

CS Mains

GS Paper - III

NOTE:As the question on this topic may not come in the exact form in C. S Main Examination we have given slightly more information so that candidates can answer a question on this topic even if it is differently framed. Though care has been taken to give accurate information, if there are any inaccuracies, please write to us at rcreddy.testseries@gmail.com . It will be referred to the experts and, if need be, correction will be made.

Q1. 'The challenges of feeding India's billion plus people is not really about agriculture and food production, but about developing a world class Cold -chain infrastructure to minimise wastage'. Comment.

India is an agrarian economy and agriculture contributes about 14% of GDP. The country is a leading producer of milk and the world's second largest producer of fruits and vegetables, while also producing a significant amount of meat and poultry. The government of India spends 750 billion INR a year, 1% of GDP on food distribution system.

Despite high food production and an existing distribution network, India finds it difficult to feed its own people. This is due to considerable wastage. Approximately 18% of the country's fruits and vegetables are wasted. If the projected growth in food production becomes a reality and cold chain investments are not made, the current food wastage scenario will become worse.

Developing cold storage units has inherent challenges like:

high cost of real estate in India

high energy costs in India, along with frequent power cuts, leading to

higher cost of investment and operating expenses of the cold storage chain, and

uneven distribution of cold storage chains in India.

Government has taken some initiatives to encourage cold storage facilities like..

1. allowing refrigerated wagons through railways under PPP model
2. focusing on 100% FDI in cold storage,
3. implementation of APMC amendment act, and
4. 40 – 50% subsidies to National Horticulture board to improve cold storage.

Q2. The failure of AMPC Act led to the recent initiative of e-NAM (National Agricultural Market). Explain.

Agriculture marketing in India is regulated by the APMC (Agricultural Produce Marketing Committee) act enacted by different states to protect the interests of farmers. However, it has impeded their interests. The causes for the failure of APMC and subsequent model APMC are

- restricting farmers to sell their produce only in a particular APMC in the region and the price being determined by the trader cartels instead of market forces leading to lower incomes to farmers,
- multiple license fees and levies to be paid by both the farmers and traders, and
- the opaque working system of APMC and ill-maintained market yards led to loss of quality of goods.

NDA Government led by PM Narendra Modi advised states to amend their AP M C Acts to facilitate farmers selling their produce anywhere and introduced e-NAM, an online agricultural marketing platform bringing farmers and traders from different parts of the country on to a single platform. The benefits of setting e-NAM are listed below.

Farmers:

- Farmers can sell their produce in different markets across the country at a better price which was not the case earlier
- The elimination of middle-men in the process leads to fair price to the farmers compared to the past.

Traders:

- With the elimination of multiple licenses required and replacing it with a single license across the state will lead to ease of operations and hassle free movement of goods,
- The transparent price discovery mechanism will help the traders to purchase goods which meets his/her price, quality standards, etc.
- This unified agricultural platform across the nation will lead to better linkages of the food-processing industry benefiting traders.

Consumers:

- With the elimination of multiple barriers in the movement of goods and elimination of middle-men leads to reduced prices of goods at the consumer end.
- The choice of the consumer will be widened as the reach of different types of goods will be eased and leads to sustainable growth of agriculture. (for eg: A person in Hyderabad earlier used to get most of rice from Kurnool but now with e-NAM his choice will be widened).

Q3. Government policies have resulted in changes in cropping pattern in India. Explain.

Cropping pattern refers to the proportion of area under different crops in a given area at a given point of time. Along with geoclimatic, socioeconomic factors etc, political factors also influence cropping patterns.

Changing cropping patterns in India can be analysed as follows.

Crops with increasing spread: Horticultural crops, sugarcane, tea, coffee, rubber, oil seeds (especially rapeseed), wheat, cotton, etc.

Crops with decreasing spread: Coarse cereals, mesta, ground nut, etc.

Crops stagnating: tobacco, jute, pulses, rice, etc.

Government policies involved in such changes are support services like irrigation, and incentives for agricultural production like MSP

Government influences in increasing the spread

- Area under wheat increased mainly because of green revolution heralded by direct Government action. Construction of Indira Gandhi canal brought hitherto uncultivated areas of Ganganagar, Hanumangarh, Bikaner, etc. districts of Rajasthan under wheat cultivation. Liberalization of grain trading between states also influenced wheat production.
- Liberalization policies adopted in 1990s and removal of controls on marketing dismantled restrictive practices both in internal & international markets. This greatly affected plantation crops like Tea, coffee, Rubber, etc & total area under their cultivation increased from 0.4% in NAS to 2.4% in 2010-11.
- Statutory minimum pricing system for sugarcane is one of the important reasons behind increase in its spread (1.6% (1970) to 2.7% (2010))
- Technology mission on oil seeds has been a success in improving the area under their cultivation .The recent policies of compulsory ethanol blending in petroleum is rapidly increasing sugarcane cultivated areas.
- Introduction of Bt cotton is an important reason in increasing the spread of cotton.

