1. What is cloud computing? Discuss the recent government efforts in the field of cloud computing.

Approach

The candidate needs to address the question in two parts where the first part should explain what is cloud computing and the second part should discuss the recent government measures in the field of cloud computing as well as some way forward.

Introduction

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

Body

- Cloud computing is named as such because the information being accessed is found remotely in the cloud or a virtual space. Companies that provide cloud services enable users to access all their data via the Internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely.
- Cloud computing takes all the effort involved in crunching and processing data away from the device one carries around or sit and work at. The Internet becomes the cloud, and one's data, work, and applications are available from any device with which one can connect to Internet, anywhere in the world.
- Cloud computing can be both public and private. Public cloud services provide their services over the Internet for a fee. Private cloud services, on the other hand, only provide services to a certain number of people.

Cloud computing offers immense potential and benefits for all types of organizations. In India, government's support in embracing emerging latest technologies and best practices derived from different cloud deployment scenarios and application areas is increasing, which is evident from the following points –

1. To take advantage of cloud computing, the Indian government has launched an ambitious initiative — "GI Cloud", which has been dubbed "MeghRaj". The focus of this initiative is to accelerate the delivery of electronic services in the country and optimize government ICT spending. This will ensure optimal infrastructure utilization and accelerate the development and deployment of eGov applications.

2. E-Gram Panchayat: To improve the quality of governance, the Indian government initiated an e-governance scheme known as ePanchayat to simplify and enhance internal government operations. The cloud model of e-Gram Panchayat depicts a high-level architecture intended to facilitate internal government operations.

3. Indian Railways on Cloud: To avoid losses, the Indian government decided to implement cloud technology for Indian railways. Cloud computing has led to vast advancements in the railway network. The techniques like Tickets with unique QR (Quick Response) – Code and ticket checking with QR Scanner, Wi-Fi enabled GPS devices set up on each train are managed using cloud storage.

4. Kisan Suvidha: The Indian government came up with portal Kisan Suvidha to help farmers with the relevant information instantly. It delivers farmers with detailed knowledge on weather, market prices, seeds, fertilizers, pesticides, agriculture machinery, dealers, agro advisories, plant protection and IPM practices.

5. DigiLocker: DigiLocker is the public cloud-based storage introduced by the Indian government for the citizens of India. It is much more than an online drive where you upload your documents to be accessed depending on your convenience. The documents are digitally verified and signed by the government of India in a few seconds with an authentic seal of DigiLocker verification.

6. eHospital: eHospital is the cloud-based healthcare projected implemented by the government of India to ease the process of healthcare management. The system was designed to speed up services like online registration, payment of fees and appointment, etc. This hospital model assigns a unique identification number to every patient at the time of registration. The medical history of a particular patient can be accessed using the number.

But to realise cloud's potential, a one-size-fits-all approach will not work. Following **Way Forward** can be considered –

- Address data localisation issues: Many a time data localisation or data residency or other regulatory compliances are considered as roadblocks for cloud adoption.
- In addition, re-looking at the existing technology and data protection standards and updating them to include the best practices for cloud is also recommended.
- Explore beyond infrastructure services: Simply migrating application, data, and its associated infrastructure to the cloud may not allow government or public sector entities to leverage its full benefits. Instead, they need to explore platform services and move towards embracing cloud-native architectures.

Conclusion

In this technology-driven era, the government is considered as active if it is agile and can keep up with the growing demands and expectation of its citizens with the help of its services and computing capabilities where cloud computing can help in achieving Digital India mission.

2. What is deepfake? How can it be a security challenge? Examine.

Approach

Candidates are expected to write about basics of deepfake. And then highlight the Security challenges due to deepfake. Also can suggest the possible solution to tackle it.

Introduction

Deep fakes first came into notice in 2017 when a Reddit user posted explicit videos of celebrities. After that several instances have been reported. Deep fakes are computer-generated images and videos. Cybercriminals use AI softwares to superimpose a digital composite (assembling multiple media files to make a final one) onto an existing video, photo or audio.

