of seven members that presides over appeals against judgments passed in trade-related disputes only not environment-related disputes.

Statement 2 is correct. Countries on either or both sides of the dispute can appeal. The reports, once adopted by the WTO's disputes settlement body, are final and binding on the parties.

NOTA in Lok Sabha Election 2019

Q3. Consider the following statements in respect of recently released report on None of The Above (NOTA) by Election Commission of India (ECI):

1. In 2019 general election, more than 8% of the total voters felt that none of the candidates deserved their vote and thus used NOTA option.
2. Bihar saw the highest numbers of voters opting for the NOTA option in the country.

Which of the statements given above is/are correct?

a) 1 only b) 2 only

c) Both 1 and 2 d) Neither 1 nor 2

Answer: (b)

Explanation: Statement 1 is not correct. In 2019 general election, about 1.04% (not more than 8%) of the voters felt that none of the candidates deserved their vote and thus used NOTA option. In the 2014 Lok Sabha election, this was around 1.08% of the voters.

Statement 2 is correct. Bihar saw about 8.17 lakh voters opting for the NOTA option - the highest in the country. The NOTA vote share of Bihar stood at two per cent of the total votes polled in the state that has 40 Lok Sabha seats.

Chagos Archipelago

Q4. Consider the following statements in respect of Chagos Archipelago in Indian Ocean:

1. The United Nation General Assembly (UNGA) has passed a resolution asking United Kingdom (UK) to return Chagos Archipelago in Indian Ocean to Madagascar.
2. India voted against the UN resolution.

Which of the statements given above is/are correct?

a) 1 only b) 2 only

c) Both 1 and 2 d) Neither 1 nor 2

Answer: (d)

Explanation: Statement 1 is not correct. A The United Nation General Assembly (UNGA) has passed a resolution asking United Kingdom (UK) to return Chagos Archipelago in Indian Ocean to Mauritius (not Madagascar).

Statement 2 is not correct. India was among 116 nations to vote in favour of a UN resolution (not against). Only six countries, including Britain, the United States, Israel, Australia Maldives and Hungary, voted against the measure in the assembly, while 56 nations abstained, including Canada, France and Germany.

ARTEMIS Mission

Q5. With reference to NASA's 'Artemis' mission consider the following statements:

1. NASA's 'Artemis' mission consists of spacecraft to measure what happens when the Sun's radiation hits our rocky moon, where there is no magnetic field to protect it.
2. As a result of Artemis, NASA will be able to establish a sustainable human presence on the Moon by 2028.

Which of the statements given above is/are correct?

a) 1 only b) 2 only

c) Both 1 and 2 d) Neither 1 nor 2

Answer: (c)

Explanation: Both statements are correct. NASA's Artemis' mission consists of spacecraft to measure what happens when the Sun's radiation hits our rocky moon, where there is no magnetic field to protect it. This mission uses two of the five in-orbit spacecraft from another NASA Heliophysics constellation of satellites (THEMIS) that were launched in 2007

It will uncover new scientific discoveries, demonstrate new technological advancements and lay the foundation for private companies to build a lunar economy. As a result of Artemis, NASA will be able to establish a sustainable human presence on the Moon by 2028.

Athena and LISA Missions

Q6. Consider the following statements in respect of 'Athena and LISA Missions:

1. First, LISA will detect the gravitational waves and tell Athena where to look in the sky.
2. Then Athena will observe it with high precision in X-rays to see how the mighty collision affects the gas surrounding the black holes.
3. These missions are European Space Agency's mission.

Which of the statements given above is/are correct?

a) 1 and 2 only b) 2 and 3 only

c) 1 and 3 only d) 1, 2 and 3

Answer: (d)

Explanation: All statements are correct. First, LISA will detect the gravitational waves and tell Athena where to look in the sky. Then Athena will observe it with high precision in X-rays to see how the mighty collision affects the gas surrounding the black holes. These missions are European Space Agency's mission. Athena stands for Advanced Telescope for High-ENergy Astrophysics while LISA stands for Laser Interferometer Space Antenna.

Shanghai Cooperation Organization

Q7. Recently, Council of Foreign Ministers (CFM) of Shanghai Cooperation Organization Council (SCO) and second SCO Mass Media Forum was held in Bishkek, Kyrgyzstan. Consider the following statements in this regard:

1. An SCO Action Plan for environment protection for 2019-2021 has been finalized during these meetings.
2. Mass Media Forum aims to strengthen the exchange and cooperation in the field of print media only amongst SCO countries.
3. India became a full member of SCO in 2019.

Which of the statements given above is/are correct?

a) 1 only b) 1 and 2 only

c) 2 and 3 only d) 1, 2 and 3

Answer: (a)

Explanation: Statement 1 is correct. An SCO Action Plan for environment protection for 2019-2021 has been finalized during these meetings.

