

Civil Services (Mains)
Examination 2015
Solutions

GS PAPER III

By
Orient IAS

Q-1 The nature of economic growth in India is described as jobless growth. Do you agree with this view? Give arguments in favour of your answer.

Answer: In a jobless growth economy, unemployment remains stubbornly high even as the economy grows. India experienced such growth in post liberalization era, when the economy shifted from agrarian to service sector in terms of contribution to GDP, but remained agrarian in terms of labour participation.

Reason behind describing the nature of economic growth in India as jobless growth-

- i. **Service Sector led growth:** In India, growth is attributed to service sector, whereby both employment and wages have seen a rise. But as figures say, the biggest employing sector in India is the Agriculture sector, employing more than 50% of the population but contributing 15% to the GDP, whereas Service sector is the biggest contributor to the GDP (~65%) but employs around 35%.
- ii. **Stagnant manufacturing sector:** Manufacturing contributes 16% to the GDP and employs around 13%. Further use of automation and robotics has limited its employment potential. So, over the years, employment almost remained stagnant.
- iii. **Disguised Unemployment in Agricultural sector:** It employs more than 50% population, while contributing around 14% to GDP. It already has large scale disguised unemployment, so it has limited capacity to provide new employment opportunities.
- iv. **Constrained Micro Small and Medium Enterprise sector:** MSME sector has huge potential to provide jobs to semi-skilled and skilled persons. However, the sector is facing many constraints like inadequate finances, outdated technology, lack of training and expertise etc. In such a case they are unable to provide gainful employment opportunities.
- v. **Un-employability of work force:** Recent surveys show that the workforce entering the job market every year is mostly un-employable. The mismatch between the course curriculum of colleges and the requirements of the employers, is one of the reasons contributing in this. Inadequate set of skills is another factor.

Recent policy initiatives like Skill India Initiative, Digital India, Make in India, focus on infrastructure growth, all showcase the seriousness of jobless growth India facing since last two decades. All these initiatives have employment growth as one of their objectives. 12th Five Year Plan also focuses on creating more than 50 million non-farm jobs during the plan period.

So, with India poised to become the fastest growing economy in the world, overtaking China, we need to take concerted efforts to create adequate employment opportunities for the workforce.

Q-2. Livestock rearing has a big potential for providing non-farm employment and income in rural areas. Discuss suggesting suitable measures to promote this sector in India.

Answer - Livestock rearing is a key livelihood and risk mitigation strategy for small and marginal farmers, particularly across the rain-fed regions of India.

Significance of Livestock rearing in for providing non-farm employment and income in rural areas:

- i. **Meat and fishing:** The production of a useful form of dietary protein, energy and income source i.e having a huge export potential
- ii. **Dairy Products:** Mammalian livestock can be used as a source of milk, which can in turn easily be processed into other dairy products, such as yogurt, cheese, butter, ice cream, kefir, and kumis. Using livestock for this purpose can often yield several times the food energy of slaughtering the animal outright.
- iii. **Fiber Livestock:** It produce a range of fiber/textiles. For example, sheep and goats produce wool and mohair; cows, deer, and sheep skins can be made into leather; and bones, hooves and horns of livestock can be used.
- iv. **Fertilizer:** Manure can be spread on fields to increase crop yields. This is an important reason why historically, plant and animal domestication have been intimately linked. Manure is also used to make plaster for walls and floors, and can be used as a fuel for fires. The blood and bones of animals are also used as fertilizer.
- v. **Labor Animals:** such as horses, donkey, and yaks can be used for mechanical energy. Prior to steam power, livestock were the only available source of non-human labor. They are still used for this purpose in many places of the world, including ploughing fields (drafting), transporting goods, and military functions.

- vi. **Land management:** The grazing of livestock is sometimes used as a way to control weeds and undergrowth. For example, in areas prone to wild fires, goats and sheep are set to graze on dry scrub which removes combustible material and reduces the risk of fires.

Despite the above advantage livestock rearing sector in India has been suffering

- i. Livestock farmers have suffered from wild animal predation and theft by rustlers
- ii. **Livestock diseases** compromise animal welfare, reduce productivity, and can infect humans i.e Anthrax and foot to mouth
- iii. **Lack of infrastructure and technology** have failed the development of livestock rearing sector

Way Forward:

- i. Promoting Scientific rearing of livestock
- ii. Institutional Financing and insurance support to the sector
- iii. Training of farmers in animal rearing
- iv. Adopting the best practices followed in the world.
- v. Encouraging and supporting farmers to take up animal rearing.

Q-3. In view of the declining average size of land holdings in India which has made agriculture non-viable for a majority of farmers, should contract farming and land leasing be promoted in agriculture? Critically evaluate the pros and cons.

Answer - Land is important natural resource as all the three sector of economy is very much dependent on land, particularly agriculture.

PROS

- i. Contract farming and land leasing are innovative method of prudent utilization of land.
- ii. Contract farming has been used for agricultural production for decades but its popularity appears to have been increasing in recent years. The use of contracts has become attractive to many farmers because the arrangement can offer both an assured market and access to production support.
- iii. Contract farming is also of interest to buyers, who seek supplies of products for sale further along the value chain or for processing. Processors constitute the main users of contracts, as the guaranteed supply enables them to maximize utilization of their processing capacity.
- iv. Contracts with farmers can also reduce risk from disease or weather and facilitate certification, which is being increasingly demanded by advanced markets. There are also potential benefits for national economies as contract farming leads to economies of scale, which, as some agriculture scientist argue, are "bound to provide for a more dynamic agricultural sector.
- v. Although contract farming must first and foremost be considered as a commercial proposition, it has also come to be viewed as an effective approach to help solve many of the market access and input supply problems faced by small farmers. That's help in development of agriculture sector