Government policies in decreasing / stagnating the spread:

- Liberalisation & Globalisation regime adopted has significantly changed the food preferences of people & consumption of coarse cereals decreased, decreasing their area under production.
- Active campaigning against tobacco products had an effect on stalling the increases in its spread.
- AS green revolution has largely bypassed pulses, there are no significant increases in the spread of pulses.
- Lack of MSPs for a variety of crops too decreased their spread.

Q4. In the era of jobless growth, how effectively do you think promotion of self-employment and entrepreneurship among the youth can generate jobs.

India is the youngest nation of the world, with more than 63% of its population present in the working age between 18-60 years. However, majority of this section of population remain either unemployed or under-employed due to the job-less growth of Indian economy.

To reverse this trend, government of India has taken up initiatives like Startup India, Stand Up India and MUDRA to encourage self-employment and entrepreneurship on one-side and to develop innovation through initiatives like AIM (Atal Innovation Mission), and SETU (Self-Employment and Talent Upgradation) especially among the rural youth.

Start-up India:

- The major objectives of this flagship scheme are development of a strong ecosystem which nurtures innovation, sustainable economic growth and provide large-scale employment.
- It also envisaged to extend to other traditional areas like agriculture, manufacturing, healthcare & education among the tier- 2 and tier-3 cities.
- To build this ecosystem government has announced various encouraging measures like no corporate taxation for first three years and encouraging venture capitalists investing in Indian start-ups, etc.

Stand-up India was launched

- to promote rural entrepreneurship and promote inclusive and sustainable economic development especially among the weaker sections like women, SCs, STs etc.
- This development will lead to the widening of the already growing MSME sector in India, which provides employment to more than 8 crore people and have other spillover effects like women empowerment, increase in supply chain management and rise in foreign trade e

AIM & SETU:

- These schemes are auxiliary support systems being developed by NITI Aayog to develop the skills and the employability by emphasizing on innovation and talent upgradation.
- This would be achieved by setting up mandatory innovation hubs in many of the rural areas with the support of government under AIM.
- SETU (Self Employment and Talent Utilisation) under NITI Aayog to support all aspects of startup business through institutional support to the rural ideas and innovations by protecting them through legal mechanisms like Patents, IPRs, etc.

However, despite these provisions still majority of the youth are yet to be covered under these initiatives because of various known reasons like digital divide in the rural areas, lack of functional financial literacy, etc.

The need of the hour is to develop high labour intensive and less skill dependent industries like agri-based industries, textile industries, etc. as a priority, so that it will lead to an all-round inclusion of the unemployed and underserved youth.

Q5. 'The over tertiarisation of the Indian economy has resulted in jobless growth'. Comment.

Approach:

- No need to tell them the sectors
- Here we need to show that we skipped industrial sector and jumped to the services sector
- We need to link it with that missing sector and needs to criticize that missing this and now have to with evidences we missed it
- Now criticize it then make a opinion on the given statement

Economic activities are classified into Primary, Secondary and Tertiary sectors. Initially most economies were engaged in primary activities and later move towards development of Industries and then to service activities. But Indian economy witnessed a jump from farming to services, without developing industrial sector fully which could have generated a lot of jobs. In fact, India should have focussed on low end export oriented manufacturing strategy much before the 1991 reforms. But that did not happen. This type of growth of manufacturing industries could have provided jobs to our masses.

With LPG (Liberalisation, Privatisation, and Globalisation) after 1992, over tertiarisation increased leading to 50 per cent share of services in GDP, thus capturing the position vacated by agriculture.

Agriculture and industry are the actual goods producers and lack of growth in these sectors has fuelled the supply side driven inflation. Apart from this, employment generation has also been a problem in India.

Service sector, with a share of 61 percent of GDP in 2015-16 hardly accounts for 28.7% of employment. In contrast, agriculture sector contributes to 48.9% of employment though its contribution to GDP is a meagre 15%.

In India, the service sectors has grown bypassing the secondary sector. The analysis of sectoral share of GDP is indicative of the fact that Indian economy has not followed the classic model of transition. Recent government policies like New manufacturing policy NIMZs, DMIC's may lead to correct these imbalances.

Q6. Discuss the prospects of Civil Aviation Sector in India. In this context, comment on the provisions of the recent UDAN (Ude Desh ka Aam Nagarik) scheme proposed by the government.

Civil aviation is one of the fast-growing sectors of Indian economy, However, still only around 1% of Indian population have ever travelled by air. This implies that there is a huge potential demand for the long-term growth and development of civil aviation industry.

The following factors favour the growth of civil aviation sector in India.

- Rising incomes of the individuals and the rising middle class groups in the Indian society and their desire to travel in a lesser duration and at cheaper fares.
- Increase in foreign direct investments in civil aviation sector in India.
- Government initiatives like Make in India can provide a huge impetus for developing aviation industry in India which not only leads to better employment opportunities but also cheaper supply of aviation goods leading to lesser costs.
- Growth of tourism sector in India also contributes to the growth of civil aviation sector too.