Statement 2 is not correct. Mass Media Forum aims to strengthen the exchange and cooperation in the field of all types of mass media (not only print media) amongst SCO countries. It offers a unique platform for active work through mass media to create an objective vision of the organization and strengthen its positive image in the global information space.

Statement 3 is not correct. India became a full member of the China-dominated grouping (SCO) in 2017 (not in 2019). India was an observer at the SCO since 2005. The SCO was founded at a summit in Shanghai in 2001 by the presidents of Russia, China, Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan.

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SEVEN IMPORTANT FACTS FOR PRELIMS

1. Which countries recentlly have been officially recognised by World Health Organisation as malaria-free?

–Algeria and Argentina

2. Which Indian scientist has won second place in 'German Chemistry Prize' in an international competition named 'Elsevier Foundation-ISC3 Green and Sustainable Chemistry Challenge'?

–Dr. Ankur Patwardhan

3. Who has been elected as new President of Ukraine?

–Volodymyr Zelensky

4. Who has won 'The Man Booker International Prize 2019'?

–Jokha Alharthi (Oman) for her novel 'Celestial Bodies'

5. What is the rank of India in 'The KidsRight Index 2019'?

–117th

6. Which country has launched new nuclear-powered icebreaker in bid to open up Arctic's commercial potential?

–Russia

7. Who has been elected new Prime Minister of Australia?

–Scott Morrison

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SEVEN IMPORTANT HIGHLIGHTS FROM PIB

1. Affiliation of ICG ship Shaurya with 3rd (Naga Hills) Battalion of Assam Rifles

An affiliation charter has signed between 3rd (Naga Hills) Battalion of the Assam Rifles and the Indian Coast Guard (ICG) Ship 'Shaurya' with an aim to enhance inter-armed forces cooperation and utilise each other's assets for training and sports. The objective of the affiliation is to promote bilateral cooperation between the Assam Rifles and the ICG in the field of exchange of information/personnel, build-up camaraderie for training, sports/adventure and sustainable development.

Key Facts

The Assam Rifles is the oldest paramilitary force of India with a rich history of valour, courage and tradition. They have 46 battalions manning the Indo-Myanmar border and countering the insurgency in the Northeastern states.

3rd (Naga Hills) Battalion Assam Rifles is the oldest battalion of the force raised in 1835 as 'The Cachar Levy' comprising 750 personnel of all ranks for guarding the Eastern Frontier of Assam from Brahmaputra river to the Cachar Hills. Presently, the battalion is developed at Kohima in Nagaland where it had earlier bravely fought Japanese in World War-II and stopped their advance into India.

The Indian Coast Guard, with 142 ships and 62 aircraft, is one of the youngest armed force under the Ministry of Defence.

ICG Ship 'Shaurya', indigenously built at Goa Shipyard Limited, based in Chennai is a modern state-of-the-art 105 metre-long Offshore Patrol Vessel (OPV) commissioned on August 12, 2017.

Shaurya' which means courage is a projection of ICG's commitment 'To Serve & Protect' the maritime interest of the nation. The ship is extensively developed for Exclusive economic zone (EEZ) surveillance and other duties as enshrined in the Coast Guard charter to safeguard the maritime interest of India.

2. Empowerment of Women

The Vice President of India, Shri M. Venkaiah Naidu has called for empowering women through education and by implementing progressive measures like reservations in Parliament and State Legislatures.

Key Highlights

Expressing his concern over instances of gender discrimination, he called for curbing it by bringing about attitudinal and behavioral changes in society.

Educating a girl was equivalent to educating an entire family, while educating a man was tantamount to educating an individual. Education is not only for employment but for empowerment and enlightenmenteducation. It must develop ideal and responsible citizens, who are socially conscientious with a national outlook.

It is essential for youngsters to know about India's cultural heritage, traditions, history, the role of national icons and freedom fighters as also the contributions of social reformers.

He also underscored the importance of probity in public life and observed that people should elect their representatives on the basis of 4 Cs—Character, Conduct, Capacity and Calibre and cautioned against the attempts to give importance to other 4 Cs—Cash, Caste, Community and Criminality.

3. India has banned Jamaat-ul-Mujahideen Bangladesh Terror Outfit

The Jamaat-ul-Mujahideen Bangladesh, also called as Jamaat-ul-Mujahideen India or Jamaat-ul-Mujahideen Hindustan, has been declared as a banned terrorist organisation by the government of India.

As the notification of Ministry of Home Ministry, the outfit has committed acts of terrorism, promoted acts of terrorism and has been engaged in radicalisation and recruitment of youths for terrorist activities in India. Therefore, the Jamaat-ul-Mujahideen Bangladesh and all its manifestations have been inserted in the First Schedule to the Unlawful Activities (Prevention) Act, 1967.