CONS

- i. Common problems include farmers selling to a buyer other than the one with whom they hold a contract or using inputs supplied by the company for purposes other than intended. From the other side, a company sometimes fails to buy products at the agreed prices or in the agreed quantities, or arbitrarily downgrades produce quality.
- ii. **Lack of legal framework** is thus crucial for the successful implementation and long-term sustainability of contract farming operations.
- iii. A system of law is essential to assist farmers and their buyers in the negotiation and drafting of contracts. It is also important to protect them from risks that may occur during contractual execution, such as abuse of power by the stronger bargaining party or breach of contract. Strengthening farmer organizations to improve their contract negotiating skills can redress the potential for subsequent misunderstandings

- iv. Even apparently successful contracts from a legal point of view can face other difficulties. For example, family relationships can be threatened. Work for contracts is often done by women but the contracts are invariably in the name of the man who also receives the payment

So, considering the pros and cons of Contract farming and land leasing, it is clear that they have potential to transform agricultural sector into a major driver of Indian economy.

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Q-4.How can the 'Digital India' programme help farmers to improve farm productivity and income? What steps has the Government taken in this regards?

Answer - Digital India is social empowerment initiative by the [Government of India](#) to ensure that Government services are made available to citizens electronically by improving online infrastructure and by increasing Internet connectivity

Digital India has three core components.

- The creation of digital infrastructure
- Delivering services digitally
- Digital literacy

Digital India envisages m-Agriculture and m-GramBazar, out of the seven components covered under m-Services, directly impact agricultural extension and marketing services.

The project will benefit small farmers as it seeks to:

- Transform rural India into a digitally-empowered knowledge economy
- Provide universal phone connectivity and access to broadband in 250,000 villages
- Extend timely services to farmers through information technology and its tools
- Enhance efficiency in agricultural governance through digital literacy and electronic delivery of services.
- Increasing farm productivity: Farmers will get connected with experts and their timely advice will help farmers to adopt best farming practices.
- Increasing Income level: Farmers can get access to markets through internet, hence can have better price for their produce.
- Give farmers the technology using GPRS and remote sensing systems and also geo imaging services like Google earth to obtain information related to crop failure patterns, assessment of drought patters, and impact on crop cover due to pests so as to use it to improve farming techniques.

- viii. Farmers can be alerted about the weather and storms or heat waves if any so that they can prepare themselves better.

So, Digital India initiative can be a game changer for the farmers, by increasing their productivity as well as income levels.

Q-5. In what way could replacement of price subsidy with Direct Benefit Transfer (DBT) change the scenario of subsidies in India? Discuss.

Answer - DBT is an attempt to ameliorate the mechanism of transferring subsidies. The primary objective of this Direct Benefit Transfer program is to bring transparency and terminate pilferage from distribution of funds sponsored by Central Government of India. In DBT, benefit or subsidy will be directly transferred to citizens living below poverty line.

PROS OF DBT

- i. Decrease corruption to a large extent.
- ii. DBT scheme eliminates intermediaries and Ghost Beneficiary
- iii. AADHAR provides Biometric identification eliminates fake & duplicate beneficiaries.
- iv. Pilferage and Leakages will be reduced.
- v. DIGITAL INDIA will help in avoiding delays in transferring benefits.
- vi. As everyone can purchase goods at market price, there will be healthy competition.

CONS:-

- i. Targeting of BPL population is still improper. Around 40% of population yet to have Aadhar cards.
- ii. Inadequate banking facilities in Rural and Remote areas. Business Correspondent model of banks has not worked well till now.
- iii. Illiteracy of our population is a challenge to efficiency of scheme. 26% people are still illiterate
- iv. Money provided could be used wrongly i.e. Male member using it for liquor and gambling purposes.

Right now it is applied to only 4 areas that too in selected districts:

1. LPG subsidies.
2. Janani Suraksha Yojana
3. Old age pension
4. Scholarships

So, in a phased manner we can move towards Direct Benefit Transfer in more schemes.

Q-6. What are the impediments in marketing and supply chain management in industry in India? Can e-commerce help in overcoming these bottlenecks?

Answer - Indian industries are backbone of Indian economy that provides a forward and backward linkage to agriculture and service sector of economy. The logistics and supply chain management industry in India has been receiving greater attention in the last few years. Yet, in spite of its huge potential, the sector's growth has not kept pace with India's wider economy and this is a threat to our future competitiveness

The impediments in marketing and supply chain management in industry in India are:


- i. Heavy dependence on a mode that is in many ways inefficient and has high carbon intensity is the lack of a railway system capable of responding to the needs of industry.
- ii. This is putting a real strain on infrastructure: national highways account for 2 per cent of the road network but transport around 40 per cent of freight tonnage.
- iii. Lack of coordinated planning, intra-State border issues, cumbersome documentation, bureaucracy and corruption leave the average speed of trucks at only 21 km/hour. Hence a truck can cover only 300-500 km per day versus almost double that figure in the larger developed countries.
- iv. In ports, capacity and turnaround times are still well below global benchmarks, and logistics parks, warehousing and other support infrastructure are also at an early development stage.

