

1) What are the benefits of “Cashless Economy”? Suggest steps to make India a cashless economy.**Answer Script:-**

Cashless Economy is when the flow of cash within an economy is non-existent and all transactions have to be through electronic channels such as direct debit, credit and debit cards, electronic clearing, and payment systems such as Immediate Payment Service (IMPS), National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement (RTGS) in India.

Although the idea of cashless economy in absolute terms can't be a reality, however if an economy's major transactions are done through digital gateways then it may be termed as cashless economy. The idea is not to go cashless altogether but to drive the economy towards cashless economy as close as possible.

Benefits:-

1. All transactions are accounted for.
2. We demand transparency from governments but we have to be transparent in our transactions too
3. It gives incentive to the honesty and transparency
4. It has the ability to weed out deeply entrenched corruption in our system
5. Provide a level playing field for all and a better society for all
6. Helps in proper utilisation of income tax and there will be far less tax evasion
7. Another important aspect is, terror funding can be curbed to a large degree and fake currency along with black money will be non-existence to harm the economy or drive uncalled inflation.
8. Crime rates will drop significantly.
9. The inflated rates of real estate (land mafia)will come down , thus helping to burst the real estate bubble before it becomes a crisis.

India's Case:-

The Indian Economy continues to be driven by the use of cash; less than 5% of all payments happen electronically. In India, the ratio of cash to gross domestic product is 12.42% in GDP, which is one of the highest in the world. It was 9.47% in China or 4% in Brazil. Further, the number of currency notes in circulation is also far higher than in other large economies; India had 76.47 billion currency notes in circulation in 2012-13 compared with 34.5 billion in the US.

Steps to make India a cashless economy:-

1. A stronger digital architecture along with improving digital literacy and awareness is need of the hour

2. Better banking security architecture.
3. Schemes like Jan Dhan Yojana along with Demonetisation has the capability to push for cashless economy
4. More payment gateways/payment banks with least transaction fee can act as incentive to go cashless.

2) Give an outline of the concept of and the government initiatives for gender-budgeting in India.

Answer Script:-

Gender Budgeting is a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men. It is not an accounting exercise but an ongoing process of keeping a gender perspective in policy/ programme formulation, its implementation and review. GB entails dissection of the Government budgets to establish its gender differential impacts and to ensure that gender commitments are translated in to budgetary commitments.

The rationale for gender budgeting arises from recognition of the fact that national budgets impact men and women differently through the pattern of resource allocation. Women, constitute 48% of India's population, but they lag behind men on many social indicators like health, education, economic opportunities, etc. Hence, they warrant special attention due to their vulnerability and lack of access to resources. The way Government budgets allocate resources, has the potential to transform these gender inequalities. In view of this, Gender Budgeting, as a tool for achieving gender mainstreaming, has been propagated.

The government initiative list is exhaustive; only pick few important ones to write in your answer

Timeline:-

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| 2001 | <ol style="list-style-type: none">a. Special reference by the Finance Minister of India in his Budget speech.b. Study on Gender Related Economic Policy Issues by National Institute of Public Finance and Policy (NIPFP). (Commissioned by the then DWCD).c. The second interim report of the NIPFP (August 2001), for the first time analysed the Union Budget 2001-02 from a gender perspective. |
| 2002 | <ol style="list-style-type: none">a. Analysis of Budgets of select States was undertaken by NIPCCD.b. Expenditure on women was elicited from the Union Budgets |

in the succeeding years 2002-03, 2003-04, 2004-05 and the broad results were reflected in the Annual Reports of the DWCD. This became a step forward in the direction of Gender Analysis of the Union Budget

2003

In January 2003, the Cabinet Secretary Government of India, recommended the suggestion that Ministries/Departments should have a chapter on Gender issues in their Annual Reports. Many Ministries/Departments have since been reporting on the same, which forms a major basis of reviewing the achievements on Gender Budgeting within the Ministries/Departments.

a. Ministry of Finance constituted an Expert Group on classification system of Government transactions "to examine the feasibility of and suggest the general approach to Gender Budgeting and economic classification".

b. Inter-Departmental Committee constituted under the chairmanship of Secretary, Expenditure.

c. The first meeting of inter-departmental committee held on 7 December 2004, wherein need for opening Gender Budget Cells (GBCs) in all Ministries/ Departments was deliberated and subsequently a letter was issued to this effect.

2004

d. Instructions issued by Department of Economic Affairs, Ministry of Finance, in December, 2004 to all Ministries/ Departments to establish a 'Gender Budgeting Cell' by 1st January, 2005.

e. Subsequently, the Secretary, Planning Commission, endorsed the views of the Ministry of Finance and advised "the Ministries/Departments to clearly bring out scheme-wise provisions and physical targets in the Annual Plan proposals for 2005-06 and to carry out an incidence analysis of Gender Budgeting from next financial year."

2005

a. Since 2005-06, the Expenditure Division of the Ministry of Finance has been issuing a note on Gender Budgeting as a part of the Budget Circular every year. This is compiled and incorporated in the form of Statement 20 as a part of the

Expenditure Budget Document Volume 1 by the Expenditure Division of the Ministry of Finance. This GB Statement comprises two parts- Part A and Part B.

Part A reflects Women Specific Schemes, i.e. those which have 100% allocation for women.

Part B reflects Pro Women Schemes, i.e. those where at least 30% of the allocation is for women.

2007

a. A Charter for Gender Budget Cells (GBCs) issued on 8th March 2007, by the Department of Expenditure, Ministry of Finance, outlining the composition of GBCs and their functions.

b. Introduction of scheme on Gender Budgeting with a view to building capacity and encouraging research, so that a gender perspective was retained at all levels of the planning, budget formulation and implementation processes. All State Governments, Government agencies and training institutions can apply under the scheme.

2010

a. The Planning Commission, Government of India, vide D.O. no. PC/SW/1-3(13)/09-WCD, dated, 5th January, 2010, has clarified that, "Women Component Plan should no longer be used as a strategy either at the Centre or at the State level. In its place as already initiated by the Ministry of Finance and Ministry of Women and Child Development, we should adopt Gender Responsive Budgeting or Gender Budgeting only".

b. The Department of Expenditure has issued 'Revised Guidelines for preparation of Outcome. Herein the Outcome Budget scope prescribes that "As far as feasible, sub-targets for coverage of women and SC/ST beneficiary under various developmental schemes and schemes for the benefit of North Eastern Region should be separately indicated."

- 2012
- a. Formation of Working Group for Developing Guidelines for Gender Audit of Policies, Programmes and Schemes of Government of India
 - b. The Secretary, Planning Commission, Government of India, vide D.O. no. PC/SW/1-3(13)/09-WCD, dated, 18th October, 2012, has written to Chief Secretaries of all States/UTs that, "To accelerate the process (of GB), State Finance Departments could set up Gender Budget Cells on the lines of the Charter for Gender Budget cells issued by the Ministry of Finance. The State Planning Departments may also be instructed to include the need for gender budgeting as a part of their annual plan circular".
- 2013
- a. The Secretary, MWCD, vide D.O. no. 1-25/2012-GB, dated, 18th February, 2013, has issued guidelines to States to provide a road map towards institutionalizing Gender Budgeting at State level.

3) India's tax to GDP ratio is dismal. In light of this analyse the issues and suggest way forward to broaden the tax base and increase the tax-to-GDP ratio.

Answer Script:-

The celebrated French economist Thomas Piketty's recent visit to India caused much consternation for his remarks. He proclaimed that 1) inequality in India is widening, 2) India's tax-to-gross domestic product (GDP) ratio is abysmally low and 3) the Indian state spends too little on health and education. This sounded like cacophony or harmony to India's commenting class, depending on one's ideological fancies. Regardless of one's views on India's inequality, it is irrefutable from empirical evidence that India has a "twin deficit" issue in its taxation policy. That is, India taxes its citizens much lower in proportion to its GDP vis-à-vis other comparator economies and a substantive portion of such taxes are collected through largely regressive and distorting indirect rather than direct means.

Analysis of data from Organization for Economic Cooperation and Development (OECD) and India's ministry of finance, spanning nearly 50 years from 1965 to 2013 across 35 countries, reveals that India is indeed an outlier. India's tax-to-GDP ratio increased from 10.4% in 1965 to 17.2% in 2013. This includes both central and state tax revenues. The corresponding tax-to-GDP ratio for OECD countries (weighted by GDP) increased from 21% in 1965 to 33% in 2013. Purely in terms of a tax-to-

GDP ratio, India has always been substantially lower than the average of OECD economies, over a 50-year period.

Piketty is certainly right in pointing out that India's overall tax revenues are very small for the size of its economy. Then, is there a desired tax-to-GDP ratio that India should aspire for? Economic theory is, perhaps surprisingly, silent on what might be an optimal tax-to-GDP ratio. Conventional macroeconomics does say that it is not optimal for the tax rate to exhibit erratic jumps up or down—this is Robert Barro's famous "tax smoothing" proposition, but this does not pin down any optimum. We also know that there is a maximum feasible tax-to-GDP ratio, which corresponds to the peak of the celebrated "Laffer curve", but this is only an upper bound on the government's taxing capacity, again not a statement of what is the optimum.

In the ultimate analysis, the optimum tax-to-GDP ratio is simply the lowest tax-to-GDP ratio which pays the government's bills and keeps its books balanced, in the long run, without running perpetual budget deficits or surpluses. Thus, in the absence of a theoretical framework for an optimal tax-to-GDP ratio, it might be prudent for India to target a comparable tax-to-GDP ratio of other similar economies.