Body

Deepfake as Security challenge:
- Undermining Democracy: A deepfake can also aid in altering the democratic discourse and undermine trust in institutions and impair diplomacy. False information about institutions, public policy, and politicians powered by a deepfake can be exploited to spin the story and manipulate belief.
- Disrupting Electioneering: A high-quality deepfake can inject compelling false information that can cast a shadow of illegitimacy over the voting process and election results. Leaders can also use them to increase populism and consolidate power. Deepfakes can become a very effective tool to sow the seeds of polarisation, amplifying division in society, and suppressing dissent.
- Anti state sentiment: Nation-state actors with geopolitical aspirations, ideological believers, violent extremists, and economically motivated enterprises can manipulate media narratives using deepfakes. It can be used by insurgent groups and terrorist organisations, to represent their adversaries as making inflammatory speeches or engaging in provocative actions to stir up anti-state sentiments among people.
- Creation of Echo Chambers in Social Media: Falsity is profitable, and goes viral more than the truth on social platforms. Combined with distrust, the existing biases and political disagreement can help create echo chambers and filter bubbles, creating discord in society.
- Liar's dividend: An undesirable truth is dismissed as deepfake or fake news. It can also help public figures hide their immoral acts in the veil of deepfakes and fake news, calling their actual harmful actions false.
- Social Harm: Deepfakes can cause short- and long-term social harm and accelerate the already declining trust in news media. Such an erosion can contribute to a culture of factual relativism.

- Targeting Women: The malicious use of a deepfake can be seen in pornography, inflicting emotional, reputational, and in some cases, violence towards the individual.
- Damage to Personal Reputation: Deepfake can depict a person indulging in antisocial behaviours and saying vile things. These can have severe implications on their reputation, sabotaging their professional and personal life. Further, Deepfakes can be deployed to extract money, confidential information, or exact favours from individuals.

What should be the solution for dealing with Deepfakes?

- Regulation & Collaboration with Civil Society: Meaningful regulations with a collaborative discussion with the technology industry, civil society, and policymakers can facilitate disincentivising the creation and distribution of malicious deepfakes.
- Detect and amplify: We also need easy-to-use and accessible technology solutions to detect deepfakes, authenticate media, and amplify authoritative sources.
- New Technologies: There is also need easy-to-use and accessible technology solutions to detect deepfakes, authenticate media, and amplify authoritative sources.
- Enhancing Media Literacy: Media literacy for consumers and journalists is the most effective tool to combat disinformation and deep fakes. Improving media literacy is a precursor to addressing the challenges presented by deepfakes.
- To counter the menace of deepfakes, we all must take the responsibility to be a critical consumer of media on the Internet, think and pause before we share on social media, and be part of the solution to this infodemic.

Conclusion

Collaborative actions and collective techniques across legislative regulations, platform policies, technology intervention, and media literacy can provide effective and ethical countermeasures to mitigate the threat of malicious deepfakes.

3. How do hybrid vehicles work? Are hybrid vehicles a sustainable alternative to traditional automobile? If yes, then what are the challenges in their wide scale adoption? Discuss.

Approach- Question is straight forward. Candidate is expected to define hybrid vehicles, explain how they function. Challenges in their adoption can be given by given by explaining pros and cons.

Introduction

A hybrid combines at least one electric motor with a gasoline engine to move the car, and its system recaptures energy via regenerative braking. Sometimes the electric

motor does all the work, sometimes it's the gas engine, and sometimes they work together. The result is less gasoline burned and, therefore, better fuel economy. Adding electric power can even boost performance in certain instances.

Body

How do hybrid vehicles work?
- The basic principle with hybrid vehicles is that the different motors work better at different speeds; the electric motor is more efficient at producing torque, or turning power, and the combustion engine is better for maintaining high speed (better than a typical electric motor).
- Switching from one to the other at the proper time while speeding up yields a win-win in terms of energy efficiency, as such that translates into greater fuel efficiency.
- Regenerate braking- The drivetrain can be used to convert kinetic energy (from the moving car) into stored electrical energy (batteries). The same electric motor that powers the drivetrain is used to resist the motion of the drivetrain. This applied resistance from the electric motor causes the wheel to slow down and simultaneously recharge the batteries.
- Dual power- Power can come from either the engine, motor, or both depending on driving circumstances. Additional power to assist the engine in accelerating or climbing might be provided by the electric motor. Or more commonly, a smaller electric motor provides all of the power for low-speed driving conditions and is augmented by the engine at higher speeds.