Background

The government said investigating agencies in India have found the Jamaat-ul-Mujahideen Bangladesh responsible for the 2014 bomb blast in Burdwan, West Bengal, and the 2018 blast in Bodh Gaya town in Bihar. It said the Assam Police have arrested 56 members of the group accused of terrorism. The investigations have revealed that the Jamaat-ul-Mujahideen Bangladesh wants to establish permanent bases in India's border states of West Bengal, Assam and Tripura, and spread its network in southern states with the aim of establishing a caliphate in the Indian subcontinent. The group also raised funds for procurement of explosives and assembling Improvised Explosive Devices.

About UAPA

The UAPA was framed in 1967. It has been amended twice in 2008 and then in 2012. It aimed at effective prevention of unlawful activities associations in India. The main objective is to make powers available for dealing with activities directed against the integrity and sovereignty of India. It makes it a crime to support any secessionist movement or to support claims by a foreign power to what India claims as its territory.

4. AN-32 AIRCRAFT

In a significant move, the fleet of AN-32 transport aircraft of the Indian Air Force was certified to fly on blended aviation fuel containing up to 10 per cent bio-jet fuel. The approval for use of bio-fuel to fly the Russian made fleet was given by the Centre for Military Airworthiness and Certification (CEMILAC). CEMILAC is a laboratory of the Indian Defence Research and Development Organisation (DRDO) which does the military certification.

Key Highlights

The first AN 32 was flown in December 2018 using the bio-jet fuel. The IAF flight test crew and engineers have undertaken a series of evaluation tests and trials with this green aviation fuel for the last one year. The scope of these checks was in consonance with international aviation standards.

The indigenous bio-jet fuel was first produced by the CSIR-IIP lab at Dehradun in 2013, but could not be tested or certified for commercial use on aircraft due to lack of test facilities in the civil aviation sector.

By using bio-fuel Air Force is planning to save money on its fuel bill. This is a huge step in promoting the 'Make in India' mission as this bio-fuel would be produced from Tree Borne Oils (TBOs) sourced from tribal areas and farmers, augmenting their income substantially.

The IAF is also planning to gradually start using this blended fuel for its fighter jets like Su-30MKi and Mig-29.

About AN-32

AN-32 is Twin engine turboprop, medium tactical transport aircraft of Russian origin with a crew of five and capacity to carry 39 paratroopers or max load of 6.7 tonnes. It has a max cruise speed of 530 km/hr.

Background

In 2018, Chief of Air Staff, Air Chief Marshal BS Dhanoa, had announced IAF's intention to permit the use of all its resources for testing and certifying the indigenous fuel.

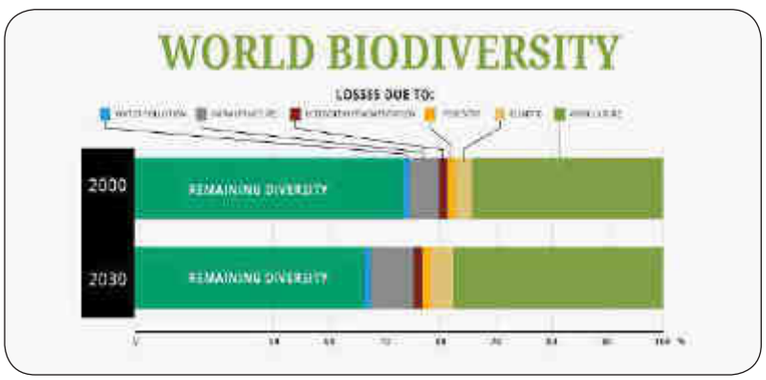
5. Equitable and People-centred Sustainable Development

Vice President M Venkaiah Naidu has called for achieving equitable and people-centred sustainable development and stressed the need for efficient and frugal use of natural resources.

Key Highlights

The biodiversity is fundamental to the survival of the human race and underlined that man should re-establish the link with nature.

Observing that sustainable development mandates the efficient and frugal use of available natural resources including biodiversity, he said, a grave challenge we face today is the destruction of forests and the loss of species. The loss of trees at an unbelievable pace due to deforestation, urbanization, industrialization and pollution. India has lost over 1.6 million hectare of tree cover between 2001 and 2018, according to a new study released by the World Resources Institute (WRI). India's forest cover stands at 21% against global standard of 33.3%.



Lamenting that the symbiotic relationship of man with nature was being threatened as societies develop, he warned that any damage to environment would put the well-being of future generations in peril.

Our current consumption patterns especially in the industrialized world are unsustainable as they put enormous pressure on natural resources.

There is a need for inclusive growth and achieving home-grown food security, while ensuring sustainable development.

There is a need to secure international cooperation in fields ranging from sustainable agriculture and food security to health and sustainable development to urban resilience and adaptation, to climate change and disaster risk reduction.

India had a long cultural tradition of frugality and simple living in harmony with nature and that all great religions which have traversed in our country have preached the unity of humankind with nature.