In the 25-year period from 1965 to 1990, India's tax-to-GDP increased steadily from 10% to 16% while GDP increased 2.8-fold. In the subsequent 25-year period from 1991 to 2014, India's tax-to-GDP stayed roughly constant between 16% and 17% while GDP increased 4.5-fold

That, curiously, India's rate of tax revenues did not grow commensurate with its GDP growth post the 1991 reforms is inexplicable.

India's direct to indirect tax ratio is roughly 35:65. This is in contrast to most OECD economies where the ratio is the exact opposite, 67:33 in favour of direct taxes

Way forward:-

1. A better tax regime along with better tax to GDP is required as the tax finances the government and helps government increase public funding in infrastructure as well health and education.
2. Widening tax base by GST implementation
3. Improving tax law compliance
4. Fixing loopholes in taxation regime – better double tax avoidance treaties
5. Refraining from exemption thresholds for income tax as suggested by the economic survey

4) What do you understand by inflation targeting? Bring out its significance and comment on the recent developments with regards to this.

Answer Script:-

Since the 1970s inflation targeting has become widely adopted by developed economies. Inflation targets were introduced to help reduce inflation expectations and help avoid high inflation which can destabilise an economy. However, since the recession of 2008 and consequent prolonged unemployment, people have begun to question the importance attached to inflation target and are worried that a 'religious' commitment to low inflation is conflicting with other more important macro economic objectives.

What is inflation targeting?

Inflation targeting is a monetary policy in which a central bank has an explicit target inflation rate for the medium term and announces this inflation target to the public. It will have price stability as the main goal of monetary policy.

Why inflation targeting?

Many central banks adopted inflation targeting as a pragmatic response to the failure of other monetary policy regimes, such as those that targeted the money supply or the value of the currency in relation to another, presumably stable, currency. In general, a monetary policy framework provides a nominal anchor to the economy. A nominal anchor is a variable policymakers can use to tie down the price level. One nominal anchor central banks used in the past was a currency peg—which linked the value of the domestic currency to the value of the currency of a low-inflation country. But this approach meant that the country's monetary policy was essentially that of the country to which it pegged, and it constrained the central bank's ability to respond to such shocks as changes in the terms of trade or changes in the real interest rate. As a result, many countries began to adopt flexible exchange rates, which forced them to find a new anchor.

Many central banks then began targeting the growth of money supply to control inflation. This approach works if the central bank can control the money supply reasonably well and if money growth is stably related to inflation over time. Ultimately, monetary targeting had limited success because the demand for money became unstable—often because of innovations in the financial markets. As a result, many countries with flexible exchange rates began to target inflation more directly, based on their understanding of the links or "transmission mechanism" from the central bank's policy instruments (such as interest rates) to inflation.

Why it is good?

It will lead to increased transparency and accountability. Policy will be linked to medium/long term goals, but with some short term flexibility.

With inflation targeting in place, people will tend to have low inflation expectations. If there was no inflation target, people could have higher inflation expectations, encouraging workers to demand higher wages and firms to put up prices.

It also helps in avoiding boom and bust cycles.

If inflation creeps up, then it can cause various economic costs such as uncertainty leading to lower investment, loss of international competitiveness and reduced value of savings. This can also be avoided with targeting.

Challenges to inflation targeting:

It puts too much weight on inflation relative to other goals. Central Banks Start to Ignore More Pressing Problems.

Inflation target reduces “flexibility” . It has the potential to constrain policy in some circumstances in which it would not be desirable to do so.

Cost-push inflation may cause a temporary blip in inflation.

Conclusion:-

Inflation targeting has been successfully practiced in a growing number of countries over the past 20 years, and many more countries are moving toward this framework. Over time, inflation targeting has proven to be a flexible framework that has been resilient in changing circumstances, including during the recent global financial crisis. Individual countries, however, must assess their economies to determine whether inflation targeting is appropriate for them or if it can be tailored to suit their needs. This should not be seen as a panacea for all the problems.

Inflation targets can have various benefits, especially during ‘normal’ economic circumstances. However, the prolonged recession since the credit crunch of 2008 has severely tested the usefulness of inflation targets. There is a danger that Central Banks give too much weighting to low inflation, when there is a much more serious economic and social problem of unemployment. One solution would be to give an equal weighting to an inflation target and output gap target.

5) “Inclusive development, over time has engaged in principle but disengaged in practice; the rich are getting richer and poor are getting poorer”. In light of this critically analyse the concept in general and the issues associated with it in particular.

Answer Script:-

The answer script gives a holistic understanding on this however you have to pick the key themes from this and compress your answer.

Background:-

The rhetoric of “inclusive development” tends often to be lost in vague generalities, when it is not altogether absent in various processes on the ground or in state policy that claims to be inspired by its demands. This note suggests that in at least one specific and restricted area of application – the intersection of poverty, inequality and growth – it should be possible to capture some elementary aspect of inclusiveness by monitoring trends, set against targets, of the “quintile income” statistic. This statistic, which was proposed in earlier work by Kaushik Basu, is a simple and useful aid to

verifying the reach of inclusiveness in a specific dimension of development, a theme that is elaborated on in this note.

Introduction:-

Every season has its buzzword, and the vogue today, it would appear, is “inclusive development”. One supposes that the term is intended to cover a multitude of desirable aims and goals. As such, it seems reasonable to believe, for instance, that “inclusive development” would have implications for the notions of “national integration” and “citizenship”, and therefore for recent events on the ground in Jammu and Kashmir, the north-east, and the so-called “Maoist Belt”.

Similarly, one must expect that an engagement with “inclusive development” must imply also an engagement with various manifestations of social exclusion based – for example – on caste, religious, and gender identities.

A third area of relevance would presumably relate to the extent – measured by both depth and coverage – of social security provisioning for the deprived. This is just a minute sample of the objects of concern of the term under discussion – but the sample is large enough to highlight certain elementary distinctions and contrasts.

In particular, it is impossible not to see that there is the engagement in principle and disengagement in practice, just as there are pretty phrases and ugly facts. Thus, for many, the State’s protestations of “inclusive development” make for a clanging, angling discord when juxtaposed with talk of sedition and anti-national activity; with the facts of manual scavenging, the socio-economic status of Muslims (as revealed in the Sachar Committee’s report), and the scale of sex-selective foeticide in the country..

The area of concern when we speak of “inclusive development” relates to the domains of poverty, inequality, and growth.

The Quintile income:-

It appears that the World Bank is planning to maintain and disseminate systematic information on a version of what Kaushik Basu had some years ago advanced as the ‘quintile income statistic’. The quintile income—which we shall find convenient to refer to simply as *Q*— is just the average income of the poorest quintile (that is to say, poorest 20 per cent) of a population. The quintile income statistic is a very simple, but also very versatile, welfare indicator—one which can be employed to cast light, admittedly in a somewhat elementary way, on aspects of both income poverty and the ‘inclusiveness’ of growth. The World Bank aims to track, subject to the availability of data, country-specific performance with respect to the average income of the poorest 40 per cent of the population (rather than 20 per cent, as Basu had proposed in his original version of the statistic).

The Poverty Line:-

As is well-known, extant protocols of money-metric poverty measurement follow what one may call the route of ‘identification-cum-aggregation’. The identification exercise is concerned with specifying an income ‘poverty line’ designed to distinguish the poor segment of a population from its non-poor segment. The aggregation exercise is concerned with combining information on the distribution of

income and the poverty line in order to come up with a single real number which is supposed to signify the extent of poverty in the society under review. A particularly simple aggregate measure of poverty, and one which is very widely employed, is the so-called headcount ratio, or proportion of the population in poverty (that is to say, the proportion of the population with incomes or consumption expenditure levels below the poverty line).

It is important to recognize that the language of a 'poverty line' is ill-suited to treating income as anything but a means to an end—specifically the end of avoiding deprivation in the space of human functionings.

After all, what is the common sense meaning of the term 'poverty line'? Is it not a reference to that level of income which, when it is attained, enables an individual to escape deprivation? And what is deprivation, if not a failure to achieve certain 'minimally satisfactory' states of being and doing—such as the state of being reasonably well-nourished, reasonably mobile, reasonably free of disease and ignorance, reasonably sheltered against the forces of nature and climate, reasonably equipped to participate without shame in the affairs of one's society, and so on?

And if this is the case, surely the right way of going about fixing the poverty line would be to first make a list of human functionings in respect of which it is reasonable to insist that one should avoid deprivation in order to be counted non-poor; to identify the reasonable cost of achieving each reasonable level of functioning; and to add up all of these functioning-specific costs in order to arrive at the money-metric poverty line.

Notice now that there can be both inter-personal and 'environment-' or 'context-dependent' factors which can make for differences in the rate at which incomes (or resources in general) are converted into functionings.

Thus, a pregnant or lactating mother will typically need more nutritional resources than a person who, other things equal, is not in this condition. Similarly, a differently abled person would typically need more resources to achieve the functioning of mobility than one who is not so. Apart from such individual heterogeneities, are also differences wrought by variations in the objective environment. Thus, a person living in unsanitary conditions without access to clean drinking water might be expected to require more food to achieve the same nutritional status as one whose absorptive capacity is not compromised by infected potable water. Similarly, a person living in a cold climate would require more resources to expend on protective clothing than one living in a temperate climate.

We owe all of these insights to Amartya Sen who, many years ago, employed this line of argumentation to assert that poverty is best seen as an absolute concept in the space of functionings, but (and precisely because of variations across regimes in the ability to convert resources into functionings), as a relative concept in the space of resources (including income).

The practical issue is this: for poverty comparisons to be meaningful, the poverty standard must be invariant across the contexts of comparison. But invariant in what space? In the space of functionings (which is compatible with variability in the space of resources), not in the space of real incomes or of commodity bundles.

Yet, in practice, the World Bank's 'dollar-a-day' international poverty line preserves invariance in the space of real incomes, while India's official poverty lines preserve invariance in the space of commodity bundles.