The UDAN scheme of government is trying to address this dual challenges to the civil aviation sector in the following ways:

- By setting up a ceiling limit of Rs 2000/hour/ person to be charged by an airline for connecting any of the tier-II and III cities other than the established metropolitan cities.
- Provision of Viability gap funding (VGF) for the airlines for connecting the regional airports by the government.
- Development of infrastructure in all regional airports in tier-II, III cities by the means of either PPP or FDI (greenfield & brownfield).
- No airport charges and reduced taxation from both centre and states (like service tax, ATF, etc.)
- Based on these provisions of UDAN, it can effectively attain the potential of civil aviation gradually with an all-round and consistent support by the various stake-holders like government, private airlines, etc.
- Moreover, balanced regional development is possible by developing civil aviation equitably across India, for instance the development of civil aviation in North-eastern parts of India can lead to better connectivity. UDAN is a right step in this direction.

Q7. What do you understand by Chakravayuh challenge of Indian economy? What are the impacts of this challenge on Indian economy? How do you think the recent Insolvency and Bankruptcy code would address

The Chakravayuh challenge of Indian economy means an unrestricted entry of new firms/ entities with minimum barriers and highly restricted/ regulated exit policy. This is an outcome of the transformation of Indian economy “From socialism with restricted entry to ‘marketism’ without exit.” (Economic Survey report, 2015-16).

The impacts of Chakravayuh challenge on Indian economy are:

- **Fiscal costs;** The provision of explicit subsidies (like bailouts) or implicit subsidies (like tariffs, loans, etc.) represents a cost to the economy.
- This leads to higher government borrowing and diverting the welfare and development finances to these industries.
- **Economic costs;** In a capital scarce country like India, misallocation of resources to less-productive and less efficient industries is causing market distortion and fall in the levels of economic growth.
- Also, this increases the already over-burdened banking system which is suffering from large number of NPAs.
- **Political costs;** As majority of the benefits of impeded exit often flow to the rich and the influential in the form of support for “sick” firms. This leads to an impression that government supports the large corporates over public interests (eg: Kingfisher airlines bad loans issue)

The government, based on these impacts, has established an Insolvency and Bankruptcy Code with an objective of clearing the economy from these impacts. The following are its key provisions:

- Clear and speedy mechanism for early identification of financial stresses of the companies.
- Time-line based delivery, as fast track resolution of insolvency cases will improve recovery of debt and money which leads to reduction of NPAs, promotion of entrepreneurship, increased credit availability, etc.
- In this regard, the code suggested for two separate regulators (a) Insolvency regulator and (b) Insolvency adjudicating authority (i.e. Debt recovery tribunals and National company law tribunals).
- Setting up an Insolvency and Bankruptcy fund to address any of the concerns of the various stakeholders like creditors, employees, etc. with respect to exit of the company.

By effectively adopting these measures into our economy, India can gradually improve its ranking in ease of doing business report of world bank and attract large foreign investments which help in providing inclusive growth of our economy.

Q8. Power sector reforms in the recent times have attained great significance but still there exists a great shortage power in many rural areas. In this context, comment on the steps initiated by the government in providing ‘Power for all’.

In view of the growing need of electricity in India, our government has launched 'Power for all' scheme which intends to provide accessible and uninterrupted 24x7 power to all people across the nation. To achieve this goal, the following steps were taken by our government.

Generation capacity:

Non-renewable

- A number of UMPPs (Ultra mega-power plants) across the country based on the plug and play model (government itself will acquire all the required clearances and then auction the tender to a private concessionaire)
- Thermal plants across India were set up by NTPC etc.
- Captive generation of power was taken up by many industries.

Renewable sector:

- Union government announced an action plan for the production of more than 175GW of energy from renewable energy resources by 2022 of which 100GW would be from solar energy only. As a step to achieve this goal, solar parks and ultra-mega solar power plants are being set-up across India.
- Generation of energy through small solar, hydel power plants and biomass plants is being planned in regions of inaccessible terrain like North-east region where establishing grid connectivity is a daunting task

Transmission capacity:

- With the recently concluded Raichur – Sholapur 765 kV transmission line by POWERGRID, the south grid is connected to the national grid and the emergence of 'One Nation-One Grid-One Frequency' was achieved.
- DDUGJY (Deen Dayal Upadhyay Gram Jyoti Yojana) envisages the feeder separation for agriculture and household purposes and strengthening of sub-transmission networks across the country.
- Rural electrification across the states is constantly monitored by the central government through technological bases like GARV (Grameen Vidyutheekaran) App.

Distribution:

- The major flagship programme of the present government i.e. UDAY (Ujwal DISCOM Assurance Yojana) aims at strengthening of debt-ridden and ailing DISCOMS across the country.
- IPDS (Integrated power development scheme) envisages strengthening of distribution network through metering, etc.