6. Advisory regarding News and Current Affairs content on TV channels

The Ministry of Information and Broadcasting has issued an advisory regarding carrying of news and current affairs content on entertainment television channels.

Key Highlights

The advisory states that in accordance with the Policy Guidelines for Uplinking of Television Channels From India, 2011, the ministry gives perission for uplinking of TV channels under two categories, non-news and current affairs; and news and current affairs.

These two categories are defined as under

Non-news and Current Affairs Channel- A non-news and current affairs TV channel means a channel which does not have any element of news and current affairs in its programme content. News and Current Affairs Channel - A news and current affairs TV channel means a channel which has any element of news and current affairs in its programme content.

The news channels are mandated to carry news and current affairs content while non-news and current affairs channels are not mandated to carry any news and current affairs content.

A non-news and current affairs channel is defined as one which does not have any element of news and current affairs in its programme content. A news and current affairs channel is one which has any element of news and current affairs in its programme content.

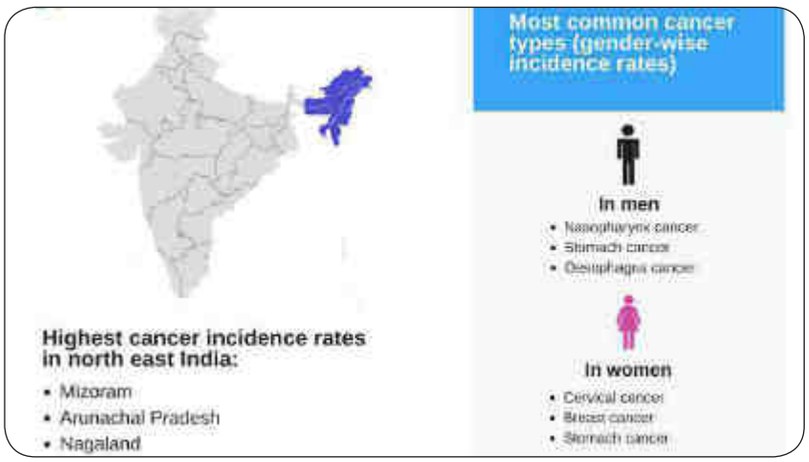
At the time of applying for a non-news TV channel, the applicant company gives an undertaking that the proposed channel is purely an entertainment channel and does not have any news or current affairs based programme.

7. MoU for Joint Collaboration on Cancer Research

The Department of Biotechnology (DBT) under Ministry of Science and Technology and the Department of Atomic Energy (DAE) has signed an MOU for supporting joint collaborative research programmes in the area of Cancer.

Key Highloghts

Signing the MoU, expressed solidarity to work towards the common goal of tackling cancer and this is expected to bring a quantum change in the present scenario of cancer research.



The DAE is represented by its Tata Memorial Centre and which also functions as the coordinating centre on behalf of The National Cancer Grid of India.

Significance

This MOU shall help strengthen the various initiatives specifically for cancer viz. strategizing and prioritizing cancer research, development of new and affordable technologies, jointly design and fund clinical trials, coordinate and collaborate for translational research, interventions, training of manpower and infrastructure development.

The clinicians shall work in coherence with researchers to identify and develop collaborative research programmes and public health initiatives for awareness of the public at large. Various activities like joint clinical fellowships, intensive workshops on clinical research methodologies and protocol development shall work towards creating a community of trained manpower and provide a platform to utilize their acquired skills in the best possible manner.

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SEVEN IMPORTANT CONCEPTS THROUGH GRAPHICS

1. Muhammad Gauri

Key Facts

- Muhammad Gauri was the founder of the Turkish Empire in India. Right from the beginning when he became the governor of Ghazni he conceived the plan of establishing the Turkish rule in India.
- Muhammad Gauri is credited with creating team of slave-officers. He purchased the most talented slaves and trained them for helping him in the work of conquest and consolidation. Some of the noted 'slave' officers were Qutubuddin Aibak, Nasiruddin Qubacha and Muhammad Bakhtiyar Khalji.
- In the initial stage he, however, showed a hasty approach. Consequently he was beaten—kayadra and Tarain (1st battle in 1191)— on the Indian soil.
- To avenge this defeat he made serious preparations and gathered an army of 1,20,000 men and in Second Battle of Tarain (1192) he defeated Prithiviraj Chauhan.
- After the second battle of Tarain, he defeated Gahadavala ruler Jayachandra in the battle of Chandawar (1194).
- The second battle of Tarain was a decisive battle. The first Muslim kingdom was thus firmly established in India at Ajmer and a new era in the history of India began.
- After his brilliant victory over Prithiviraj at Tarain, Muhammad Gauri returned to Ghazni leaving behind his favourite general Qutbuddin Aibak to make further conquests in India. Aibak consolidated his position in India by occupying places like Delhi and Meerut.
- On the evening of 15th March 1206, when he bent his head to offer his prayers, he was attacked with a sharp weapon by an assassin. He could not survive the fatal attack.
- His Indian empire did not wither away within a short time after his death but lasted for a couple of decades.