- v. Another challenge is the inefficiency of Indian logistics versus its international peers. Today, 57 per cent of freight in India still moves on the road network.
- vi. Failure to comply Intellectual property regime hampers marketing
- vii. Child labour, working condition of factory, sanitary and phyto-sanitary measure also hamper marketing
- viii. Lack of infrastructure and quality in management processes
- ix. High level of diversity in India's population
- x. Quality of product hasn't been able to compete with MNC's

Indeed, e-commerce helps in overcoming these bottlenecks:

- i. **Advertising & Marketing Cost:** If you opt for ecommerce, you don't have to spend your money on advertising and marketing. However, organic search engine traffic, social media traffic and pay-per-click are some of the advertising channels that are cost-effective.
- ii. **Personnel:** A complete automation of check-out, billing, inventory management, payments and other type of operational costs lower the total number of employees that you require to run your ecommerce business.
- iii. **Eliminate Travel Cost:** Now, customers do not have to travel long distances to reach their desired stores as ecommerce allows them to visit the e-store anytime without traveling. With few mouse clicks, customers can make their purchase and have wonderful shopping experience.
- iv. **Expand Market for Niche Products:** It is difficult for buyers and sellers to find each other in the physical world, but it becomes very easy for them with the inception of e-store
- v. **Boost Brand Awareness:** As like e-commerce business can help B2B organizations to get new customers, so it will be helpful for e-commerce businesses to boost their brand awareness in the market.
- vi. **Decreasing cost of inventory Management:** With e-commerce business, the suppliers can decrease the cost of managing their inventory of goods that they can automate the inventory management

Digital India Mission will surely change the picture of e-commerce in India and address the lacunae of marketing and supply chain management in industry in India.



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Q-7. Craze for gold in Indians have led to a surge in import of gold in recent years and put pressure on balance of payments and external value of rupee. In view of this, examine the merits of Gold Monetization Scheme.

Answer - Gold is a precious ornamental metal and Indians are very fond of it. India annually imports 1000tons (approx) of gold in spite of increasing prices and import bans due to various reasons:

- i. Wearing gold ornaments is Part of India's culture since ages
- ii. **Status symbol** and emotional attachment
- iii. Used as **a saving instrument** and emotionally attached with this metal i.e Lack of financial inclusion
- iv. **Perceived High return** compared to other investment tools

To curb out the import and prudent utilization of gold in the country Government of India has launched **two schemes**:

- i. Gold monetization scheme-GMS
- ii. Sovereign gold bonds scheme

In GMS an individual can open a gold saving account with a bank and deposit minimum 30 gram of gold after certification from a hallmarking centre (loan facility is also available)

Merits of GMS

- i. It will **reduce the demand of gold import** and thus reduce its prices, will help in amelioration of BOP account
- ii. It will **increase supply of gold** in market and reduce its process
- iii. It will help to **mobilize the large amount of gold** lying as an idle assets with households, trust, temple into productive use
- iv. It will **assure a minimum return** to fixed deposit return
- v. Meeting the **demands of SLR and CRR of bank**
- vi. Help in **maintaining the macro-economic parameter** i.e inflation and fiscal deficit, CAD
- vii. It will **curb out Speculative price of gold**

So, the schemes are very progressive in nature. It will help in bringing fiscal prudence and improving Balance of payment situation.

Q-8. "Success of 'Make in India' programme depends on the success of 'Skill India' programme and radical labour reforms." Discuss with logical arguments.

Answer - Make in India is an initiative of the [Government of India](#) to encourage [multinational](#), as well as domestic, companies to manufacture their products in [India](#). It envisages India as a global Manufacturing hub.

Major component of make in India are - FDI, IPR, Private sector participation, Single window clearance, improve ranking in ease of doing business etc.

Indeed success of 'Make in India' programme depends on the success of 'Skill India' programme and radical labor reforms.

Indian Manufacture growth should balance the nation's comparative advantage in availability of low skilled labour with skill development required by future generations to take advantage of lost opportunities

It has suggested that transformational sectors could be in registered manufacturing or services. Raising economy wide skills must compliment efforts to improve the conditions for manufacturing.

The registered manufacturing must be expanded to take leverage of India's abundant unskilled labour. While "Make in India" occupies prominence as an important goal, **the future trajectory of Indian development depends on both "Make in India" and "Skill India."**

Efforts to improve the conditions of labour-intensive manufacturing need to be complemented with **rapid skill upgradation** because skill-intensive sectors are dynamic sectors in India and sustaining their dynamism will require that the supply of skills keeps pace with the rising demand of these skills, otherwise even these sectors might become uncompetitive.

Indian labour laws are chaotic, outdated, over-lapping and contradictory.

The Industrial Disputes Act (IDA) states that an employer cannot layoff or retrench any worker or close down operations of the establishment without prior permission from the appropriate government. According to employers and economists it has been a major bottleneck of employment generation in the organized sector.

Current labour laws leave no room for free contracting thereby de-motivating industries to employ liberally on contractual basis.

Law also keeps hundreds of thousands of workers unemployed because firms, wary of the fact that they will not be able to fire them, do not hire in the first place.

An injection of **flexibility in labour market regulation** can attract foreign capital, create jobs and unleash higher growth. In this way labour reforms will complement and supplement MII.

To realize the above objective government of India has taken following measure.

- i. DDU Shramev Jayate Karyakaram
- ii. Unique Account Number
- iii. Apperentice Protasan Yojana
- iv. Random Inspection ,
- v. Amendment In Factories Act,
- vi. IDA 1947 and Apprentice Act

Q-9.To what factors can the recent dramatic fall in equipment costs and tariff of solar energy be attributed? What implications does the trend have for the thermal power producers and the related industry?

Answer: - Solar Energy tariff and equipment cost has seen dramatic fall in the recent years, giving us hope of reaching grid parity levels, sooner than later.

Some of the factors for this are:

- (i) **Research and Development in the field:** Globally, Government as well as private institutions and companies are involved in research and development activities in this field. Innovative methods of design and fabrication have helped in reducing costs.
- (ii) **Manufacturing capacity additions:** Manufacturing capacity increased dramatically—particularly after large-scale, low-cost Chinese manufacturers entered the space—and the market became oversupplied. Prices dropped precipitously, which fueled demand but put pressure on margins. Manufacturing has become more standardized and commoditized as the industry is maturing, reducing opportunities for upstream players to differentiate themselves.
- (iii) **Government policies:** Being supportive of renewable energy development and utilization. Government has provided subsidies and incentives to promote solar energy, bringing down the cost of equipments. Benefits from fiscal and regulatory incentives like tax credits and exemptions, feed-in tariffs, preferential interest rates etc, has brought down tariffs.
- (iv) **Increased efficiency of Panels:** Efficiency is the strongest factor affecting system cost for a solar power plant because it drives down both the module and variable cost. With new fabrication techniques, design and structure of panels, without adding any new material, has helped in increasing efficiency and reducing costs.