Electricity tariff policy:

- The cabinet has recently cleared the amendment to the Electricity act, 2014 and the tariff policy, 2006 to rationalize the tariff rates across the country.
- Our government is encouraging setting up of micro-grids in inaccessible regions and buying the surplus power generated.

Energy efficiency:

- The government of India's initiative of UJALA involves setting-up of LED bulbs in domestic and street lighting across 100 cities of the country, which will result in saving of electricity.

These are the initiatives of the government being implemented for providing power for all by 2019. However, the success of these initiatives is more dependent upon effective co-ordination and implementation rather than mere outlays.

Q9. Payment and Small Banks are touted to be one of the most effective measures of ensuring financial inclusion. Critically analyse the possible success of this initiative based on the advantages and limitations of the payment and small Banks in India.

Payment banks and small banks are the new developments initiated by the government in ensuring financial inclusion by providing services like:

- improving the accessibility of the banking sector especially in the unserved and underserved rural areas of India,
- ensuring the last mile connectivity of the JAM trinity by ensuring the deposited money in their accounts reach the intended beneficiaries.
- Provision of safety and security to people through services like mutual funds, pension schemes (NPS), bank lockers, etc.

In this regard, RBI has already granted licenses to entities like India Post, PayTm and others to set-up and operate the payment banks as per the notified guidelines. The following are the advantages of these banks:

- The most significant contribution by these banks would be ensuring last-mile connectivity, for instance India Post has large number of post-offices located in rural areas. With large economic and human capital, it can ensure the accounted cash in the individual accounts reach their door-steps.
- The deep mobile penetration even among the rural areas of India, provides a promising opportunity to the mobile network operators in not only transferring money quickly but also improve quality of service delivery by providing information about the stock of food supplies, fertilizers, etc.
- Effective seamless and hassle free money transfers from Indian workers working abroad can be ensured by the development of payment banks.
- Small banks can help in providing smaller credit to the rural farmers, women SHGs who are mainly dependent on money-lenders for their financial purposes.

Limitations:

- Consistent and continuous generation of profits is difficult for Payment banks as there are only few avenues of revenue like commissions, handling fees, etc. which are generally small in amount.
- Lack of financial literacy among the rural population and the large digital divide between rural and urban areas.
- Lack of basic infrastructure like electricity, and internet connectivity in rural areas in spite of large scale mobile connections.
- With respect to small banks, the already existing competition in the form of local money-lenders, NBFC-MFIs, co-operative banks, etc. come in the way of generating profits.

- Growing NPAs, bad loans and consequent losses to the already established PSBs has sent negative signals for the setting up of these banks in the current scenario.

Understanding these limitations and the stagnant demand for credit at present, many companies with licenses have withdrawn their plans of setting up the banks (like Airtel, Idea network).

However, by dovetailing the other government initiatives like Aadhar-based Jan Dhan yojana, Jeevan Jyothi and Suraksha Bima Yojana with these banks would lead to better financial inclusion and increased clientele. By taking up such activities and effective support, these initiatives of payment and small banks can be successful.

Q10. There is a recent trend of rise in contract labour in Indian Manufacturing Industries. What could be the possible reasons for such rise? Also, discuss the merits and de-merits of this trend.

Approach :

- Brief intro of contract labour and their status
- You can compare these with other countries too as in china, Russia, brazil etc..
- Even they can discuss labor reforms, companies act
- Related industries, few industries are peculiar in appointing these labor

Manufacturing sector of Indian industry accommodates the large number of formal sector jobs in India. However, in the recent times there is a growing demand for contract labour over permanent labour among the companies. In India, contract workers increased from 12% of all registered manufacturing workers in 1999 to 25% in 2010.

The following are the possible reasons for this rise in contract labour.

- Large number of complex labour and rigid regulations to be followed by the companies. For eg: Based on a survey report findings, it is found that states that have rigid laws and regulations have more number of contract labourers.
- Stringent dismissal norms mandated under the Industrial Disputes Act, which is applied to all industries with more than 100 permanent labourers. Hence, to negate this provisions contract labourers are preferred.
- Generation of more profits is a major reason in this regard.

Merits of contract labour:

Firm/ company:

- The firm essentially subcontracts (outsource) the complex and rigid labour regulations to the contract labour firm, thus helps it to focus on its core operations.
- As the contract workers are employees of the contract labour firm and not considered as the employees of the firm, the firm can remain small and attain multiple tax and other benefits available.

Workers:

- Flexibility in their choice of occupation and there will no bond and other forms to be signed. Thus, he/she is free to choose and leave a company.
- Better opportunities will be available to an individual worker, as the contract labour agency will have the required data base of all the workers and their skill-set.
- Provision of minimum training by the manufacturing firm will help him/her attain the manufacturing skills with a better expertise.

Demerits of contract labour:

Firm/company:

- Expensive in nature than regular worker based management.
- Diminished loyalty from the side of workers to the company's aims and objectives.
- In the longer run, hurts the productivity of the company.