Regrettably, the language of a 'poverty line'—in terms of which incomes or resources are seen as a means to the end of avoiding deprivation in the space of functionings—is wholly incompatible with such postulated invariance of real incomes or commodity bundles. The resulting estimates of 'poverty' are, quite straightforwardly put, hard to interpret in any conceptually coherent or meaningful way. And the problem cannot simply be taken care of by impatient assertions regarding the unavoidability of *some* element of arbitrariness in the specification of an income poverty line

Conclusion:-

Rectification of standard practice would require that poverty be treated as an absolute conception in the space of human functionings, and as a relative conception—allowing for both interpersonal and contextual heterogeneities—in the space of incomes.

This is a practically very difficult exercise to implement, but is the price that must be paid for treating income—in terms of the language of a 'poverty line'—as a means to an end. Failing this, income could be treated as an end in itself, in which case the quintile income can be employed as a legitimate money-metric indicator of poverty.

Over-time comparisons of the actual quintile income with reasonably targeted levels based on a normative growth rate should yield a picture of how money-metric poverty has fared over time. Suitable comparisons of the over-time performance of the average incomes of the richest and the poorest declines over time—should yield a picture of the inclusiveness or otherwise of growth.

In conclusion, there is a strong case for replacing dollar-a-day-type approaches to the estimation of money-metric poverty by a more straightforward 'quintile income approach', which can also be employed in order to pronounce judgment on whether or not growth in income has been 'pro-poor' or inclusive.

6) Trace the policy developments with regards to rural banking in India and discuss the problems associated with it. Also suggest solutions that may take the banks to the rural hinterland.

Answer Script:-

Rural development occupies a significant place in the overall economic development of the country and Darling's statement (1925) that "the Indian peasant is born in debt, lives in debt and dies in debt," still remains true for the great majority of working households (55-60 per cent of India's population) in the countryside.

Three phases of rural banking policy since 1969

1st phase following the nationalization of India's 14 major commercial banks in 1969—The declared objectives of the new policy, known as "social and development banking", were the following:

- To provide banking services in previously unbanked or under-banked rural areas;
- To provide substantial credit to specific activities including agriculture and cottage industries; and
- To provide credit to certain disadvantaged groups such as, for example, Dalit households.

2nd phase began in the late 1970s and early 1980s:

- Two major instruments of official anti-poverty policy were developed: loans-cum-subsidy schemes targeted at the rural poor and state-sponsored rural employment schemes (Integrated Rural Development Programme (IRDP))
- An expansion and consolidation of the institutional infrastructure for rural banking

3rd phase—Post Liberalization:

- Redistributive objectives “should use the instrumentality of the fiscal rather than the credit system”
- Directed credit programmes should be phased out
- Interest rates be deregulated
- Capital adequacy norms are changed (to “compete with banks globally”)
- Branch licensing policy be revoked
- A new institutional structure that is “market driven and based on profitability” be created,
- Part played by Private Indian and foreign banks be enlarged

Challenges facing Indian Rural Banking—

Priority Sector Lending:

- Priority sectors are broadly taken as those sectors of the economy which in the absence of inclusion in the priority sector categories would not get timely and adequate finance.
- Typically, these are small loans to small and marginal farmers for agriculture and allied activities, loans to Micro and Small Enterprises, loans for small housing projects, education loans and other small loans to people with low income levels
- The major challenge is to bring all farmers into the institutional credit framework—

Need to make priority sector lending competitive and commercially viable

- By reorienting the approach of banks to look at priority sector areas as the challenges in priority sector can be overcome only if banks consider priority sector lending as part of normal business operations of the banks and not as an obligation.
- Rural untapped market offers a big business opportunity to the banks and banks need to innovate new products which cater to the needs of farmers, weaker sections and other vulnerable sections of the society, develop new delivery channels and embrace technological developments which will reduce the delivery costs— **a viable business proposition**
- Need to lay emphasis on direct delivery of credit to the poor beneficiaries i.e. without the involvement of intermediaries, which will ensure better management of risks and also reduction in transaction, delivery and administrative costs for these loans, which being essentially small ticket, low value high volume loans, do generate profits translating to a stable low cost deposit stream for banks and to the fortune at the bottom of the pyramid.

Regional Rural Banks:

Regional Rural Banks (RRBs) were established in the year 1976 as a low cost financial intermediation structure in the rural areas to ensure sufficient flow of institutional credit for agriculture and other rural sectors— Narasimham committee

- RRBs were expected to have the local feel and familiarity of the cooperative banks with the managerial expertise of the commercial banks.
- RRBs are jointly owned by GoI, the concerned State Government and Sponsor Banks, the issued capital of a RRB is shared by the owners in the proportion of 50 percent, 15 percent and 35 percent respectively
- RRBs operate under the control of two institutions, the National Agricultural Bank and Rural Development (NABARD) and Reserve Bank of India (RBI)

Financial Inclusion:

Financial Inclusion (FI) is the process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular at an affordable cost in a fair and transparent manner by mainstream institutional players.

2006: Reserve Bank permitted banks to utilise the services of non-governmental organizations (NGOs), micro-finance institutions (other than Non-Banking Financial Companies) and other civil society organisations as intermediaries in providing financial and banking services through the use of business facilitator and business correspondent (BC) models. The BC model allows banks to do “cash in-cash out” transactions at a location much closer to the rural population, thus addressing the last mile problem.

Combination of strategies— ranging from relaxation of regulatory guidelines, provision of new products and other supportive measures to achieve sustainable and scalable Financial Inclusion; as well as close monitoring

Issues being faced—

Not treated as an Efficient Business Model:

- Banks are pursuing FI as a regulatory requirement rather than treating it as a business model.
- Banks have to realize that the bankability of the poor holds a major opportunity for the banking sector in developing a stable retail deposit base and in curbing volatility in earnings with the help of a diversified asset portfolio and therefore, Financial Inclusion programmes should be implemented on commercial lines as a sustainable and viable business model
- Ensure that poor people who deserve credit are provided access to timely and adequate credit in a non-exploitative manner
- Reasons—
 - **Higher non-performing loans** in rural areas because rural households have irregular income and expenditure patterns—compounded by the dependence of the rural economy on monsoons, and loan waivers driven by political agendas
 - **Low Ticket Size:** The average ticket size of both a deposit transaction and a credit transaction in rural areas is small. This means that banks need more customers per branch or channel to break even. Considering the small catchments area of a branch in rural areas, generating a customer base with critical mass is challenging.
 - **High Transaction Cost:** due to small loan sizes, the high frequency of transactions, the large geographical spread, the heterogeneity of borrowers, and widespread illiteracy
 - **Higher risk of credit:** Rural households may have highly irregular and volatile income streams. Irregular wage labour and the sale of agricultural products are the two main sources of income for rural households.
 - **Information Asymmetry:** Since many rural people do not have bank accounts, there is a lack of information on customer behaviour in rural India

Government's policies:

- High fiscal deficits and statutory pre-emptions imposed on banks
- Persisting interest rate restrictions—“floors” on short-term deposit rates and lending rates, “caps” on small loans
- Government’s domination of and interference in rural banks, particularly RRBs and cooperative banks, further distort bankers’ incentives;
- Inefficiencies arising from weak governance & poor management,
- Weak regulatory standards & Lack of supervision

BC Model – Viability issues:

- Scarcity of staff
- Inadequate commissions
- Accounts opened have remained non-operational

Infrastructure:

- Technology issues: Non-availability of physical and digital connectivity as well as low rural television-density
- Lack of Bank branches—Limited delivery capability as ATM penetration is low and other channels such as Phone and Internet Banking are non-existent
- Poor physical and social infrastructure—unpaved roads and limited access to modern transportation

Small Rural Borrowers Find Rural Banks Unattractive:

- Rural banks do not provide flexible products and services to meet the income and expenditure patterns of small rural borrowers
- The transaction costs of dealing with formal banks are high—Procedures for opening an account or seeking a loan are cumbersome and costly (with high rejection rates), and, clients often have to pay hefty bribes (ranging from 10 to 20 percent of the loan amount) to access loans. This makes the ultimate cost to borrowers very high (despite interest “caps”).
- Banks demand collateral, which poor rural borrowers lack — Land, remains the predominant form of collateral. But, poor households very often do not have clear titles to their land, and in any case, this collateral is seldom executed, so it is just another cost with little benefit in practice

Financial Literacy:

Financial Inclusion and Financial Literacy are two sides of the equation. Financial Inclusion acts from supply side by providing financial market/services that people demand whereas Financial Literacy

stimulates the demand side by making people aware of what they can demand. Therefore, access to financial services and Financial Education must happen simultaneously and must be a continuous, an ongoing process and must target all sections of the population.

Importance: the low levels of literacy and the large section of the population still out of the formal financial system

Need to-

- Evolve an appropriate Business Model & an Efficient Delivery Mechanism
- Create awareness of basic financial products through dissemination of simple messages of financial prudence in vernacular language—activities included publication of comic books on banking and RBI; games on Financial Education; arranging school/college visits for creating financial awareness; participation in exhibitions/fairs/melas at the State & District levels; conducting essay competitions and quizzes in schools to create awareness about banking and RBI; outreach programmes undertaken by the Top Management and Regional Offices; RBI's Young Scholars Scheme, etc.

Education:

Why—For economic development and raising overall living standards

- Facilitate economically weaker sections of the society to avail educational loans from scheduled banks with modified easier norms
- Loans for education should be seen as an investment for economic development and prosperity, since knowledge and information would be the principal driving force for economic growth in the coming years

New Approaches and Products to Improve Rural Access to Finance in India:

SHG-Bank Linkage Program—championed by the National Bank for Agriculture and Rural Development (NABARD).