2. Qutubuddin Aibak and Illtutmish

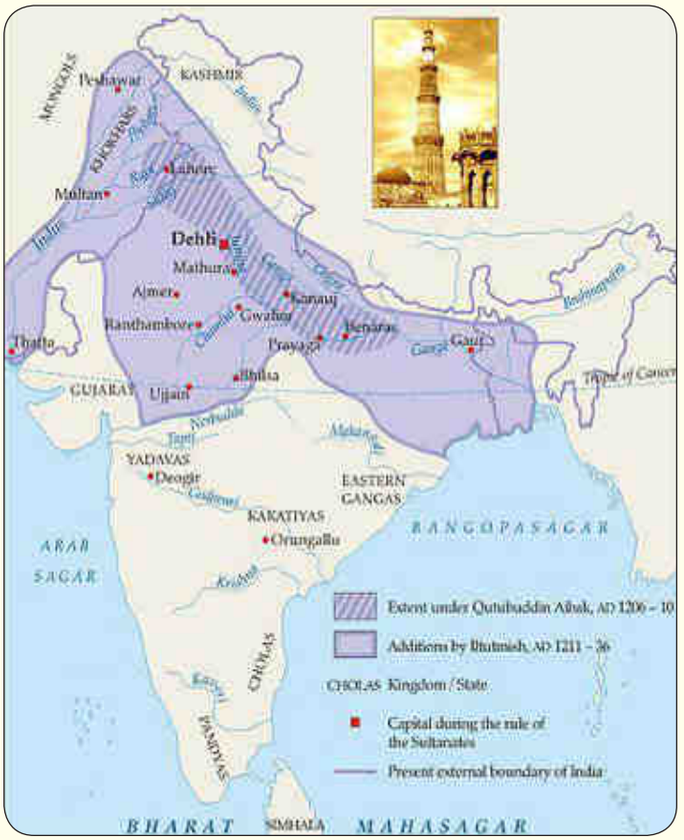
Key Facts

Qutubuddin Aibak (1206-1210)

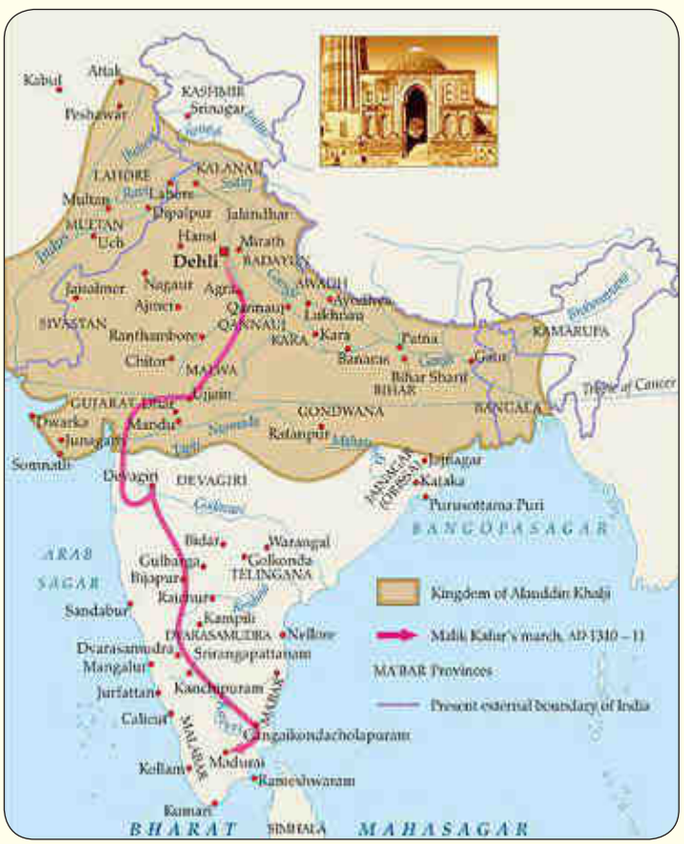
- After the death of Gauri in 1206, Aibak declared his independence and founded the 'Slave dynasty' as well as the Delhi Sultanate.
- He assumed the title 'Sultan' and made Lahore his capital.
- He started the construction of 'Qutb Minar' in Delhi, which is dedicated to a famous Sufi saint, 'Qutbuddin Bakhtiar Kaki'. After he died, the minaret was completed by his successor, Iltutmish.
- He also built the 'Dhai-din-ka-Jhonpra' mosque in Ajmer and 'Quwwat-ul-Islam' mosque in Delhi.
- He was succeeded by his son Aram Baksh.