The trend of declining tariff of solar power has serious implications for thermal power and other related industries. Some of these are

- (i) **Under-utilization of plant capacity:** As clean and cheap power from solar energy will be available, thermal power plants, will become under- utilized. Already due to tough competition in the power sector, many plants are running below their installed capacity.
- (ii) **Job cuts:** Thermal power plants may witness Job cuts in future, as the plants may not run to their full capacity, resulting in losses.
- (iii) **Conservation of coal, oil and gas:** One positive consequence is that it will help in conservation of our traditional fossil fuel. They may, in that case, last longer than the current estimates. Hence they can be utilized in other areas.
- (iv) **Affect on Mining sector:** A slump in conventional power generation based on thermal power plants will lead to severe decline in mining sector as well. It will further lead to job cuts. Also, it will come under intense competition from cheaper import from other countries

Despite the huge technical potential, the development and large scale deployment of solar energy technologies world-wide still has to overcome a number of technical, financial, regulatory and institutional barriers.

So, continuation of policy supports might be necessary for several decades to maintain and enhance the growth of solar energy.

Q-10. There is a clear acknowledgement that Special Economic Zones (SEZs) are a tool of industrial development, manufacturing and exports. Recognizing this potential, the whole instrumentality of SEZs requires augmentation. Discuss the issues plaguing the success of SEZs with respect to taxation, governing laws and administration.

Answer - SEZs is commonly used as a generic term to refer to only one modern economic zone. In these zones business and trades laws differ from the rest of the country. The aims of the zones include: increased trade, increased investment, job creation and effective administration.

Incentives and facilities offered to the units in SEZs for Promotion of industrial development, manufacturing and exports.

- Duty free import/domestic procurement of goods for development, operation and maintenance of SEZ units
- 100% Income Tax exemption on export income for SEZ units under Section 10AA of the Income Tax Act for first 5 years, 50% for next 5 years thereafter and 50% of the ploughed back export profit for next 5 years.
- Exemption from minimum alternate tax
- External commercial borrowing by SEZ units upto US \$ 500 million in a year without any maturity restriction through recognized banking channels.
- Exemption from Central Sales Tax.
- Exemption from Service Tax.
- Single window clearance for Central and State level approvals.
- Exemption from State sales tax and other levies as extended by the respective State Governments.

The issues plaguing the success of SEZs with respect to taxation, governing laws and administration:

- The SEZs were also plagued by the negative image that they have simply become tax havens. This perception is misplaced, as shown by a study done by the Indian Council for International Economic Relations (ICRIER). But the other impression that only real estate business is thriving inside the SEZs is largely correct.)
- The breaking of the tax promise was a cardinal sin. The income tax benefits were neutralized by the introduction of the 20% minimum alternate tax (MAT) and the 20% dividend distribution tax (DDT) in 2011-12.
- The absence of complementary infrastructure outside the SEZs, like port connectivity, proved to be a dampener for manufacturing investment. The development commissioners did not prove to be as proactive in assistance as their SEZ counterparts in other countries in getting land, clearances and plug-and-play infrastructure.
- Export incentives like Focus Product and Focus Market Schemes were not extended to SEZs, making them less attractive. Exports from outside SEZs, called the domestic tariff area (DTA), enjoyed duty drawback and other duty neutralization.
- Another reason was the tsunami force of free trade agreements (FTAs). Today, it is better for you to manufacture in Thailand and get duty-free access to India than to manufacture in an Indian SEZ and face a 14% import duty barrier. May be we should be signing an FTA with all the SEZs first.
- CBDT recently released a roadmap for phasing out corporate tax exemptions. It will phase out profit and investment-linked and area based tax deductions for companies. The sunset clause provides that exemptions will go unless they are extended.

Q 11 what do you understand by 'Standard Positioning Systems' and 'Precision Positioning Systems' in the GPS era? Discuss the advantages India perceives from its ambitious IRNSS programme employing just seven satellites.

Answer - Standard Positioning System (SPS) is the service which is provided to all the users for general purpose of navigation whereas Precision Positioning System (PPS) is a technique which involves [positioning method to calculate](#) very precise positions up to few centimeter levels which differentiate errors using one or more reference stations with known positions.

IRNSS is an independent regional navigation satellite system being developed by India. It is designed to provide accurate position information service to users in India as well as the region extending up to 1,500 km beyond India's boundaries, between longitude 40° E and 140° E, and latitude ± 40 degrees.

It has various civilian, commercial as well as strategic advantages as follows:-

- As access to foreign government-controlled [global navigation satellite systems](#) is not guaranteed in hostile situations, as happened to the Indian military depending on American [GPS](#) during the [Kargil War](#). [IRNSS](#) will **make Indian Armed Forces self-reliant**.
- The IRNSS would **provide two services**, with the Standard Positioning Service open for civilian use, and the Restricted Service (an encrypted one) for authorized users (including the military).
- IRNSS will **provide positional accuracies** similar to the GPS: 10 m over the Indian landmass, 20 m over the Indian Ocean. As is the case with GPS and the US military, IRNSS will provide a more accurate restricted service for the Indian armed forces and other special authorized user.