Have targeted poorer segments of the rural population in an effective manner, reducing the vulnerability of clients. But outreach, volume of lending, and average loan size remain limited.

Key challenges facing the initiative are:

- (a) Inadequate attention to group quality could jeopardize longer-term credibility and sustainability.
- (b) Capacity constraints and the cost of group formation
- (c) State-owned banks have been lending to SHGs at higher interest rates

Microfinance Institutions— Like SIDBI

- Limited outreach and scale of Indian MFIs reflects the absence of an enabling policy alongside a legal and regulatory framework, hindering the ability of MFIs to mobilize member deposits, equity, and raise debt from external sources.
- MFIs are also constrained by the lack of adequate capacity and skills in financial control and management, management information systems (MIS), new product design, etc.

Partnerships between Private Banks, Micro-financiers, and Service Providers—

- Pursuing innovative approaches to microfinance—as a potential business and not merely as a social or priority sector lending obligation.
- Key innovations include a pilot scheme by ICICI Bank that uses NGOs or MFIs, traders, or local brokers (who are close to the farmer by the nature of their business) as intermediaries/“service providers” for originating, managing, and collecting loans to groups of small and marginal farmers.
- Banks are also experimenting with an approach now termed the “Integrated Agricultural Service Provider” (IASP) approach, whereby the bank identifies an IASP—one that has a good relationship with farmers and which provides genuine and timely information through extension services— and enters into a tripartite agreement with the IASP and the output buyer. This reduces transaction costs and the risk exposure of all parties, and, therefore, presents a potentially low-cost way of serving the rural poor engaged in marginal or small farming.

The Kissan Credit Card—

Reducing both borrowers’ transaction costs as well as delays in accessing and renewing crop loans; but the success of the KCC scheme has been uneven

Key to success

- Develop appropriate products for this segment of customers—Appropriate products and fair lending rates would automatically eliminate the moneylender
- Shortening of turn-around time—Interventions in some sectors:
- **Digitisation of banking:** will help access a wider range of customers in rural India. Digital applications (wallets, mobile-to-mobile payments) are adding to transaction traffic
- **Inculcate saving & banking habit:** Critical to conduct financial literacy and credit counselling programmes, offer skills training to enhance income generation, form self-help groups and fund these groups for income-generating activities thereby enabling the delivery of viable credit to the rural poor in a sustainable manner

7) "Subsidies are one of the quintessential attributes of any welfare state, and so is for India. India spends a huge sum on subsidies, yet there effect is anything but transformational ".Comment.

Answer Script:-

Subsidies are one of the quintessential attributes of any welfare state. India, at the eve of independence was left with

uphill task of socio-economic development. Markets were almost nonexistence, masses lived in abject poverty and illiteracy, we were not producing enough food to satiate hunger of masses, life expectancy was just 32 years; in short, there was crisis in every sphere; be it agriculture, industry, health or education; partly due to colonial legacy. Given such circumstances, founding fathers of democratic India rightly envisaged Indian state to be a welfare state. However, 70 years down the line only few problems have abated, while new ones cropped up and poverty still stubbornly remains a pressing problem.

In this context, latest economic survey rightly points out that despite spending as high as 3.77 lakh crore rupees annually on subsidies there is no 'transformational impact' on standard of living of masses. While subsidies have helped some poor people to do firefighting in life, main allegation on a subsidy economy is that, through subsidies, money meant for poorest is appropriated by richer sections of the society due to mistargeting and leakages.

Subsidies: are they solution to a problem or are they themselves a problem?

As already said, a welfare state without subsidies cannot be imagined. Governments have to extend subsidies to achieve objectives of socio- economic policy. By this, they aim at-

1. Making basic necessities affordable to poor people through extension of consumer services.

2. To prepare a foundation of various economic sectors in which private sector can participate later. When economy is at lower stages of development, it is often unviable and unaffordable for private sector to step in production. This is mainly because there are limited resources with private investors and there are informational externalities/uncertainties. In such case government do handholding by supporting private sector by extending subsidies and withdrawing them when private sector becomes competitive.

Subsidies should be aimed at specific development objectives. On achievement of these objectives subsidies should be phased out. It is only then that subsidies can go well with an undistorted market economy.

However, in a democracy, subsidy once extended becomes a politically sensitive issue and governments suffer huge political risk if they phase out such subsidies. Overtime, new subsidies are extended which pile up on older ones and they soon consume scarce revenue resources of government. This takes a heavy toll on other expenditure of the government. They are forced to cut allocation to developmental and infrastructure avenues. Further, higher subsidy expenditure pushes up fiscal and revenue deficits as government starts spending more than it earns. This fiscal deficit

can be closed preferably by raising more revenue through new taxes (proactively) or by borrowing money.

Most significant consequence of either of this alternative is that money is squeezed out of economy and which results in lower consumption/demand. This, in turn hits the growth in economy. Less growth results in lower collection of taxes. On other hand subsidy burden remains same or even increases. Further, higher borrowing results in higher amount of interest to be paid. So in short, careless or politically motivated subsidy results in lower revenues for government and higher unproductive expenditure.

Further, if government is unable to borrow money or to raise taxes, it will have to print new currency to finance deficits, which increases money supply in the economy. This creates inflationary trends in economy. Incoherent subsidy regime unintendedly does more harm than good for the cause it stands – socio- economic development.

Subsidies and its opportunity costs

Subsidies are that part of government expenditure that is 'consumed' by beneficiaries. In economics, debate between two alternative uses of money: Consumption and Investment is quite old.

Consider a family of four with limited means which earns Rs 10000 a month. If this family consumes food for all this money, month after month then it is likely that its earning will remain same in perpetuity. However, if family manages to save Rs 3000 a month or Rs. 36000 an year, and invest this money in some return yielding avenue, in education of children or developing skills of working members, then its income will gradually increase and poverty, someday, will certainly will be thing of the past. While doing so family will have to take care that all its basic needs like housing and food, gets fulfilled in Rs 7000 a month. It may be quite hard, but if done, will certainly bring family out of poverty.

Same concept goes for economy as a whole. We have Tax to GDP ratio of around 17.7%. (Center plus states) With this amount government has to provide for interest payments of its debt, expenses for its humongous administration, defence of the country, devolution to states and panchayats, developmental work, infrastructure and for subsidies.

In 2013, total expenditure by government was 13.8% of GDP. Out of this revenue expenditure (consumption) was 12.1% of GDP, leaving just 1.7% of GDP for Capital expenditure (investments). Out of this revenue expenditure, non-plan expenditure was 9.5% of GDP. Further, non-plan expenditure had following breakup –

1. Interest payments – 36.9%
2. Defense Services – 12.1%
3. Subsidies – 24.2%
4. Grants to states and U.T.s – 6.3%

5. Pensions – 7.3%

6. Others – 13.2%

It goes without saying that it is in interest of nation to minimize this consumption part of expenditure and increase allocation to capital expenditure which stood at just 1.7% of GDP. However, most of the components of above list are inflexible. Interest payments cannot be reduced unless there is higher growth in the economy. Pensions are ballooning as there is consistent increase in life expectancy across demographic spectrum of India. Grants to states are also expected to go up given government's commitment towards federalism. In all this, there is significant scope of reduction in subsidies as they are infested rampantly with problem of mis-targeting and leakage. This can be easily grasped from the fact that just shifting to cash transfers in distribution of subsidized LPG is expected to save annually Rs 15000 crore for the exchequer.

Some subsidies led distortion in India:

1. Energy- Groundwater nexus – Agriculture sector is perhaps having most justifiable claim on subsidized inputs given the dismal situation of the farmers in the country. On these lines, water and electricity for agricultural use are heavily subsidized by state governments. Again, politics seeped into this economic cause and most governments have failed to ensure rational and sustainable use of subsidized water and electricity. Owing to this, in large parts of India, groundwater is being extracted indiscriminately as electric pump consume electricity that is almost free of cost. This has led to dramatic fall in groundwater levels. Wells have gone dry at numerous places. Water extracted from deep earth often gets contaminated by arsenic mineral. This, together with erratic monsoon due to climate change, has pushed rural India in deep distress.

To remedy this problem, government has plans to separate agriculture feeder network from rest, under Deen Dayal Upadhyay Gram Jyoti Yojna. This separate agriculture feeder will supply electricity only for a few hours a day. This was first tried by Gujarat and results were encouraging as it had role in making Gujarat a power surplus state, along with arresting continuous decline in groundwater levels.

2. Subsidized fertilizers – Nutrient Based Subsidy or NBS was introduced in 2010 with objective to promote balanced use of fertilizers and to limit fertilizer subsidy of the government. Idea was to fix subsidy as per nutrients (in per Kg) in the fertilizer and leave the determination of price to suppliers. Presently Urea is not covered under the scheme due to political compulsions. Consequently subsidized price of Urea remained stagnant even when real costs of production have risen significantly. On the other hand Potassium and Phosphorous are covered under the scheme and a fixed subsidy as per content of nutrients is given to suppliers and they change Maximum Retail Price as per market signals. Secondary and Micronutrients are also covered under the scheme. (In short urea is still controlled and P,K, are decontrolled)

As a result, actual use of NPK is in ratio of around 8:3:1 while recommended use is 4:2:1. This additional use of urea doesn't give any additional benefit to the farmer. Instead this can degrade soil

and harm crop. Productivity and quality of a crop depends upon use of diversified mix of macro and micronutrients, which vary from soil to soil. While urea consumption has increased from 59 per cent to 66 per cent of total consumption in 2012-13 over 2010-11, **per hectare consumption of fertilizer has declined from 140 kg to 128 kg over the same period.**

Fertilizer subsidy was `67,971 crore in 2013-14, an increase of 11 per cent over 2009-10. Large part of this went to production and consumption of urea that was not needed at all.