Illtutmish (1211-1236)

- Iltutmish belonged to the Ilbari tribe.
- In 1211 Iltutmish defeated Aram Baksh and became Sultan. He shifted his capital from Lahore to Delhi.
- He gave the Sultnate two of its basic coins- the silver 'Tanka' and copper 'Jittal'.
- To affect greater control over the conquered areas he granted 'iqtas' (land assignments in lieu of cash salaries) to his Turkish officers.
- By dint of his wisdom and dauntless bravery, he transformed a weak, vulnerable kingdom left by Aibak and Gauri into a stable Muslim empire in India.



3. Alauddin Khalji



Key Facts

- His rule saw the expansion of the Muslim rule in terms of larger territorial conquests.
- He introduced the system of 'dagh' (branding of horses) and prepared 'huliya' (descriptive list of soldiers).
- Alauddin Khalji's greatest achievement was the conquest of Deccan and the far South under his general Malik Kafur. This region was ruled by four important dynasties – Yadavas of Devagiri, Kakatiyas of Warangal, Hoysalas of Dwarasamudra and the Pandyas of Madurai.
- Alauddin Khalji fixed the government's share of the produce of the land and laid down the method of assessment. He was the first Sultan of medieval India who fixed the revenue on the basis the actual measurement of land. The unit of measurement was the 'biswah' which is known and used even to this day.
- Besides the land tax, Alauddin Khalji also levied a house-tax (ghari) and a grazing-taxs (chari). All milk-yielding animals like cows, buffaloes and goats that went for grazing were to be taxed.
- Alauddin Khalji was the first sovereign of the Delhi Sultanate who took a keen interest in fiscal and revenue administration.
- Although the Sultan was illiterate, he patronized poets like Amir Khusrau and Amir Hasan.
- He also built a famous gateway known as 'Alai Darwaza' and constructed a new capital at 'Siri'.
- Alauddin Khalji died in 1316.

4. Muhammad Bin Tuglaq

Key Facts

- Jauna Khan succeeded his father Ghiyasuddin Tuglaq (Ghazi Malik) in 1325 A.D. and assumed the title of Muhammad bin Tughlaq.
- He wanted to make Devagiri his second capital so that he might be able to control South India better.
- In 1327 he made extensive preparations for the transfer of capital Delhi to Devagiri, which was renamed as Daulatabad.
- But after two years, the Sultan abandoned Daulatabad and returned to Delhi.
- In 1329-30 he introduced a token currency.
- He issued copper coins at par with the value of the silver tanka coins. But he was not able to prevent forging the new coins.
- Finally, Muhammad bin Tughlaq stopped the circulation of token currency and promised to exchange silver coins for the copper coins.
- He launched a scheme by which 'takkavi loans' (loans for cultivation) were given to the farmers to buy seed and to extend cultivation. A separate department for agriculture, 'Diwan- i- Kohi' was established.
- The latter part of Muhammad bin Tughlaq's reign witnessed a spate of rebellions by the nobles and provincial governors.
- Muhammad bin Tughlaq died in 1351. According to Baduani, 'the Sultan was freed from his people and the people from the Sultan'.

5. Sikandar Lodi and Ibrahim Lodi

Key Facts

Sikandar Lodi (1489-1517)

- Bahlul Lodi died in 1489 and was succeeded by his son, Sikandar Lodi.
- Sikendar Lodi or Sikandar Shah turned out to be the most capable ruler of the Lodi dynasty. He established a fair system of administration and founded the historical city of Agra.
- He brought the whole of Bihar under his control, many Rajput chiefs were defeated. He attacked Bengal and forced its ruler to conclude a treaty with him, and extended his empire from the Punjab to Bihar.
- Under his rule, roads were laid and many irrigational facilities were provided for the benefit of the peasantry.

Ibrahim Lodi (1517-1526)

- Sikandar's death emerged the fight for succession among his sons, which resulted in the decline of rule of the Lodi dynasty.
- Ibrahim Lodi, son of Sikandar, was the last Sultan of the Lodi dynasty.
- He used to insult his nobles openy in court and humiliated them.
- Greatly displeased by the arrogance of Ibrahim, Daulat Khan Lodi, the governor of Punjab, invited Babur to invade India.
- The Mughal ruler from Central Asia, Zahiruddin Babur, attacked India and defeated Ibrahim in the first battle of Panipat on April 21, 1526.
- The defeat of Ibrahim ended the Lodi dynasty and marked the beginning of Mughal rule in India.