Workers:

- Leads to erosion of basic rights of worker protection and worker rights as guaranteed by the Constitution of India.
- No established livelihood security .
- Higher out-of-pocket expenditures to attend the basic requirements like schooling for children, health issues, etc.

Based on the merits and de-merits of the trend and the growing unemployment levels among the youth, there is an urgent need for streamlining the labour regulations as mandated by **Deen Dayal Upadhyay Shrameyave Jayathe**.

Q11. National Disaster Management Plan offers a unique opportunity to realize the vision of a safer and disaster resilient India. Critically evaluate.

Approach :

- It would be better to start intro with an example due to ample evidences
- Pros & Cons
- Stay on one side
- Support your stand with evidence

The recently released National Disaster Management Plan helps to address the shortcomings of Disaster management Act. Important features are:

1. Comprehensive nature: It covers all the phases of disaster management like prevention, mitigation, response and recovery. It also includes human induced disasters like chemical, nuclear, etc.
2. Capacity building: Special emphasis is on training, capacity building, and adopting international best practices.

3. Clear demarcation of roles and responsibilities: It focuses on vertical and horizontal integration among various governmental agencies. This ensures seamless coordination and cooperation among them.
4. Regional approach : The national plan considers the uniqueness of each region and formulates specific disaster management plan accordingly.
5. General guidelines : The plan proposes to have a checklist like early warning, search and rescue, evacuation, etc. for agencies associated with disasters with adequate flexibility to them.
6. Community awareness : It attaches prominent role in community awareness through the use of Information, Education and Communication activities.
7. Planning : Short, medium and long term plans are part of the Plan to deal with the disasters in a more systematic manner.

Limitations of the National Disaster Management Plan :

1. **Financial resources** : The plan did not discuss about the means to rise the required financial resources which are an essential aspects of successful implementation of any plan.
2. **Institutional aspects** : It provides broad guidelines to agencies involved with the disasters. But it does not discuss about necessary ways to hold them accountable.
3. **Role of civil society and private players** : The disaster management plans should make best use of the civil society and private players in resource mobilization (human and financial), technical services as well.
4. **Scope of indigenous knowledge**: The local communities are better equipped with the terrain of the region and potential disasters.Hence,we need to even consider their traditional knowledge in our National Disaster management plan.
5. **Specialised forces**: National Disaster Response Forces are providing commendable services. But it is the local agencies that are the first responders of the disasters. Hence, specialized forces at state ,district, local levels are needed., which are found to be absent in majority of the states.
6. **Insurance facilities**: **The plan is silent on** lack of adequate insurance facilities which is jeopardizing the rehabilitation and resettlement of the disaster affected people,on which the plan was silent.

Q12. Write a short note on

(a) Eutrophication and associated problems

One of the main problems affecting coastal waters is the high levels of nitrogen and phosphorous based pollutants entering the water. These pollutants come mainly from human activities. Overloading coastal waters with nutrients results in excessive phytoplankton growth. This eutrophication enhances plankton growth due to excess supply of nutrients.

Problems associated with eutrophication are:

1. These blooms occur throughout the water and prevent light reaching the waters below. This stops the growth of plants deeper in the water and reduces biological diversity.
2. When the blooms are really large, this bacterial decomposition can use up so much oxygen in the deep waters that there is not enough left for fish to breathe and they have to swim

away or else they die. Animals living on the seafloor cannot easily move away and they also die.

3. Excess nutrients can sometimes encourage the growth of phytoplankton species which produce harmful toxins. These toxins may cause the death of other species including fish in fish farms.
1. Large phytoplankton blooms can cause huge ugly foams on beach. These blooms are not toxic but temporarily ruin the beach, reducing its recreational value.

(b) Biopiracy in India

Biopiracy is the unauthorized use of the genetic resources and the knowledge associated with genetic resources held by the communities living in Biodiversity rich countries, which may be infringed upon illegally by companies without recompensing the countries or communities from which they are taken

Indian Examples

India has become primary target for biopiracy because of its rich biodiversity and traditional knowledge.

- In 1995, a firm in the USA had successfully applied for a patent on the technique to extract an antifungal agent from **neem tree** which grows throughout India and Nepal. This was a case of biopiracy as the Indian people have long understood the tree's medicinal value. Persistent efforts of GoI led to cancellation of patent.
- Similarly, in 2000, when US corporation RiceTec attempted to patent certain hybrids of **basmati rice** and semi dwarf long-grain rice, **Indian Government timely intervened and got those claims of patents invalidated.**

Indian Efforts to counter biopiracy

1. India is signatory to **Nagoya protocol** under Convention of Biodiversity which sets up a framework for Access and Benefit Sharing of genetic resource and their knowledge.
2. **Traditional Knowledge Digital Library (TKDL)** initiative to digitise the knowledge of tribal communities and prevent biopiracy
3. Increasing awareness of the **Geographical Indication (GI)** tags which benefits whole community

Q13. In the University photocopying case, Delhi High Court held that the act of students getting books copied from DU's library or its authorised photocopy shop does not infringe the copyrights of the publisher. Discuss its potential implications.