Also, due to excessive use of fertilizers groundwater is also getting polluted and chemical bioaccumulation problem is impacting health of people.

Apart from Urea, farmer is not even getting benefit due from NBS in case of subsidized potassium and phosphorus. Subsidy is provided to manufacturers, who in turn are responsible to pass this subsidy to farmers in form of reduced retail prices. Rather, manufacturers have increased their prices forming a cartel and have usurped subsidy meant for farmers. It's only now that Ministry of Chemicals and Fertilizers has undertaken review of prices charged by registered manufacturers. It has plans to penalize and cancel registration wrongdoers.

Another mistargeting of fertilizer is that most of this is consumed by rich farmers of Punjab, Haryana and North West Uttar Pradesh. Uptake of fertilizers depends a lot on sufficient supply of water to the crop. As about 60% of total cultivated area of India is rain fed, subsidy is cornered overwhelmingly by well irrigated states.

3. Cultivation of wheat, Rice and sugarcane at cost of pulses, horticulture crops and coarse but nutritious grains –

Consumption patterns in India are shifting rapidly from calorie rich diet to protein and vitamin rich one. Despite this, protein based diet in India is abnormally expensive. Main source of protein for Indian masses is pulses. Last whole year there was clamour on the issue of skyrocketing prices of pulses. India's subsidy regime had its hand behind this problem.

Pulses are most suitable to be grown in areas of Maharashtra and Madhya Pradesh, yet large parts of these areas are under cultivation of sugarcane. Sugarcane due to high 'fair and remunerative price' is being sown in these areas. This create two problems – one, it deprives Indians of their source of protein; two, these areas are water deficit and sugarcane is water guzzling crop. This crop is sucking scarce water rapidly and when monsoon failed again this time, mainly in Marathwada; farmer had no way to escape.

Ironically, pulses are water efficient crops with capacity to rejuvenate soil by process of nitrogen fixing and farmer chooses crop like sugarcane which later proves to be a gross liability for him. Sugarcane is suitable to be grown in areas of Bihar and Bengal given abundant water, but it is not due to lack of electricity and irrigation.

Similar is the case for cultivation of Wheat and Rice. These two crops yield much larger quantity (about 5 times) per acre/hectare than crops like pulses. Higher MSP for pulses is not so high to make whole value of produce more remunerative for farmer. So he prefers conventional grains. This has led to huge stockpile of wheat and rice (40-50 million tons) in government inventory which decays

and is carried forward at cost of Rs 5/ year. On the other hand, India has to import more than 25% of its consumption of pulses.

4. Railways: Subsidization and Cross- subsidization – Between 1993 and 2011, the wholesale price index rose by 295% and the fares of sleeper class and second class travel rose just by 144% and 106% respectively. Consequently, railway runs at heavy loss, which can be construed as subsidy to passengers of the railways. It's only natural that railway has failed to expand capacity and improve quality to serve needs of booming Indian economy. When British left India had network of 52000 Kms, which now increased to measly 64000 Km.

Apart from this, freight carriers of railways are even more uncompetitive, because railway subsidizes passenger fare further by charging higher freight charges. Accordingly, in 1970's freight used to contribute 65% of railway revenues and now it does only 33%. This is due to shifting of freight carriage from rail to road transport, which much costlier, more polluting and more time consuming. This has made our economy a lot more uncompetitive.

5. Agricultural Finance: Farmers are entitled to pre- harvest loan at 7% interest rate. They are allowed further 3% subvention in case of timely payment. Farmers can also take loan for post-harvest time against negotiable warehouse receipt.

Economic survey notes three discrepancies in this subsidy. One, trend indicates that amount for a single loan is increasing for most of these subsidized loans. This means that more subsidies is going in favor of rich farmers. Two, extension of subsidized credit is concentrated in last three months of the financial year, which indicates that reluctant banks otherwise unable to meet priority sector lending targets, desperately disburse loans to reach target at the end only. It is unlikely that this way credit will reach to desirable party. Third, agriculture credit is getting concentrated on peripheries of urban areas, which means that money is being diverted to nonagricultural use.

6. Food inflation: Fact that India produces surplus foodgrains doesn't mean that these are available to consumers at cheaper prices. Rather, India till couple of years back witnessed spiraling double digit inflation driven by expensive food, even when world was reeling under deflation. This distortion is mainly due to increasing input costs to farmer coupled with persistent increase in Minimum Selling Price declared by government. This forces government's agency FCI to procure foodgrains in open ended manner. As a result, government ends up procuring 25-33% of total foodgrains production in the country. Apart from this, about 33% of foodgrains are captively consumed by farmers. All this leaves just 33%-45% of total foodgrains for open market. This. At times, culminates in an absurd situation, where there is shortage of grains in open market which push prices upward and millions of tons of grains stored in FCI godowns.

Few experts believe that entitlements under Food Security Act are sufficient only to fulfill 50% of requirement of foodgrains for a household. For this 50%, there is massive but inefficient storage and

PDS system. This in many ways significantly increases price of remaining 50% food grain need of households. So, a well-intended system may be actually working counter to its stated goals.

Direct Benefit Transfers as solution

Given above are only few examples of subsidy support gone wrong. In such scenario, direct benefit transfers comes to rescue government from this problem. It is likely to have multiple benefits –

1. **Fiscal savings** – Assuming explicit subsidies being extended by state in current form to remain between 3 to 4 lakh crores, DBT will curb this expenditure by around 15%, which is a conservative estimate of current leakages. This can save government around 50,000 crore, which can be used more efficiently for developmental purposes. Given that government is capable of sailing through implementation of DBT in comparative smooth manner, as there is huge support from beneficiaries and opposition is weak (unlike other issues such as disinvestment, land acquisition), this will prove to be a low hanging fruit.

2. **It hits at roots of corruption** – It is common knowledge that subsidized fertilizer is diverted to industrial use from agricultural sector, kerosene is mixed in diesel and PDS food is leaked in black markets. In short, subsidy regime has nurtured a mammoth corrupt ecosystem and black economy in India. When DBT is implemented everything will be sold on market prices by the government. For E.g. Fair Price Shop owner will get PDS food in full central issue price plus margin kept by state government. Then question of giving away PDS commodities illegitimately doesn't arise.

Further, Direct transfers will eliminate intermediaries which will end system of rent seeking from beneficiaries. Otherwise there is rampant system of illegitimate commission which is collected by government officials where they have power to stop, deny or delay the benefit to be passed.

3. **It is likely to control inflation** – Distortions created by subsidy regimes discourage investment in relevant sectors. This creates supply side constraints in economy. It is expected that recent deregulation of diesel will increase production and private firms will reopen their retail outlets. This will create competition which often results in cheaper prices.

Further, trading and purchase at market prices keeps demand in check. For e.g. subsidy on urea encourages farmers to use it more even when there is no due benefit. This created huge demand of urea and in turn high prices of unsubsidized urea. This scenario has increased government's subsidy on urea manifold, which is not only waste but a disaster in itself. Similar case is with the food grains. DBT will leave more food grain in market and hence lower prices.

4. **Better nutrition** – When there is cash transfer poor will be able to diversify their diet by including more items like pulses, eggs etc. This will increase their protein intake.

However, there is risk that some households will misuse this cash in social evils like alcohol, tobacco or gambling. For this government has made eldest women in a household target beneficiary for cash transfers. This step is likely to empower women.

Government launched PAHAL scheme – pan India initiative for transfer of direct benefits for Liquefied Petroleum gas. Its huge success and about 3 crore fake beneficiaries have been eliminated, which will contribute to annual saving of Rs. 15000 crore.

Direct Cash Transfer is also being implemented for transfer of wages in MGNREGS scheme. It has resulted in reduction in delayed and fake payments in relevant areas.

Further, Direct Benefit Transfer for fertilizers and kerosene is on the cards. In case of fertilizers government is facing problems in determination of beneficiaries because there is lack of clear land titles.

JAM Trinity – Jan Dhan Yojna, Adhaar and Mobile base

Direct benefits transfers intend to transfer subsidies directly to account of beneficiaries. For this to happen efficiently there are two separate but related issues which need to resolve as prerequisite. One is medium of transfer and second is identification of beneficiaries.

For first, government is banking upon Pradhan Mantri Jan Dhan Yojna, under which more than 20 crore accounts have been opened. This is perhaps most significant step toward financial inclusion till date as unbanked population has been halved to 233 million. Subsidies under PAHAL scheme, pensions under National Social Assistance Plan and wages under MGNREGS are being credit to newly opened Jan Dhan account of the people. It also provides for overdraft facility of Rs. 5000 after use of 6 months and Rs. 100000 accidental insurance. These incentives have created a massive demand for opening of accounts. One benefit is that overdraft by account holder will regularly get repaid by automatic transfer of various subsidies in the account. This reduces the risk of default to negligible levels.

However, lakhs of villages doesn't have any brick and mortar bank branch. In these villages mobile penetration is steadily growing. India has more than 900 million subscribers and out of these about 370 million users are based in rural areas. Rural subscriber base is growing at 2.8 million a year. mechanism.

Further, RBI has opted for differentiated banking by rolling out licences for Payment and Small banks. A bank licensed as a payments bank can only receive deposits and provide remittances. RBI last year issues 11 licences for payment banks to various corporate giants, telecoms and most importantly, India Post. India post is having about 155000 branches mostly in rural areas.

Apart from this, in-principle licences for Small Finance Banks have been granted to 10 entities. Small finance banks are a type of niche banks in India. Banks with a small finance bank license can provide basic banking service of acceptance of deposits and lending. The aim behind these to provide

financial inclusion sections of the economy not being served by other banks, such as small business units, small and marginal farmers, micro and small industries and unorganized sector entities. Accordingly, it is likely that within few years subsidies will find way to bank accounts of all beneficiaries.