6. Vijayanagar Kingdom

Key Facts

- Four dynasties – Sangama (1336-1485), founder - Harihar and Bukka; Saluva (1485-1505), founder - Saluva Narsimha; Tuluva (1505-1570), founder - Veer Narsihma and Aravidu (1570-1650), founder - Tirumala, ruled Vijayanagar.
- Vijayanagar was founded in 1336 by Harihara and Bukka of the Sangama dynasty.
- The administration under the Vijayanagar empire was well organized. The succession to the throne was on the principle of hereditary.
- The empire was divided into different administrative units called 'Mandalams', 'Nadus', 'Sthalas' and finally into 'Gramas'.
- Allasani Peddanna in his 'Manucharitam' refers the existence of four castes – Brahmins, Kshatriyas, Vaisyas and Sudras - in the Vijayanagar society.
- Agriculture continued to be the chief occupation of the people. The Vijayanagar rulers provided a stimulus to its further growth by providing irrigation facilities. New tanks were built and dams were constructed across the rivers like 'Tunghabadra'. Nuniz refers to the excavation of canals.
- The chief characteristics of the Vijayanagara architecture were the construction of tall Raya Gopurams or gateways and the Kalyanamandapam with carved pillars in the temple premises.
- The most important temples of the Vijayanagar style were found in the Hampi ruins or the city of Vijayanagar. Vittalaswamy and Hazara Ramaswamy temples were the best examples of this style.

7. Mughal Empire

Key Facts

- The Mughal period witnessed a significant and widespread development in cultural activity. In this cultural development, Indian traditions were blended with 'Turko-Iranian' culture which was brought into India by the Mughals.
- The architecture of the Mughals includes the magnificent forts, palaces, public buildings, mosques and mausoleums namely Taj Mahal, Red Fort, Qutub Minar, Alai Darwaja, Buland Darwaza, Humayun's tomb among others.
- The contribution of Mughals to the art of painting was remarkable. Mughal paintings reached its climax during the reign of Jahangir.
- Persian language became widespread in the Mughal Empire by the time of Akbar's reign. Abul Fazl was a great scholar and historian of his period.
- From the time of Akbar, Hindi poets were attached to the Mughal court. The most influential Hindi poet was Tulsidas.
- With the administrative perspective, the Mughal empire was divided into the 'Subahs' (provinces), the Subahs into the 'Sirkars' (districts), the Sirkars into the 'Paraganas' and further the Paraganas into the 'Mahals' and the 'Dasturs'.
- The land revenue system of Akbar was called 'Zabti' or 'Bandobast system'. It was further improved by Raja Todar Mal. It was known as 'Dahsala System' which was completed in 1580.
- Akbar introduced the 'Mansabdari system' in his administration. Under this system every officer was assigned a rank (Mansab).

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11 AUG.	Test-10- (9:30 am to 11:30 am) सामान्य अध्ययन-I/General Studies-I
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25 AUG.	Test-13- (9:30 am to 11:30 am) सामान्य अध्ययन-I/General Studies-I
01 SEP.	Test-14- (9:30 am to 11:30 am) सामान्य अध्ययन-I/General Studies-I
08 SEP.	Test-15 - (9:30 am to 11:30 am) सामान्य अध्ययन-I/General Studies-I
15 SEP.	Test-16- (9:30 am to 11:30 am) सामान्य अध्ययन-I/General Studies-I
22 SEP.	Test-17- (9:30 am to 11:30 am) सामान्य अध्ययन-I/General Studies-I Test-18- (12:00 noon to 2:00 am) सामान्य अध्ययन-II/General Studies-II

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AN INTRODUCTION

Dhyeya IAS, a decade old institution, was founded by Mr. Vinay Singh and Mr. Q.H. Khan. Ever since its emergence it has unparallel track record of success. Today, it stands tall among the reputed institutes providing coaching for Civil Services Examination (CSE). The institute has been very successful in making potential realize their dreams which is evidents from success stories of the previous years.

Quite a large number of students desirous of building a career fro themselves are absolutely less equipped for the fairly tough competitive tests they have to appear in. Several others, who have a brilliant academic career, do not know that competitive exams are vartly different from academic examination and call for a systematic and scientifically planned guidance by a team of experts. Here one single move my invariably put one ahead of many others who lag behind. Dhyeya IAS is manned with qualified & experrienced faculties besides especially designed study material that helps the students in achieving the desired goal.

Civil Services Exam requires knowledge base of specified subjects. These subjects though taught in schools and colleges are not necessarily oriented towards the exam approach. Coaching classes at Dhyeya IAS are different from classes conducted in schools and colleges with respect to their orientation. Classes are targeted towards the particular exam. classroom guidance at Dhyeya IAS is about improving the individuals capacity to focus, learn and innovate as we are comfortably aware of the fact that you can't teach a person anything you can only help him find it within himself.

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Distance learning Programme, DSDL, primarily caters the need for those who are unable to come to metros fro economic or family reason but have ardent desire to become a civil servant. Simultaneously, it also suits to the need of working professionals, who are unable to join regular classes due to increase in work load or places of their posting. The principal characteristic of our distance learning is that the student does not need to be present in a classroom in order to participate in the instruction. It aims to create and provide access to learning when the source of information and the learners are separated by time and distance. Realizing the difficulties faced by aspirants of distant areas, especially working candidates, in making use of the institute's classroom guidance programme, distance learning system is being provided in General Studies.The distance learning material is comprehensive, concise and examoriented in nature. Its aim is to make available almost all the relevant material on a subject at one place. Materials on all topics of General Studies have been prepared in such a way that, not even a single point will be missing. In other words, you will get all points, which are otherwise to be taken from 6-10 books available in the market / library. That means, DSDL study material is undoubtedly the most comprehensive and that will definitely give you added advantage in your Preliminary as well as Main Examination. These materials are not available in any book store or library. These materials have been prepared exclusively for the use of our students. We believe in our quality and commitment towards making these notes indispensable for any student preparing for Civil Services Examination. We adhere all pillars of Distance education.