Other areas where it can be used are:

- i. Terrestrial, Aerial and Marine Navigation
- ii. Disaster Management
- iii. Vehicle tracking and fleet management
- iv. Integration with mobile phones
- v. Precise Timing
- vi. Mapping and Geodetic data capture
- vii. Terrestrial navigation aid for hikers and travellers
- viii. Visual and voice navigation for drivers

IRNSS is using only constellation of seven satellites, whereas GPS of USA uses 24 satellites and Galileo of EU also uses 24 satellites. It is so because, while the **ambit of the GPS is global, the IRNSS is meant for regional coverage.**

Three of the satellites in the constellation will be located in geostationary orbit at 32.5° East, 83° East, and 131.5° East longitude. Two of the GSOs will cross the equator at 55° East and two at 111.75° East. Such an arrangement would mean all seven satellites would have continuous radio visibility with Indian control stations. The system is intended to provide an absolute position accuracy of better than 10 meters throughout Indian landmass and better than 20 meters in the Indian Ocean as well as a region extending approximately 1,500 km around India.

So, IRNSS programme has many strategic advantages for us, and will put India in an elite club of countries having their own Navigational system.

Q-12 what are the areas of prohibitive labour that can be sustainably managed by robots? Discuss the initiatives that can propel research in premier research institutes for substantive and gainful innovation.

Answer - Robotics is a fact which we can ignore for a while but have to embrace very soon, because the pace of development in this sector is fast and economic.

- **In waste segregation areas:** Because it is an hazardous sector, lesser remunerative where lots of people get diseases in job, also with rising demand of waste management this area has lots of scope for waste recycle, segregation etc.
- **Sewer and drainage cleaning:** It is one of the most hazardous jobs. Workers are vulnerable to several diseases and even death in case of mishaps. Robotics can play significant role in this.
- **Ceramic Industry:** Dust from it cause various respiratory problems.
- **Textile industries** in India are running in huge losses. Also, most of the textile industries are facing employment crunch because lower salary. So, India can use robots in this sector so as to reduce the price of textile even further and become textile exporting nation like China.
- **Meat process, Metal industries, diamond polishing/jewellery, harmful chemical synthesizing** are other areas where robotics can do wonders.
- **Mining industry:** It is one of the most hazardous industries. Many accidents have happened in past, leading to loss of human lives.

Robots should be seen as humans friend rather than employment destroyer machines, because robotics take away boring job and outdated jobs and in return provides more newer fields like repair, maintenance etc. For ex how oxes/bullocks are removed from agriculture ploughing and transport but still the sector is growing and providing more jobs.

The initiatives which can propel research in premier research institutes for substantive and gainful innovation are:

- (i) India Innovation Initiative 2015
- (ii) National Initiative for Design Innovation
- (iii) Make in India
- (iv) Skill India
- (v) Science, Technology and Innovation Policy 2013

Q 13 Discuss the advantage and security implications of cloud hosting of servers vis-a-vis in-house machine-based hosting for government businesses.

Answer - [Cloud hosting services](#) provide hosting for websites on virtual servers which pull their computing resource from extensive underlying networks of physical web servers. It follows the **utility model of computing** in that, it is **available as a service** rather than a product and is therefore comparable with traditional utilities such as electricity and gas.

Advantage

- **Reliability** : rather than being hosted on one single instance of a physical server the website is hosted on a virtual partition which draws its resources, such as disk space, from an extensive network of underlying physical servers
- **Physical Security** : the underlying physical servers are still housed within data centers and so benefit from the security measures that those facilities implement to prevent people accessing or disrupting them on-site
- **Scalability and Flexibility**: resource is available in real time on demand and not limited to the physical constraints/capacity of one server. If a client's site demands extra resource from its hosting platform due to a spike in visitor traffic or the implementation of new functionality, the resource is accessed seamlessly.
- **Utility style costing**: the client only pays for what they actually use. The resource is available for spikes in demand but there is no wasted capacity remaining unused when demand is lower.
- **Responsive load balancing**: load balancing is software based and therefore can be instantly scalable to respond to changing demands

Security Implication

- (i) **Data Loss**: A data breach is the result of a malicious and probably intrusive action. Data loss may occur when a disk drive dies without its owner having created a backup
- (ii) **Data Breaches** The data breach at Target, resulting in the loss of personal and credit card information of up to 110 million individuals, was one of a series of startling thefts that took place during the normal processing and storage of data
- (iii) **Account or Service Traffic Hijacking**: Account hijacking sounds too elementary to be a concern in the cloud, but CSA says it is a problem. Phishing, exploitation of software vulnerabilities such as buffer overflow attacks, and loss of passwords and credentials can all lead to the loss of control over a user account.
- (iv) **Insecure APIs** : The cloud era has brought about the contradiction of trying to make services available to millions while limiting any damage all these largely anonymous users might do to the service

The **In-House machine based hosting** gives the highest level of control over the equipment. Physical access allows one to 'own' the server. All the pros of hosting at home flow from that control. It has following advantages:

- (i) **Complete say over hardware specifications**: The home host may create servers with specifications that would not be readily available in any other setting. Most datacenters offer a choice of 'good, better and best', which means that the processor speed, memory, storage and bandwidth grow together. These designs can be useful, respectively, for serving a small number of very large static files, and for a highly dynamic environment with multiple connections but a small amount of static content.
- (ii) **Easy access to and control over hardware**: Having the server on the premises makes it very easy to modify hardware. It is possible to add, remove or replace memory, hard drive and even motherboard and power supply as often as one's heart desires. There is no need to coordinate with a hosting provider's technical staff.
- (iii) **Easy changes/upgrades to software**: IT allows to install new software from CD/DVD, the easiest way to upgrade or replace software. This is particularly true for a change or upgrade of the operating system. Working directly on the server makes it very efficient to install from a graphical user interface, too, compared to using a remote desktop. Changes to software, content modification, and system administration can be done with a keyboard or drive.

- (iv) **Total control over content and software:** Home host can do things that no datacenter would ever allow. For example, one can give users shell access or even root access to the server, deploy outdated or insecure software, violate copyright and decency laws, etc.
- (v) **Lower initial cost, fewer barriers to entry:** Using existing equipment, including the computer, router, Internet access, existing real-estate, and electrical system, makes getting started with Web hosting very inexpensive.