Now, to be sure of identity of beneficiary, Adhaar card base is blessing in disguise. Atleast 93 crore Adhaar cards have already been issued and it will take some more time for universal coverage. Biometrics captured in this card ensures that there is no duplication and no wrong claim is made. Earlier Supreme Court banned use of Adhaar card on privacy concerns, but on government's appeal it allowed its use provided it is not made mandatory.

Apart from these initiatives, behavioral and technical remedies may be of immense use to control and target subsidies better. Under 'Give it up' campaigning, about 50 lakh LPG users have voluntarily given up their subsidy entitlements. On technological side, Urea is being neem coated, which while enhancing agricultural productivity, makes it unfit for industrial use.

Subsidies are meant for poor people and they shall ensure equitable redistribution of resource. Subsidies extended to rich are regressive. They help in keeping poverty intact and create inefficiencies in economy which culminates in inflation and corruption. In such case economy is retarded as we have seen in India's case. When India grew in first decade of millennium at average rate of 7.5% it was found that this growth was jobless and unsustainable. India's economy faced supply side constraints, which didn't increase productivity as compared to GDP. RBI had to then control spiraling inflation by steep hikes in interest rates. Rationalization of subsidy regime will improve markets in India which will then attract more investment. This in short, can turn the wheel of a virtuous economy which creates more employment and attacks poverty at its roots.

8) Recently there have been slew of reforms with regards to FDI in order to attract more and more FDI in to India's economy, however FDIs "can be as good for the economy as it can be bad". Discuss.

Answer Script:-

FDI is good for the economy:

- It can add to an **economy's productive capacity** and import not just capital but technology, production skills and better management.
- **China**, which not only welcomed FDI but witnessed intense competition between different provinces to attract it, stands as a shining example.
- **FDI is also more stable than portfolio investment and bank loans**, which have a nasty habit of reversing quickly in a crisis. **A government whose economy is running a current account deficit but attracting lots of FDI can argue that the deficit reflects more**

investment opportunities than the country can finance itself, rather than a low savings rate and excessive consumption.

- FDI allows the **transfer of technology**—particularly in the form of new varieties of capital inputs—that cannot be achieved through financial investments or trade in goods and services. FDI can also promote competition in the domestic input market.
- Recipients of FDI often gain **employee training** in the course of operating the new businesses, which contributes to **human capital development** in the host country.
- Profits generated by FDI contribute to **corporate tax revenues in the host country**.
- An additional benefit is that **FDI is thought to be “bolted down and cannot leave so easily at the first sign of trouble.”** Unlike short-term debt, direct investments in a country are immediately repriced in the event of a crisis.
- It brings in **Infrastructure and administrative reforms** which create effectiveness and accountability of nation.
- **Social and economic growth** due to awareness from various sources like schools, colleges, constitutional body and information technology etc. which is possible due to FDI.
- **The healthy competition will increase**, so at the end customer will be in profit.

No, its not always good:

- **Not a stable financier for current account deficit:**
 - The issue of treating FDI inflows as stable financing for the current account deficit needs serious qualification. In theory, it is indeed secure foreign financing. FDI is into plant and equipment, factories which eventually produce tradable goods that then generate foreign exchange resources to help repay past borrowings or debts.
 - Therefore, over time, a country's current account balance stabilizes or becomes self-sustaining because foreign currency receipts increasingly match or offset payments. **In practice, however, there can be deviations.**
- **Can create trade deficits:**
 - FDI inflows could seek the domestic market instead of being export-oriented; **concentrate in the relatively more profitable, non-tradable sector, leading to little or no transfer of technology.**
 - It may boost consumption and imports that could exceed exports, thus creating trade deficits instead of surpluses; and FDI-associated income and principal payments could rise over time.
- **India's trend:**

- The trend of widening merchandise trade deficit is well-known. So here, focus on just FDI-related repatriations or outflows, i.e. net investment income, which is payment on account of royalties, technological know-how fees, etc. against the income receipts from overseas investments by residents.
- In India net outflows on investment income and principal payments approximately doubled in eight years to 2008-09; these quadrupled in the following six years, i.e. by 2014-15.
- **In the last two years, the deficit on this current account component is about \$25-26 billion, which is nearly the size of the overall current account deficit in 2014-15 (\$28 billion). What is secure financing now could be just a short-term gain.**
- **Incentives given to attract investment can be expensive and hard to undo.** And if investments are more to do with capturing market share and financial engineering than they are to do with increasing the capital stock, they may diminish the competitiveness of domestic firms
- **Round tripping:**
 - Companies often engage in round-tripping – using subsidiaries to borrow in local capital markets and then lending back to the parent company. This adds to high private sector leverage and is likely to flow out rapidly in the event of a financial crisis, acting more like portfolio investment than FDI as it is commonly understood.
- **Misuse of corporate governance:**
 - FDI is not only a transfer of ownership from domestic to foreign residents but also a mechanism that makes it possible for foreign investors to exercise management and control over host country firms—that is, it is a corporate governance mechanism.
 - The transfer of control may not always benefit the host country because of the circumstances under which it occurs, problems of adverse selection, or excessive leverage.
- **Loss of crucial information and threatening domestic firms:**
 - Through FDI, **foreign investors gain crucial inside information about the productivity of the firms under their control.** This gives them an informational advantage over “uninformed” domestic savers, whose buying of shares in domestic firms does not entail control.
 - Taking advantage of this superior information, **foreign direct investors will tend to retain high-productivity firms under their ownership and control and sell low-productivity firms to the uninformed savers.** This process may lead to overinvestment by foreign direct investors.

- There could also be a **loss of domestic competition** arising from foreign acquisitions leading to a consolidation of domestic producers, through either takeovers or corporate failures.
- Domestic industries are seeking due to overflow of cheap products and monopoly which makes them uncomfortable to survive.
- **Increase in foreign dependency:**
 - **High share of FDI in a country's total capital inflows may reflect its institutions' weakness rather than their strength.** foreign dependency will be increased so it will affect our overall development in technology, agriculture, production etc.
- **Political pressure** always tries to control the flow of FDI to get advantages which create the obstacle in development.
- **Inflation is on high due to lower value of money**, people have to pay high due to lack of money in the market because it is shifting to FDI companies.

9) Discuss the recent achievements with regards to Indian Space technology and critically comments on the various aspects of space programs with regards to national security and geopolitics.

Answer Approach:-

The answer script answers beyond what the question asks but gives in-depth insight in to Space technology as a policy tool

As an emerging nation with both vast developmental needs and profound security concerns, India has had to balance many requirements in its rapid advance as a new space power. While success in sending a satellite into orbit around Mars and a rover onto the moon has boosted the Indian space program's credentials, military planners are increasingly concerned about the vulnerabilities that India's reliance on satellites has created. In addition, China's controversial testing of an anti-satellite missile in 2007 has elevated the threat of a slow-moving arms race in space.

How has the Indian space program changed in the last decade? Is there a new focus on the military applications of space, and what brought about this shift in focus?

India's space program is several decades old and has been focused primarily on peaceful uses, with a number of scientific and technological applications including telemedicine, tele-education, disaster warning, search and rescue operations, mobile communications, and remote sensing and weather.

Given that India is a country with huge developmental challenges, it is always tough to make an argument justifying allocations for space missions that do not have a direct bearing on development.

That said, while military functions were not a focus of India's space program until about a decade ago, they have always been at the back of decision-makers' minds. Jawaharlal Nehru, India's first post-independence prime minister, and Vikram Sarabhai, the father of India's space program, understood the relevance of space to India in the national security domain from the program's inception. Nevertheless, India did not focus much on the security applications of outer space until 2007.

The wake-up call for India came when China conducted its first anti-satellite (ASAT) missile test in January 2007. The test clearly illustrated the challenges right in India's own neighborhood. Beijing came under a huge amount of criticism on two counts: one, for not announcing the test, and two, and more importantly, for creating long-lasting debris in low-earth orbit.

While the test generated anger and public outcry, it did not result in any real punitive measures. The informal moratorium on ASAT tests, which had lasted for two and a half decades, was broken by the Chinese ASAT test. Thereafter, the United States tested an ASAT missile in 2008, which the international community was much more comfortable with because it was done openly and did not lead to the creation of long-lasting debris.

For India, however, China has been of particular concern. Beijing's activities in recent years have been driven by competition with the United States, so the capabilities it is developing are much more advanced than what are necessary to deter India. Nonetheless, India has to be mindful of Chinese advances. Following China's ASAT test, the scientific and technical communities and the Indian Air Force leadership, as well as sections of the political leadership, started debating whether India should be developing its own ASAT capability, and whether this capability should be demonstrated or simulated. India has a missile defense system under development, and the potential for India to acquire an ASAT capability is linked to its missile defense capabilities. The Indian Defence Research and Development Organisation has been developing missile defense capabilities independently but is also increasingly looking to partner with the United States and other countries. In contrast, China has followed the route of developing an ASAT capability first and later developing missile defense based on its ASAT capability.

How do China's space capabilities play into the regional politics of the subcontinent?

India is closely monitoring China's space cooperation initiatives in South Asia. China launched a satellite for Pakistan in 2011, and another for Sri Lanka in 2012. Our concerns are informed by the nuclear precedent; cooperation with China was critical for the Pakistani program. India feels that if

Pakistan, which today has very limited space capabilities, cooperated with China, it could become a capable power in the space realm. The two major concerns are an independent Pakistani ASAT capability and further development of Pakistan's long-range missile capabilities. An ASAT capability is not quite as simple as rocket technology, but it would not be the hardest thing for Pakistan to achieve either.