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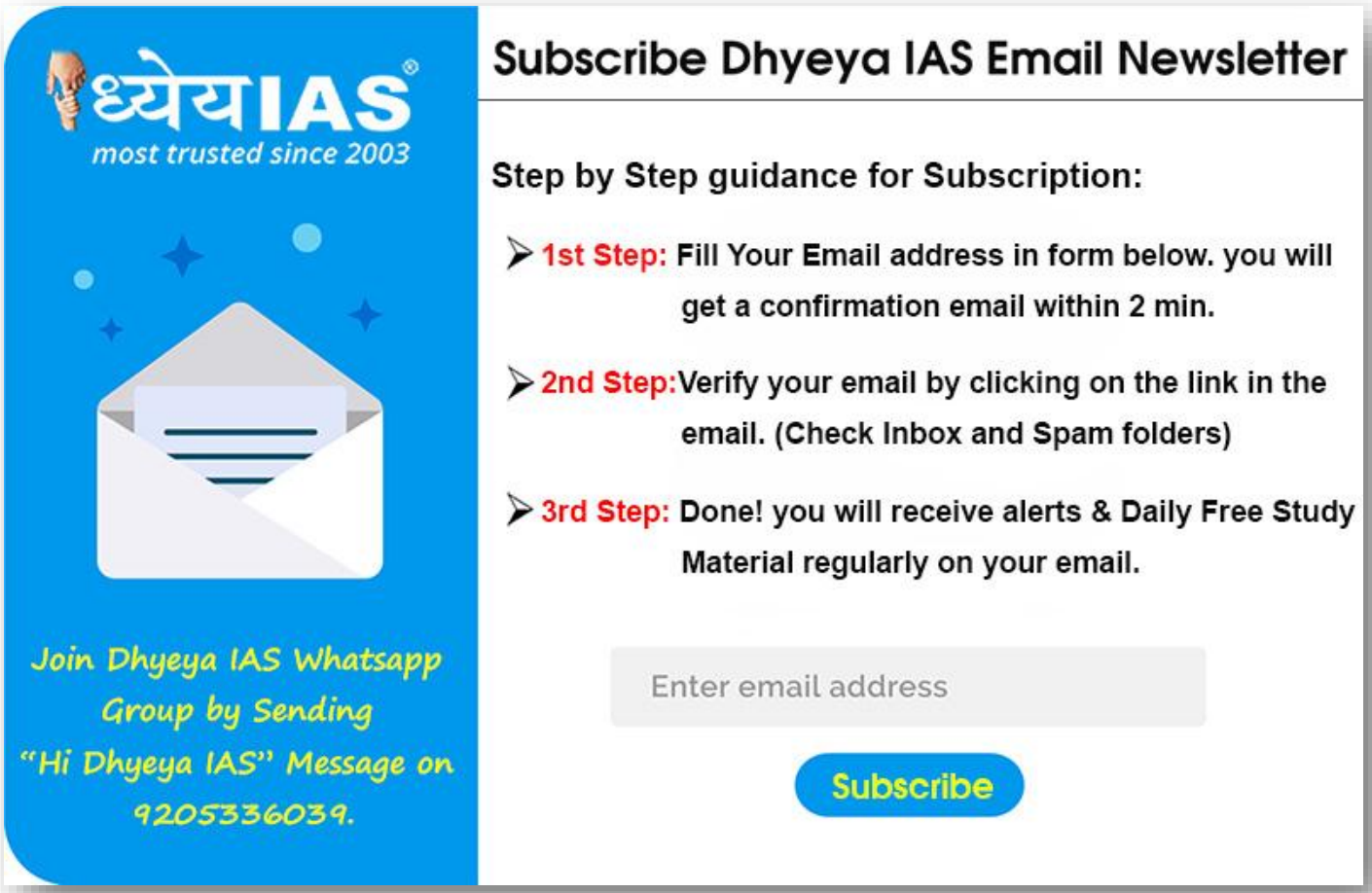
नोट (Note): अगर आपको हिंदी और अंग्रेजी दोनों माध्यम में अध्ययन सामग्री प्राप्त करनी है, तो आपको दोनों में अपनी ईमेल से Subscribe करना पड़ेगा | आप दोनों माध्यम के लिए एक ही ईमेल से जुड़ सकते हैं |



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