In the University photocopying case or The Chancellor Masters and Scholars of the University of Oxford v. Rameshwari Photocopy Services, the Delhi High Court (HC) delivered a landmark judgment that the act of students getting books copied from DU's library or its authorised photocopy shop enjoys protection under Section 52 of the Copyright Act. The HC said that it cannot infringe on copyright of the publishers when texts are used by DU for imparting education and not commercial sale.

Implications

- The judge sees the 'no infringement' clauses as being consistent with articles in the Berne Convention and the Agreement on TRIPS.
- This crucial judgment has immense consequences beyond India and is a bold articulation of the principles of equitable access to knowledge.
- Whether it is in the field of medicine, genetic modification of crops, patenting of organisms, or cinema, multi-national corporations are aggressively looking for an expansion of Intellectual Property Rights (IPR) laws to protect the monopolies granted by such laws in the name of "innovation".
- The Delhi High Court has pointed out that a copyright cannot be expanded to such an extent that it adversely affects the dissemination of knowledge essential for such innovation to occur in the first place.
- In a country like India with specific needs where libraries and universities have to cope with the needs of thousands of students simultaneously this judgement has positive implication for the country at large.
- The judgement is beneficial to students as the prices of most of the titles are well outside the reach of almost all students and it would be difficult to expect students to purchase 10 to 15 books every semester just to read the relevant passages necessary for the course.

Q14. What do you understand by 'Indegenisation of Technology'. Critically examine India's achievements in the indigenisation in the Defence Sector.

Indigenisation refers to replacing an imported item with one that is manufactured within the country. Apart from this, the local manufacturer is expected to understand the technology underlying the product, so as to be able to change, modify, improve or redesign the item as and when he likes.

Indigenisation of technologies is one of the major thrust areas of government in order to achieve self-reliance, strategic independence, saving forex reserves, create opportunities and avoid corruption scandals (Eg: Bofors, Agusta Westland, etc.). Achievements of indigenisation in Defence sector are as follows:

- **Tejas** - a fourth-generation light combat aircraft
- **Arjun Tank** project was sanctioned in late 1970s, it was rolled out for trial few years ago. Even after all these years it is said to be too heavy to use in actual war operations. Now DRDO is working on using composites to reduce the weight.
- **Arihant** - First indigenous nuclear submarine was developed in association with BARC by DRDO. But it has insufficient fuel inventor because of which it cannot go for long deployment and further improvements are necessary.
- **AGNI V** has given India the status of intercontinental ballistic missile (ICBM) holder country in 2013 though the project on integrated guided missile development was started in 1983. This along with dhanush, nirbhaya, prithvi, and akash missiles has improved our deterrence.
- **INS Vikrant** - India's first indigenous Aircraft carrier is to be undocked for sea trials.
- **K-4/K-15** - submarine-launched ballistic missile
- **BRAHMOS** - a supersonic cruise missile developed with Russian collaboration.

Despite these achievements, India continues to be a major importer of arms. Our indigenous efforts have been criticised due to cost escalations and breach of time-limit one after another.

Q15. LiFi is considered a disruptive technology that could transform business models, create new opportunities, and was poised to be a \$113 billion industry by 2022. In this context, discuss the advantages and limitations of the LiFi technology.

Light Fidelity (Li-Fi) is a wireless communication technology similar to Wi-Fi but uses visible light from light-emitting diodes (LEDs) as a medium to transmit data instead of radio waves.

The constant electricity supplied to an LED lightbulb can be dipped and dimmed, up and down at extremely high speeds, without being visible to the human eye. This pulsating light beam from the LED bulbs is then converted by the 'receiver' into electrical signal. The signal is then converted back into a binary data

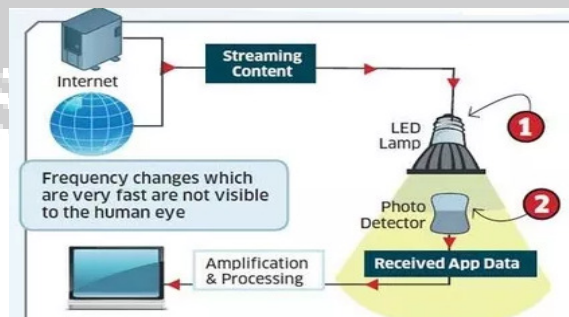
Advantages

- The visible light spectrum is plentiful, free and unlicensed, mitigating the radio frequency spectrum crunch effect.
- Another advantage of Li-Fi is zero electromagnetic interference, allowing connectivity even in areas where Wi-Fi is not accepted - aircrafts, submarines, hospitals and nuclear plants among others.
- In Li-Fi data transmission is much higher than that available within the radio spectrum.
- As light waves cannot pass through walls, it is impossible to hack inside high-security buildings.
- It could be an answer to speculated Radio spectrum crisis or bandwidth limitations.