For China, Sri Lanka is extremely important in the maritime security context, and for the Maritime Silk Road program. India–Sri Lanka relations have gone through ups and downs, but the new president, Maithripala Sirisena, and new prime minister, Ranil Wickremesinghe, both have a friendly disposition toward India. Nonetheless, there are strict limits to Indian influence in Colombo. Critically, Sri Lanka is in dire need of economic opportunities and faces huge developmental challenges. Even if India had all the goodwill to support and help Sri Lanka, it does not have the deep pockets that China does. India is concerned that space cooperation may become yet another path for China to make inroads in Colombo.

Have India's positions in multilateral forums on how the space domain should be governed changed with the country's new focus on military capabilities?

Despite India's new interest in military capabilities in space, official rhetoric and official statements at UN forums, such as the Conference on Disarmament in Geneva, continue to emphasize India's support for the peaceful and civilian use of outer space and opposition to the weaponization of space capabilities and programs. Nevertheless, there are changes on the ground. There has also been some evolution in India's stance to developing global regimes for outer space. For instance, if we look at its position in 2011–12, the country was highly critical of the European Union's effort to develop a code of conduct, arguing that the EU cannot decide what is good for the rest of the world and expect all countries to sign on to the proposal. India has come a long way since then. In the last three years, it has been actively engaged with the United States, all the European countries, and the EU in particular in discussing a code of conduct and other promising mechanisms. Nevertheless, India has continued with its stated position that transparency and confidence-building measures (TCBM) are worthwhile, but they are only complementary to legally binding mechanisms.

Having said that, India is also beginning to understand and appreciate that in the current political climate, negotiating international treaties will not be easy as long as reaching consensus among the major powers remains a challenge. India has become slightly more pragmatic and now believes that TCBM may be a good starting point, allowing for a gradual move toward legally binding mechanisms with all the important clauses on verification and enforcement. The best historical precedent would be the Outer Space Treaty, which started with a very loose set of regulations within the Committee on the Peaceful Uses of Outer Space that went on to become a treaty in 1967.

Has the increased use of space capabilities for military applications changed how India thinks about its reliance on other countries and private actors in space?

Contemporary wars, from the first Persian Gulf War onward, have been highly technology-dependent, with C4ISR (command, control, communications, computers, intelligence, surveillance,

and reconnaissance) capabilities playing a key role. India appreciates that reliance on the integration of outer space and cyber capabilities will only increase in future conflicts. Through 2013, India had about 25 satellites, of which 4 were dual-use. The military was relying on those 4 satellites and did not have a dedicated military satellite until August 2013, when the first satellite was launched for the Indian Navy for maritime communications. Until then, India was relying on Inmarsat, a British commercial satellite communication provider. The next military satellite will serve the Indian Air Force and Indian Army and will likely have a delayed launch this year. Beyond the maritime domain, India has been relying on foreign partners for many other satellite-based communications and data services. For instance, it continues to rely on NASA for deep space communications. India also works a great deal with France to launch its heavy satellites.

What institutional changes has the government made to implement this shift in focus?

Until recently, the scientific and technological bureaucracy had been left to set its own goals and achieve whatever it could. The political leadership has failed to take ownership of this particular domain. The government needs to set goals, requirements, and milestones outlining where India wants to be in 2020 and 2030. The scientific bureaucracy's responsibility should be to achieve those goals. After the Indian Mars Orbiter Mission successfully deployed its orbiter, earning the state a huge amount of positive publicity, Prime Minister Modi began to attach much more importance to space programs and has been focusing more high-level attention on the domain. Last year, the induction of India's foreign secretary to the space commission for the first time confirmed India's focus on space from a foreign policy and national security perspective. An older change that also reflects this shift in focus was the creation of the first integrated space cell within the Headquarters of the Integrated Defence Staff in 2008. This cell was formed to create synergy between the Department of Space, Indian Space Research Organisation (ISRO), which is a civilian space agency, and the Ministry of Defence and the military so that these different institutions talk to each other about requirements, capabilities, and relevant policy.

An important development in the U.S. space program over the last decade has been the emergence of private sector partners. What role does the private sector play in the Indian space program, and what challenges to further private sector development exist?

While the Indian space program is entirely state-driven, ISRO is around 70%–80% reliant on private sector contractors for components and services. There are a huge number of Indian companies providing ISRO with launch and satellite components—the leaders being established engineering and technology firms such as Larsen & Toubro, Walchandnagar Industries, and Godrej, with Tata Aerospace gaining ground. There is also a whole range of new space actors emerging, including several start-up companies based in Bangalore and elsewhere. Most of them are in the small satellite segment, but there are one or two companies talking to ISRO and the larger space community about developing launching capabilities for slightly bigger satellites. In other seven or eight years ISRO may finalize a policy that facilitates greater private sector participation, particularly in a role beyond that of component supplier.

There have been increasing calls for allowing private sector firms to manage some of the tried and tested programs, which would allow ISRO to refocus on the larger, more ambitious interplanetary

missions, as well as purely research-oriented programs. For example, the former ISRO chairman called on Larsen & Toubro to take over India's Polar Satellite Launch Vehicle program, which has been an established program for more than a decade now. Privatization may also allow India to increase its launch capacity, which is currently at four to five per year and compares poorly with the twenty or so launches China does on average. Increasing the number of launches is partly an infrastructural problem tied to the number of launch facilities in India, but ISRO also has internal constraints on its capacity to deliver. Dr. A.S. Pillai, formerly the head of the Brahmos missile program, has now moved from the Defence Research and Development Organisation to ISRO to push for greater public-private participation and to explore how India's space program can leapfrog ahead with the entry of the private sector. One impediment is that India does not have an explicit space policy to guide private sector participation. Many have argued that it is in India's interest to make official, even in very broad terms, its space policy, ambitions, and plans for the near future, medium term, and long term. India does have some sector-specific policies, such as for satellite communications and remote sensing data. But these have not been fleshed out well. Industry is unsatisfied, complaining that the policies do not detail how the government will partner with commercial actors. ISRO is currently in the process of developing a full-fledged space policy. This will be put through the Ministry of External Affairs and finally through parliamentary debate, meaning that finalizing the policy will take at least another two years.

Which foreign partners have been the most important for India in the history of its space program? Is the relative importance of those partnerships changing, and what opportunities for collaboration has India identified?

Our most important international partner in space has been France, which launched most of India's heavy-payload satellites. Until recently, we were reliant on the French because any satellite that weighs more than two metric tons was always a problem for our own launch vehicles. We lacked the cryogenic engine technology to improve our launchers and failed in the early 1990s to buy it from Russia, which was put under pressure from the United States not to transfer the technology to India. Our indigenous cryogenic engines have only recently undergone a series of successful tests, and we will soon no longer need to rely on our international partners to launch heavy payloads.

The other country that has been important for India has been Israel. India and Israel have cooperated in developing advanced imaging and reconnaissance satellites, most notably the RISAT-2. Israel Aerospace Industries and ISRO worked together to develop the RISAT-2 imagery satellite shortly after the Mumbai terrorist attacks. ISRO was already developing RISAT-1, but following the attacks, India decided to work with Israel to launch the RISAT-2 right away, even before the RISAT-1 was complete. RISAT-2, using synthetic aperture radar, is a day-night and all-weather radar-imaging satellite capable of monitoring India's border areas on a 24/7 basis. Even as RISAT-2 has a number of applications in the realm of agriculture, cyclone tracking, and disaster management, its applications for security and surveillance, including over its immediate waters, have been far more significant.

The third important partner has been NASA, with which India has a long history of cooperation, going back to its first launch of a sounding rocket in 1971. However, cooperation was restricted because of the export control regimes and sanctions placed on ISRO and many of its associated institutions following the 1974 and 1998 nuclear tests. This history also explains why India is guarded and secretive about its policies and capabilities. However, after the 2005 U.S.-India civil nuclear

agreement, things have begun improving. All ISRO entities have now been removed from the sanctions list, and there is more cooperation at every level. The United States is now talking about bringing India into the global export control regimes, and India has been tweaking and adjusting its export control lists to facilitate this process.

While Russia has been a key partner to India in the defense realm, space cooperation has been limited. However, even that limited cooperation has come under strain. For instance, Russia was supposed to supply a Lunokhod rover and a lander for India's Chandrayaan-2 mission, but it has faced several delays. In the face of this, India reportedly may develop its own lander for the mission—thus, the Chandrayaan-2 is being reconfigured with an Indian orbiter, lander, and rover. Some Russian experts say the delays may be a result of Chinese pressure on Russia to limit cooperation with India. In the face of the Ukraine crisis, Russian scholars talk about how the country needs a strong voice on its side. India cannot play that role, but China can. Although China does not have much to gain from Russia in terms of new technologies, Beijing appears willing to see what it can gain through this cooperation. The advanced space cooperation between these two countries sparks a lot of apprehension and wariness in India.

10) What do you understand by artificial intelligence? How can it help in delivering good governance in India?

Answer Script:-

Artificial Intelligence (AI) in governance is an idea whose time has come. The necessity is there – our people are growing ever more exasperated and demanding efficiency in public services delivery while the traditional systems seem to be unable to cater to these changing times.

Also, the conditions are ripe – thanks to the use of IT there is a lot of data in the government today in machine-readable form, and the technologies have reached a level where they can rival any human on a real-time and cost-effective way. All that is needed now is that leap.

AI would fundamentally transform methods of governance in this country. We often hear complaints that the implementation of government schemes remain confined only to papers. Now, what if there is a way to check if things are happening on the ground? Take, for example, the Swachh Bharat Mission (SBM). To make sure that the toilets are built, the government has developed a mobile app where the government functionary will have to go to the toilet site, click a photo of the toilet along

with the beneficiary, and then upload it to the central server. Connectivity issues are taken care of by giving offline photo-clicking mode and uploading the photos when the person comes back on a 2G network. This curbs malpractice to a great extent.