Security concerns of in-house machine based hosting are:

Unless one uses a physically separate network for hosting, personal computers will share the same network as the server. While a firewall on the router can block access to these machines, the server must be open to the world. Hackers can potentially access your internal network through this server, and get confidential personal information, such as correspondence and financial data.

So, considering the above assessment, cloud based hosting of servers is more reliable for government businesses.

Q. 14 India's Traditional Knowledge Digital Library (TKDL) which has a database containing formatted information on more than 2 million medicinal formulations is proving a powerful weapon in the country's fight against erroneous patents. Discuss the pros and cons making this database publicly available under open-source licensing

Answer - Traditional Knowledge Digital Library (TKDL) provides information on traditional knowledge existing in the country, in languages and format understandable by patent examiners at International Patent Offices (IPOs), so as to prevent the grant of wrong patents. TKDL thus, acts as a bridge between the traditional knowledge information existing in local languages and the patent examiners at IPOs.

Pros of making this database publicly available under open-source licensing:-

- **Giving legitimacy** : It gives legitimacy to the existing traditional knowledge and enables protection of such information from getting patented by the fly-by-night inventors acquiring patents on India's traditional knowledge systems.
- It will **prevent misappropriation** of Indian traditional knowledge, mainly by breaking the format and language barrier and making it accessible to patent examiners at International Patent Offices for the purpose of carrying out search and examination.
- TKDL has **identified 1,000 cases of biopiracy** of India's TK in the last 3 years. In 105 cases, patent claims were withdrawn or cancelled by the patent offices. This is done at no cost to India and it takes very less time. All that is required is an e-mail to the relevant patent office.
- **Saving cost** : The need to spend huge legal fees and time in fighting biopiracy, can be done away with. For example, the Agricultural and Processed Food Products Export Development Authority (APEDA) spent 7 years and Rs 7.62 crore in legal fees to fight the intellectual property rights battle for basmati rice.
- **Avoids grating wrong patents** : There has been as much as a 44% decline in patent claims filed on Indian systems of medicine. Now TKDL also includes videos of the most common yoga postures. This avoids grating wrong patents for Yoga exercise in the west which is an increasing trend.
- **Lesson for other countries** : The Traditional Knowledge of nearly 110 developing countries is vulnerable to theft and capture. With the help of India's experience these countries can initiate similar programmes to protect the traditional knowledge.

Cons of making this database publicly available under open-source licensing:-

- Bio-piracy may increase because of free availability of this knowledge.
- Legal and Intellectual issues will crop up as more countries can claim the knowledge to be their own.
- There can be potential misuse of the available knowledge, by vested interests. So, the available knowledge may not have desired benefits to the society.
- Poor people may not benefit from this knowledge, as big corporates may monopolize the knowledge and create products which poor cannot afford.

Q15 The Namami Gange and National mission for clean Ganga (NMCG) programmes and causes of mixed results from the previous schemes. What quantum leaps can help preserve the river Ganga better than incremental inputs?

Answer - Namami Gange is a flagship programme of Indian government which seeks to clean and protect the River Ganga by incorporating significant new funding and implementation elements.

Moreover, it will focus on **pollution abatement interventions** namely Interception, diversion and treatment of wastewater flowing through the open drains through bio-remediation / appropriate in-situ treatment / use of innovative technologies / sewage treatment plants (STPs) / effluent treatment plant (ETPs); rehabilitation and augmentation of existing STPs and immediate short term measures for arresting pollution at exit points on river front to prevent inflow of sewage etc.

Besides, it also aims to engage private involvement by incorporating Public Private Partnership (PPP). Also, it has a people centric approach which makes it **more decentralized** by engaging the Panchayats of all the concerned villages across the Ganga basin.

Despite such overhauling, it has resulted into mixed results. **The implementation of this dream project has not brought about what it has sought for due to several reasons:-**

- Lack of actual participation by people themselves.
- Panchayats have been engaged in Namami Gange but there are several inadequacies from which panchayats themselves are suffering such as ineffective deliberation process, neutered gram sabhas, etc.
- There is reluctance among the private participation as the PPP model has rendered private players losers in many previous engagements.
- Blatant flouting by various industries such as tanneries, thermal power plants, etc of the prescribed norms vis a vis the effluent treatment, etc
- Lack of effective monitoring authority and feedback mechanism.
- Lack of awareness among people.

Measures need to be taken:

- Formulation of more stringent norms
- Create awareness
- Establishing better connect between people, authority and technology.
- Use of real-time surveys, geo-positioning systems to better delineate the boundaries and other effective implementation.
- Strict implementation of guidelines with provisions of punishment.

So, we need to take concerted steps to preserve the Ganga, which is lifeline of the North Indian plains.

16 .The frequencies of earthquakes appear to have increased in the Indian subcontinent. However, India's preparedness for mitigating their impact has significant gaps. Discuss various aspects.

Answer - The frequency of earthquakes appears to have increased in the Indian subcontinent due to following reason

1. Continuous subduction of Indian plate under Eurasian plate.
2. Anthropogenic activities like deforestation and haphazard urbanization process have resulted into more vulnerability of India toward earthquake.

India's preparedness for mitigating their impact do have significant gaps. These are:-

- The current level of seismic safety of structures designed based on current standard is lower than its desired level according to BIS.
- **Poor implementation** of national building code 2005.
- **Obsolete technological input** in construction work.
- **Lack of public awareness** regarding steps need to be taken during and after earthquake.