Are they sustainable alternative to traditional automobile?
- Traditional automobile gives better power, low Economic price tag, have Low maintenance cost, have better agility (acceleration and speed).
- On the other hand, hybrid vehicles give higher mileage, they are cleaner, have higher resale value and reduce fuel dependence but they are high on maintenance.

What are the challenges for the wide scale adoption?
- Though hybrid cars consume less fuel than conventional cars, there is still an issue regarding the environmental damage of the hybrid car battery.
- Today most hybrid car batteries are one of two types: 1) nickel metal hydride, or 2) Lithium-ion; both are regarded as more environmentally friendly than lead-based batteries which constitute the bulk of petrol car starter batteries today.
- There is an impending increase in the costs of many rare materials used in the manufacture of hybrid cars. For example, the rare earth element dysprosium is required to fabricate many of the advanced electric motors and battery systems in hybrid propulsion systems.

- Neodymium is another rare earth metal which is a crucial ingredient in high-strength magnets that are found in permanent magnet electric motors. Nearly all the rare earth elements in the world come from China. Overdependence on china is major cause of concern in uncertain times of pandemic.
- In order for the hybrid to run on electrical power, the car must perform the action of braking in order to generate some electricity. The electricity then gets discharged most effectively when the car accelerates or climbs up an incline.
- In 2014, hybrid electric car batteries can run on solely electricity for 70–130 miles (110–210 km) on a single charge. Hybrid battery capacity currently ranges from 4.4 kWh to 85 kWh on a fully electric car. On a hybrid car, the battery packs currently range from 0.6 kWh to 2.4 kWh representing a large difference in use of electricity in hybrid cars making electric vehicles more attractive.

Conclusion

Hybrid vehicles present an optimistic alternative to traditional vehicle, in terms of saving fuel and energy, but adoption rate of hybrid vehicles is low owing to high price and high maintenance cost. Electric vehicles are occupying market at faster pace, to increase mass appeal above challenges can be addressed.

4. What is the mandate of the World Health Organisation (WHO)? Comment upon its performance during the COVID pandemic.
Approach

Since question has asked you to comment, it requires you to express an opinion or reaction. It is important to pick out the main points/core and give Your opinion based on the information or the arguments.

Introduction

World health organization are building a better, healthier future for people all over the world. They are Working with 194 Member States, across six regions, and from more than 150 offices With their staff united in a shared commitment to achieve better health for everyone, everywhere. Together they strive to combat diseases – communicable diseases like influenza and HIV, and non communicable diseases like cancer and heart disease.

Body

Mandate of the World Health Organisation (WHO)
- Together the worker of WHO strive to combat diseases – communicable diseases like influenza and HIV, and noncommunicable diseases like cancer and heart disease.

- It help mothers and children survive and thrive so they can look forward to a healthy old age. We ensure the safety of the air people breathe, the food they eat, the water they drink – and the medicines and vaccines they need.
- Their primary role is to direct and coordinate international health within the United Nations system.
- Their main areas of work are health systems; health through the life-course; noncommunicable and communicable diseases; preparedness, surveillance and response; and corporate services.

Its performance during the COVID pandemic

- Much of the criticism of WHO asserts that it failed to exercise global health leadership and instead became a tool of Chinese politics, power, and propaganda.
- This critique holds that WHO had the ability to question China's handling of the outbreak in Wuhan so that the organization could better prepare the world for a dangerous disease—but that WHO failed to act decisively.
- The criticism raises questions about WHO's authority to challenge states during serious outbreaks for the good of global health. In contrast, praise for WHO often highlights how it has its deployed scientific skills, epidemiological expertise, medical know-how, outbreak-response capacities, and global networks in helping China and other countries.
- These commendations emphasize the imperative for WHO to work with governments in battling outbreaks.