Disadvantages

- Li-Fi signals cannot pass through walls, so in order to enjoy full connectivity, capable LED bulbs will need to be placed throughout the home.
- Li-Fi requires the lightbulb to be switched on at all times to provide connectivity, meaning that the lights will need to be on during the day.
- High installation costs is another drawback of this technology.

LiFi technology holds a great promise for faster, and high data wireless communications. The integration of internet of things devices and Li-Fi has the potential to change the way we live.



Q16. Explain the objectives and importance of National Supercomputing Mission.

Modern day scientific research relies heavily on supercomputers at one stage or the other, particularly in the fields of weather forecasting, climate research, nuclear research, medicine, artificial intelligence, and biotechnology.

Realising the importance of High-performance computing, Government of India has initiated National Supercomputing Mission in 2015. The objectives of the National Supercomputing mission are:

1. to set up 73 high-performance computing facilities at academic and research institutions like IISc, IITs, IISERs, C-DACs ,
2. networking of three of these facilities with peta scale computing, and
3. these supercomputers on the National Supercomputing grid over a high speed network called National Knowledge Network (NKN).

Importance of the Mission

1. Supercomputing has emerged as a benchmark for Scientific and Technological advancements. It will be a matter of national pride to be in select league of nations globally.
2. The supercomputer grid will enable collaborative research and multidisciplinary projects.
3. It will provide significant qualitative and quantitative improvement in research and higher education in the various disciplines of Science & Technology.
4. Self-sufficiency in design, building and maintaining supercomputers is important for strategic reasons too as the high performance computing can propel nuclear, defence and space research.
5. The mission synchronises India with the international technology trends and roadmaps of leading countries like the USA, Japan, China, Switzerland and Germany.
6. The mission supplements the capability of building state-of-the-art next generation supercomputing. In future, supercomputer performance is expected to touch Exa scale and India will not lag behind.

Q17. Explain how terrorist organisations (with special focus on ISIS) are exploiting the Internet for spreading terrorism.

Terrorists use Internet for the following purposes:

1. Propaganda: ISIS uses various forms of multimedia communications (Like audio and video files, presentations, magazines) providing ideological or practical instruction, explanations, justifications or promotion of terrorist activities through cyber forums (Eg: Twitter, Skype, Yahoo chat rooms).

2. Financing : ISIS uses the Internet to raise and collect funds by:

- direct solicitation using of websites, chat groups and mass mailings to request donations from supporters.
- Selling historical artifacts from Palmyra and Mosul in black markets through online.
- Using charitable organizations as a cover to promote the ideologies of terrorist organizations or to provide material support to militant groups.

3. Training: Cyber forums such as Twitter, Skype, and Yahoo chat rooms offer a venue for recruits to learn about, and provide support to terrorist organizations and to engage in direct actions in the pursuance of terrorist objectives. The platforms act as a virtual training camp discussing topics such as how to join terrorist organizations; how to make explosives, firearms or other weapons or hazardous materials; and how to plan and execute terrorist attacks. Through this, ISIS is encouraging lone-wolf type attacks across the world.

4. Planning includes collecting detailed logistical information regarding a proposed target. These are aided by internet applications such as Google Earth. Popular social networking media such as Facebook, Twitter, YouTube, Flickr and blogging platforms are used to publish an unprecedented amount of sensitive information on the Internet.

5. Execution: Explicit threats of violence may be disseminated via the Internet to seriously disrupt public order (induce fear or panic) as we have seen in case of ISIS uploading videos of beheading innocent people in YouTube. Internet may also be used as a means to coordinate the execution of physical acts of terrorism.

6. Cyber-attacks refer to the deliberate exploitation of computer networks as a means to launch an attack with an intention to disrupt the proper functioning of targets. It is done through the use of hacking, computer viruses, malware, flooding or other malicious access.

Q18. What are the major provisions of India's Nuclear Doctrine? Do you think there is a need to revisit doctrine? Discuss.

The nuclear doctrine conveys the underlying conditions about nuclear weapons use to the adversary in an unambiguous manner. India's Nuclear Doctrine contains the following provisions:

- **Minimum Deterrence:** The size of India's nuclear forces will be kept at a minimum, sufficient enough to deter a nuclear attack and to carry out retaliation in case of an attack. To ensure survivability, the Indian deterrent will be based on a triad of aircraft, mobile land based missiles and sea-based systems.
- **Credibility** can be achieved when an adversary knows that India can and will retaliate with sufficient nuclear weapons to inflict massive destruction and punishment that the aggressor will find unacceptable if nuclear weapons are used against India.
- **No First Use:** The doctrine reiterates that India will not initiate a nuclear strike and neither will it resort to the use or the threat of use of nuclear weapons, nor align with nuclear states. Further, India would not use nuclear weapons against a non-nuclear weapon powers.
- **Civilian Leadership of Nuclear Command :** The Prime Minister is at the head of the nuclear command and control establishment. The Prime Minister alone and his authorised successor(s) should be authorised to order the release of nuclear weapons.