- Use of **sub-standard construction material**
- **No specific designs** according to the specific region, based on its seismic data.
- Old structures, built **without specific norms** have become particularly vulnerable
- **Communication gaps** in case of earthquake occurrence, further adds to the vulnerability
- **Lack of coordination** between different agencies, involved in mitigating impact of earthquake, further puts our preparedness in question.
- **Absence of standard operating procedures**, further lead to ad hoc measures which only complicate the whole situation

Way forward:

- New building code for earthquake resistant structures, needs to be drafted.
- Strict implementation of building code guidelines, during construction activity.
- Punishment for those violating the existing norms.
- Need to conduct frequent demo exercise or drills in public. Need to infuse provision of disaster management in missions like smart city.
- Need a policy which should include BIS 2002 standards in construction work.
- Need specific designs according to specific region for construction of old buildings.
- Infusion of technology like lighter but stronger construction material.

So, considering the increasing frequencies of earthquake activities in the subcontinent, we need to take immediate measures to prevent loss of life and property.

17. Human rights activists constantly highlight the view that the Armed Forces (Special Powers) Act, 1958 (AFSPA) is a draconian act leading to cases of human rights abuses by the security forces. What sections of AFSPA are opposed by the activists? Critically evaluate the requirement with reference to the view held by the Apex Court.

Answer - Armed Forces (Special Powers) Acts (AFSPA), that grant special powers to the [Indian Armed Forces](#) in what each act terms "**disturbed areas**". The AFSPA provokes strong reactions both in the Northeast as well as Jammu & Kashmir; even though it's constitutional validity has been upheld by the Supreme Court.

The Acts has received criticism from several sections for alleged **concerns about human rights violations** in the regions of its enforcement alleged to have happened. Irom Chanu Sharmila who has been on a hunger strike for nearly 15 years calls for the government to repeal this act.

Sections of AFSPA are opposed by the activists

1. Sub-section (e) was added to **Section 4** stipulating that any vehicle can be stopped, searched and seized forcibly if it is suspected of carrying proclaimed offenders or ammunition.
2. **Section 5** was added to the Act specifying that a soldier has the power to break open any locks "if the key there of is withheld"
3. **Section 6** – "No prosecution, suit or other legal proceeding shall be instituted except with the previous sanction of the Central government against any person" who has acted under this legislation. So, AFSPA provides Armed Forces immunity from prosecution.

Need OF AFSPA:

- Failure of the administration and the local police to tackle local issues
- Return of (central) security forces leads to return of miscreants/erosion of the "peace dividend"
- The scale of unrest or instability in the state is too large for local forces to handle.

Supreme Court jurisdiction on AFSPA: The AFSPA provides wide ranging powers to the armed forces without any sufficient provision for seeking justice in a case of violation. The immediate need of the hour is a review of the ground situation to study the need of such an Act. Conditions in North East India have invariably improved over the last few years and a ground level review followed by deliberations with the local people should be initiated.

Keeping in view the needs of national security, if it is still felt that the Armed forces deserve special immunity, then the Government should make adequate provisions to implement a more people friendly Act or make amendments in the present Act to make it compliant to the recommendations by the various commissions. But in taking all these steps, the respect for the opinion of the people should be a top priority to prevent recurrent protests and allegations of abuse of power by the armed forces.

So, the armed forces are for the protection of the people and friendly relations and support of the public can be the greatest aid in the fight against anti-social elements.

18. Religious indoctrination via digital media has resulted in Indian youth joining the ISIS. What is ISIS and its mission? How can ISIS be dangerous for the internal security of our country?

Answer - The Islamic State of Iraq and the Levant (ISIL) alternatively translated the Islamic State of Iraq and Syria. A significant goal of the ISIS has been the foundation of a [Sunni Islamic state](#). Specifically, ISIL has sought to establish itself as a [caliphate](#), an Islamic state led by a group of religious authorities under a supreme leader the [caliph](#) who is believed to be the successor to Prophet [Muhammad](#).

ISIS stand out from the crowd of tech-savvy radicals is the scope of their engagement online; ISIS is using social media far more effectively than any other terrorist group operating on the Web. ISIS' digital efforts stem from a carefully planned and coordinated strategy, deliberately aimed at magnifying the group's message and making it look stronger than it really is (producing recruitment and propaganda videos).

Dangerous for the internal security of our country

- First, the ISIS can become the fulcrum of terrorism against India, thereby focussing the combined energy of different groups under its umbrella.
- Second, it can be supported by Pakistan's Inter-Services Intelligence (ISI), thereby providing it a well-established intelligence and logistic network, in a symbiotic relationship.
- Third, the social media campaign by the ISIS is ideally placed to exploit alienated members of the society. This has already been witnessed to a lesser degree, in which a small number of people have volunteered to

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fight for the terrorist group in Iraq. This can potentially achieve sharper focus if it is brought to bear on Indian targets, especially in the immediate aftermath of communally surcharged incidents.

- Fourth, while India may be amongst the most challenging targets for a radical organisation like the ISIS, given the strong roots of liberalism, democracy and secularism in the country, from the perspective of the ISIS
- Fifth, the ISIS has foreseen the possibility of the US and its allies standing alongside India. However, past experience suggests limited cooperation by the US against terrorist threats specifically aimed at the country. It is more likely that it will be India's fight for its safety and security on the basis of its resilience and capacity.

Way forward:-

- (i) Cyber intelligence, cyber surveillance and cyber security measures.
- (ii) Role of family elders in checking radicalization of youths
- (iii) De-radicalization campaign in case of reporting of radical elements

So, India must remain alert to the threat posed to its internal security, and take steps to protect our citizens, vital installations etc.

Q-19 The persisting drives of the government for development of large industries in backward areas have resulted in isolating the tribal population and the farmers who face multiple displacements with Malkangiri and naxalbari foci, discuss the corrective strategies needed to win the left wing extremism (LWE) doctrine affected citizens back into the mainstream of social and economic growth.

Answer - Naxalbari is the name of a village and a [community development block](#) in northern part of the state of [West Bengal, India](#). Naxalbari block comes under the jurisdiction of [Siliguri subdivision](#) of [Darjeeling district](#). Naxalbari became famous for the [left wing revolt](#) that took place in the late 1960s.