Conclusion

The pandemic and the controversies associated with it have created an immediate crisis for WHO as COVID-19 rages on. But it's also created a prospective crisis because the outbreak and political reactions to it will shape the future of WHO. The present back-and-forth between WHO's critics and defenders previews the coming tussle over how to repair global health governance and reform WHO in light of this disaster. Although the pandemic is not over, the pillory and praise of WHO are worth exploring now so that the coming tsunami of demands for change do not destroy the organization in order to save it.

5. What are the key issues with the issuance and regulation of electoral bonds in India? Examine.

Approach:

Question is straight forward in its approach students are expected to write about the issues of electoral bonds and the issues associated with their issuance and regulation also it is important to mention points with proper explanation.

Introduction:

Electoral bonds are interest-free bearer instruments used to donate money anonymously to political parties. A bearer instrument does not carry any information about the buyer or payee and the holder of the instrument (which is the political party) is presumed to be its owner. The bonds are sold in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore, and the State Bank of India (SBI) is the only bank authorised to sell them. Donors can purchase and subsequently donate the bonds to their party of choice, which the party can then cash through its verified account within 15 days. There is no limit on the number of bonds an individual or company can purchase. SBI deposits bonds that a political party hasn't enchased within 15 days into the Prime Minister's Relief Fund.

Body:

Issues with Issuance and regulation of electoral bonds-

- The anonymity provided to donors donating electoral bonds is the point of contention here. Through an amendment to the Finance Act 2017, the Union government has exempted political parties from disclosing donations received through electoral bonds. In other words, they don't have to disclose details of those contributing by way of electoral bonds in their contribution reports filed mandatorily with the Election Commission every year.
- Moreover, while electoral bonds provide no details to the citizens, the said anonymity does not apply to the government of the day, which can always access the donor details by demanding the data from the State Bank of India (SBI). This implies that the only people in dark about the source of these donations are the taxpayers.
- Compromising Right To Know, The Indian Supreme Court has long held that the "right to know", especially in the context of elections, is an integral part of the right to freedom of expression under the Indian Constitution.
- By keeping this knowledge from citizens and voters, the electoral bonds scheme violates fundamental tenets of our democracy.
- Opposition by Election Commission of India The Election Commission, in May 2017, objected to the amendments in the Representation of the People (RP) Act, which exempt political parties from disclosing donations received through electoral bonds. It described the move as a "retrograde step".
- The electoral bonds scheme removes all pre-existing limits on political donations and effectively allows well-resourced corporations to fund elections and subsequently paving the way for crony capitalism.
- Further, as the electoral bonds scheme allows even foreign donations to political parties (which can often be made through shell companies) the

prospects of institutional corruption increase with the electoral bonds scheme, instead of decreasing.

- The essential problem with the electoral bonds is that it obscures the real extent of the rot in political funding. Formally accounted for funds, whether as donations in cash, cheque or electoral bonds, constitute a tiny fraction of the actual expenditure of a political party. The bulk of the money is received and spent completely informally and not reported to any authority.

Way forward:

- Transparency in Elections Funding, In many advanced countries, elections are funded publicly. This ensures principles of parity and there is not too great a resource gap between the ruling party and the opposition.
- One of the most critical functions of an independent judiciary in a functioning democracy is to referee the fundamentals of the democratic process.
- Electoral bonds have raised questions on the electoral legitimacy of the government and thus the whole electoral process has become questionable. In this context, the courts should act as an umpire and enforce the ground rules of democracy.

Conclusion:

India cannot forever fund its democracy with the proceeds of corruption, money taken off the books of companies and funnelled to parties in wholly opaque ways. Such funding corrupts politics and makes the economy non-competitive. If project costs are routinely padded to siphon funds out during project implementation, so as to create the war chest with which to pay off parties. It is essential that if democracy is to thrive, the role of money in influencing politics ought to be limited. Thus, it is imperative that the scheme of the electoral bonds should be revised.