Thus, the fundamental purpose of the India's nuclear arsenal is deterring the use and the threat of use of nuclear weapons by any state or entity and to ensure that India's security, independence and integrity are not threatened in the future.

Revisit nuclear doctrine

There is a need to revisit India's nuclear doctrine because

- The current policy being over a decade old and the circumstances that prevailed when it was issued have changed.
- Pakistan's proxy war using jihadis in Kashmir, thereby creating a second line of defence against India.
- Pakistan have developed a tactical battlefield nuclear weapon (eg Nasr, Hatf missiles) which have a smaller yield and are designed to take out troop concentrations on the ground for example, as opposed to strategic nuclear weapons. There is confusion whether India should use massive retaliatory strike as response to Tactical Nuclear Weapons.

A change is suggested along the lines of change in American doctrine from massive retaliation to flexible response in the 1950s and 1960s after realising the inherent credibility shortfall in a threat of massive retaliation.

Q19. "The creation of parallel economy, as a consequence of growing black money in every sector of economy, has serious and in a number of ways influence the working of Indian economy." Elaborate.

Presence of Parallel economy as a consequence of growing black money results in many distortions in economy. Its impact can be summarised as below:

- Loss of revenue to the state exchequer as a consequence of tax evasion (direct, indirect). Black money and tax evasion throw greater burden on the honest tax payer. It also leads to economic inequality and concentration of wealth in hands of a few in the country.
- Easy money finds ready outlets in non-essential luxurious articles of consumption. As a consequence, the consumption pattern is tilted towards the rich classes at the cost of encouraging the production of such articles through enhanced investments implying fewer investments in priority sectors.
- Black money encourages investment in precious stones, jewellery, etc. leading to import of gold thereby bulging the current account deficit.
- Black money has encouraged diversion of resources in the investment in real estate and luxury housing leading to the rise in land prices making it difficult for the middle class to own land especially in urban areas.
- A part of black money is held in cash as a consequence there is high liquidity. Government and RBI measures to control liquidity may fail to show any impact.
- Black money held abroad enters India through money laundering. Such transfers violate foreign exchange regulations. This brings out distortion in exchange rate, thus sending wrong signals to NRI FII and MNCs interested to invest in India.
- Black money corrupts political system. National parties favour of the big business houses under the pressure of black money. (Instead of serving the interests of people)
- Black money requires for its protection proliferation and expansion of a service organisation composed of muscle power and brokers to combat the forces of law and order (organised crime).
- Black money also requires income tax advisers and chartered accountants to manage black money. This encourages unethical working among skilled professionals.

- Black incomes are increasing the inequalities in wealth and breeding a new class of black rich in the society. This acts as psychological motivation to become dishonest.

Q20. What do you understand by "Surgical Strikes". Recent surgical strikes along Indo-Pak and Indo-Myanmar border mark radical departure from India's typical strategic restraint. Critically analyse.

A surgical strike is defined as a military attack intended to inflict damage on a specific target, with little or no collateral damage to surrounding areas. It is a calculated maneuver to ensure delivering maximum damage which gives a big surprise to an adversary. Surgical strikes are problematic from a diplomatic and military perspectives.

1. They could be viewed by the neighboring country as an attack on its sovereignty and may lead to a military response.
2. Such strikes would under most of the circumstances not be viewed favorably by the international community, and may lead to diplomatic isolation.

Recently, Indian army has conducted surgical strikes along LoC, inflicting massive casualties of terrorists and their aids. Indian government has creatively maneuvered this act and was successful in avoiding any kind of escalation leading to gaining confidence of international community.

Government exercising the option of surgical strikes has marked a paradigm shift in counterterrorism and counterinsurgency strategy. Impact and implications of the surgical strikes are as follows:

- **Display of Intelligence and Army capabilities:** Army displayed its **capabilities** of conducting surgical strikes deep in enemy territory. This was the first operation conducted by the Army across a wide frontage of well over 100 kilometers at multiple terrorist targets along the LoC.
- **Deterrence to Compellence :** Deterrence describes a situation where a country protected itself from military attack by maintaining a capacity to mount a devastating counterattack. Whereas compellence is a more proactive concept, where military and diplomatic threats are used to compel the other side to behave in a certain way. Army raised the cost of using terrorism as an instrument of state policy by a couple of notches.
- **Debunked Pakistan's stand:** Pakistani narrative about the absence of India-targeting terrorists on its soil stood exposed to the world.
- **Morale of public and army:** The strikes proved to be an important element for maintaining the morale of the people of India and the armed forces.
- Finally, India called into question the Pakistani belief that it would not react to terrorist provocations because of the fear of escalation.

In conclusion, it can be said that with the surgical strikes, the government is committed to retaliation against all cross-border attacks. However, they will have to be executed with the same vigour because the chances of failure are ever-present, as are the dangers of escalation.