The corrective strategies needed to win the left wing extremism (LWE) doctrine affected citizens back into the mainstream of social and economic growth are-

1. **Backward Regions Grants Fund** –it is designed to redress regional imbalances in development. The fund will provide financial resources for supplementing and converging existing developmental inflows into 250 identified districts. This aims at filling local infrastructural gaps, strengthening local government institutions and building mechanisms for professional help to these local bodies.
2. **Panchayat (Extension to Schedule Areas) Act of 1996 (PESA)**
This act (PESA) exempted scheduled areas (schedule V) from certain provisions 73rd amendment. It also modified certain other provisions. Through PESA certain powers are given to [gram sabha](#), which under 73rd amendment might not have been available to them (because of state's discretion).
3. **National Rural Employment Guarantee Programme (MGNREGA)** : Providing guaranteed employment opportunity to the poor tribals, in Naxal affected areas, will help in boosting their income levels. This will also help in restoring their confidence in the governance mechanism.
4. **The Schedule Tribes and other traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006** – In short **Forest Rights Act**. The law concerns the rights of forest-dwelling communities to land and other resources, denied to them over decades as a result of the continuance of colonial forest laws in India. This act recognized rights of tribals over minor forest produce. Recently, Forest Minor produce was also covered under Minimum selling price regime.
5. **Need to sensitize armed forces towards them:** It is important to sensitize armed forces towards the tribal people and their lifestyle. This will help in better understanding of ground realities, and hence in better formulation of strategies.
6. **Proper maintenance of land records and speedy justice delivery:** fear of land alienation is one of the main reasons of distrust among Tribals. This is used by Naxals to propagate their agenda. So, proper maintenance of land records will help in mitigating such situation.

So, we need multipronged strategy to tackle and eliminate the Left Wing Extremism from its roots.

Q-20 Considering the threats cyberspace poses for the country, India needs a “Digital Armed Force” to prevent crimes. Critically evaluate the National Cyber Security Policy, 2013 outlining the challenges perceived in its effective implementation

Answer - The Cyber Security Policy, 2013, aims at protection of information infrastructure in cyberspace, reduce vulnerabilities, build capabilities to prevent and respond to cyber threats and minimize damage from cyber incidents through a combination of institutional structures, people, process, technology and cooperation.

The objective of this policy in broad terms is to create a secure cyberspace ecosystem and strengthen the regulatory framework. The important provisions are:

1. **National Critical Information Infrastructure Protection Centre (NCIIPC):** A National and sectoral 24X7 mechanism has been envisaged to deal with cyber threats through NCIIPC. Computer Emergency Response Team (CERT-In) has been designated to act as a nodal agency for coordination of crisis management efforts.
2. **Strategic Information :** A mechanism is proposed to be evolved for obtaining strategic information regarding threats to information and communication technology (ICT) infrastructure, creating scenarios of response, resolution and crisis management through effective predictive, prevention, response and recovery action.
3. **PPP in Cyber security :** The policy calls for effective public and private partnership and collaborative engagements through technical and operational cooperation. The stress on public-private partnership is critical to tackling cyber threats through proactive measures and adoption of best practices besides creating a think tank for cyber security evolution in future.
4. **Promotion of research and development:** Another strategy which has been emphasized is the promotion of research and development in cyber security. Research and development of trustworthy systems and their testing, collaboration with industry and academia, setting up of 'Centre of Excellence' in areas of strategic importance in cyber security.
5. **Developing human resource:** The policy also calls for developing human resource through education and training programmes. Creating a workforce of 500,000 professionals trained in cyber security in the next 5 years is also envisaged in the policy through skill development and training.
6. **Awareness:** The policy plans to promote and launch a comprehensive national awareness programme on security of cyberspace through cyber security workshops, seminars and certifications with a view to develop awareness of the challenges of cyber security amongst citizens.
7. **Chief Information Security Officer:** The policy document aims at encouraging all organizations whether public or private to designate a person to serve as Chief Information Security Officer (CISO) who will be responsible for cyber security initiatives.

The release of the National Cyber Security Policy 2013 is an important step towards securing the cyber space of our country. However, there are certain areas which need further deliberations for its actual implementation. Some of the challenges are:

1. **Risks from Cloud computing:** The provisions to take care security risks emanating due to use of new technologies e.g. Cloud Computing, has not been addressed.
2. **Risks from Social networking:** Another area which is left untouched by this policy is tackling the risks arising due to increased use of social networking sites by criminals and anti-national elements. There is also a need to incorporate cyber crime tracking, cyber forensic capacity building and creation of a platform for sharing and analysis of information between public and private sectors on continuous basis.
3. **Training of Workforce:** Creating a workforce of 500,000 professionals needs further deliberations as to whether this workforce will be trained to simply monitor the cyberspace or trained to acquire offensive as well as defensive cyber security skill sets.
4. **Cyber Infrastructure development:** Indigenous development of cyber security solutions as enumerated in the policy is laudable but these solutions may not completely tide over the supply chain risks and would also require building testing infrastructure and facilities of global standards for evaluation.
5. **Parallel hierarchical structure:** Indian Armed forces are in the process of establishing a cyber command as a part of strengthening the cyber security of defence network and installations. Creation of cyber command will entail a parallel hierarchical structure and being one of the most important stakeholders, it will be prudent to address the jurisdiction issues right at the beginning of policy implementation.
6. **Privacy issues:** The global debate on national security versus right to privacy and civil liberties is going on for long. Although, one of the objectives of this policy aims at safeguarding privacy of citizen data however, no specific strategy has been outline outlined to achieve this objective.

So, the key to success of this policy lies in its effective implementation. The much talked about public-private partnership in this policy, if implemented in true spirit, will go a long way in creating solutions to the ever-changing threat landscape.