However, there are ten crore toilets that are needed to be built and hence ten crore photographs. Is it manually possible to check these photos? Or if the toilet is in use or is stashed with hay? And is the same beneficiary appearing on multiple photos? What if 100 photos have been uploaded from sitting in an office? Clearly no.

The present system relies on people to do random checks to create a deterrence effect but so has the system that we have relied upon for past 70 years and the outcome is for us to see. It does not work because of people either not having enough time or lacking the inclination to do petty things.

Now what if you actually get a way to process each of these 10 crore photos and generate an alert whenever the photograph is not that of an entirely built toilet which is actually in use (not stashed with hay or other stuff) and same beneficiary doesn't appear in multiple photos or multiple photographs don't get uploaded sitting in the office? Won't cheating and malpractices go down by order of magnitude as people realise that each photo would be scrutinised and not just some small sample? Wouldn't it be awesome to know we have ten crore functional toilets on the ground and not just paper? That, my friends, AI can achieve – and in a very cost efficient manner.

But then the sceptics argue that in rural and remote India, the penetration of internet is very low and as a result, AI will have limited or no applicability there and will create a digital divide. However, contrary to this, the need and applicability for AI are more in the remotest areas of the country than in the heart of the capital. That is because it is in these most secluded areas that the traditional governance systems are entirely broken. Physical infrastructure is inefficient, and the people are poor and unaware.

Generally, no one wants a posting there – most people there would be on punishment postings, and as soon as they come, they would start spending their energies in getting a transfer back to the mainstream areas. As a result, there are problems of severe under-staffing, lack of morale, poor quality in the government workforce and weak monitoring of government schemes and implementation. In Delhi and state capitals, there would be a lot of people to check if toilets are built, we won't need AI. But who will check in the tribal areas of Rajasthan or Chattisgarh? Imagine if in these regions, the government schemes start functioning as they were supposed to do, AI will bridge the development and digital divide, not accentuate it.

Likewise, again contrary to what the sceptics say, the scope of AI is immense in traditional sectors such as agriculture. For example, take the government run crop insurance scheme; in this crop insurance scheme, if the yield is below a threshold, it would trigger an insurance payout to the farmer. To determine the actual yield, millions of crop cutting experiments would be carried out – much more than what are mandated today. As per the scheme guidelines only, even the ones done today “lack reliability, accuracy and speed”.

So mobile app solutions could be developed where geo-tagged photographs of the crop cutting experiment would be uploaded like SBM. Would it not be amazing if we have a solution to check these millions of photos to see whether an actual crop cutting experiment has been carried out by

the same person who was supposed to carry it out or has the crop cutting experiment work been sub-contracted to unskilled individuals who went there and clicked selfies?

Similarly, the government runs Kisan Call Centres which receive lakhs of calls every month. Wouldn't it be priceless if we can get a timely warning from the call centre data that say in Maharashtra, this year the distress level among farmers is unusually high due to this particular factor? Perhaps then the administrative machinery can be activated timely on a war scale to prevent farmer suicides? Or say based on soil and environmental condition reports from our satellites and based on what crop is sown in a particular area, we can predict that this year vulnerability of this crop to this pest is higher, and perhaps we can supply additional required pesticide there and send targeted SMS / agronomic advisories to the farmers in that region?

All these things have not been taken from some science fiction movie but are very much available, proven and economic technologies. Similarly, there is a Kisan suvidha app – the flagship app of the agriculture department – where among other things, a person can upload three photos of some pest infected crops and our scientists would tell what the problem is and what the remedies are.

However, as with the case with almost anything in our country, the rush is huge, there are thousands of queries and there isn't enough capacity to answer all the queries manually. As a result, many questions go unanswered, and people's faith suffers due to which they would stop using it in future. Again, AI can help here. Even if the farmer himself doesn't have a smartphone, even in remotest areas of the country, today someone will be having a smart-phone and there would be a 2G connectivity nearby if not within the village. So these are solutions which can work given the enormous social capital in our rural society.

Finally a word on another common misconception – that AI will lead to loss of jobs. One bane of our country is systems don't work here. AI can make them work. It can leapfrog us regarding development to the level of Singapore or Western nations. It can bring immense prosperity to the country. The government today is over-burdened, and there is a lack of capacity to do the multitude of tasks it has taken upon itself.

AI is our answer to capacity building. Human beings are not like horses – that after the mass production of cars, horses were suddenly rendered jobless. When machines started spinning cotton, we started to build machines. Productivity gains always create more and better jobs than the ones which are lost due to them. We are still far away from a Terminator kind of scenario where machines may be able to replace humans. That might happen 50 years from now, not today – and if it has to happen, will happen regardless of whether the government uses AI or not. But the massive productivity gains cannot be ignored.

Apart from the examples mentioned above, there is a huge scope of AI in fields such as grievance redressal, law and order, health, education, etc. Today the West is using driverless cars and flying drones. 300 years ago, the West was similarly inventing and using new technologies like the steam engine and cotton gin. We chose to shut our eyes then, and we all know what happened afterwards. Can we afford to make the same mistake again?

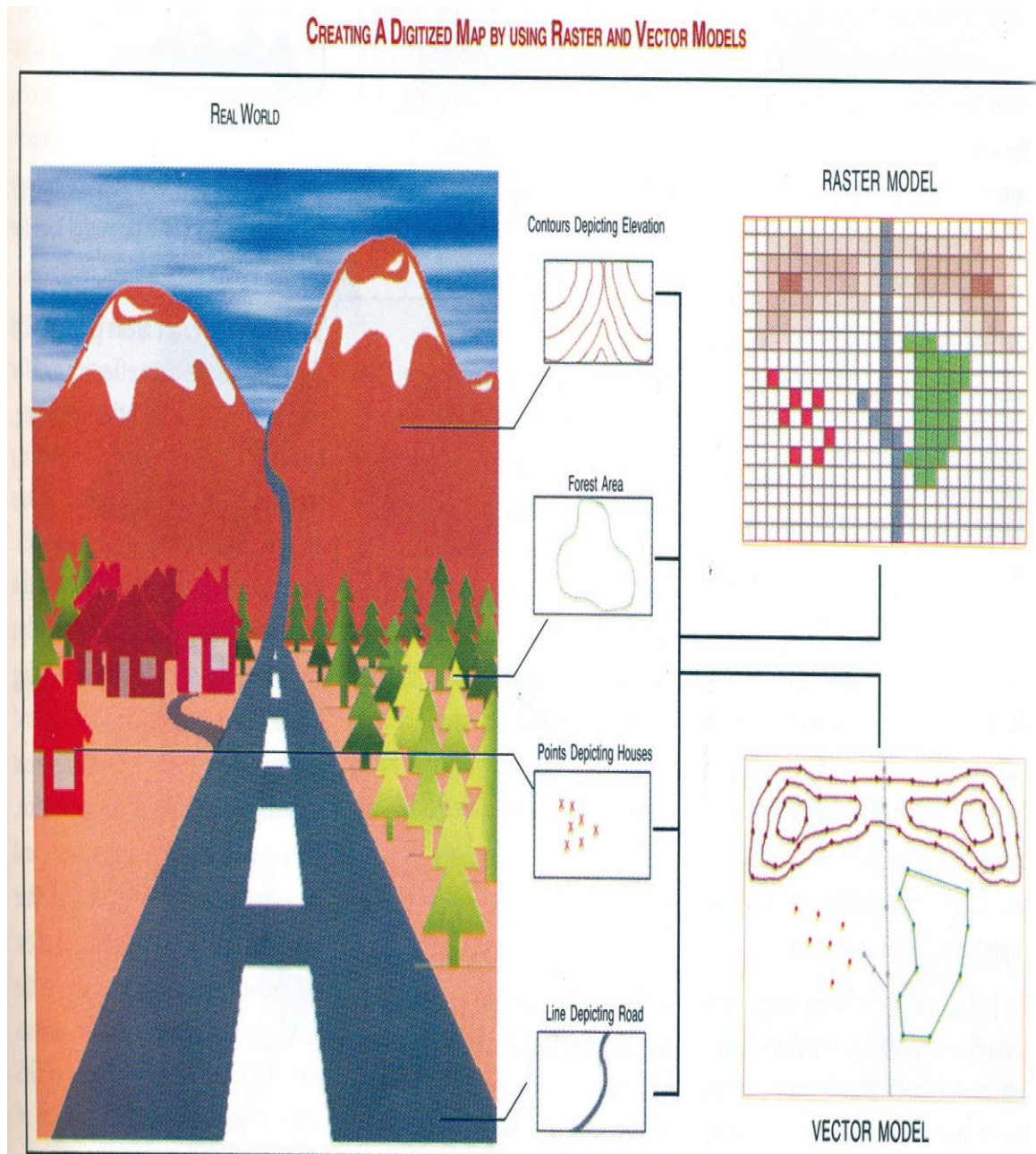
11) What do you understand by Geographic Information System? What are its applications in governance?

Answer Script:-

Geographic Information System (GIS) is a computer based information system used to digitally represent and analyse various parameters of the globe. Popular use of GIS began in late 1970s and was initiated by Environmental System Research Institute Incorporation (ESRI) of Canada. Much of the credit for the early development of GIS goes to Roger Tomilson, a Canadian GIS specialist.

You may be aware that the earth's surface not only comprises of spatial attributes, but has non-spatial attributes, which are non-graphic. To put it simply, map features can be quantified in terms of data, such as contours. This is a spatial data.

However when the information provides description about the characteristics of a map and also includes qualitative features, it is categorised as non-spatial. Well, parameters of the globe may have become clear to you, but what does digitally mean? Digitisation is nothing but the conversion of smooth lines, boundaries and so on, into a digital form to allow the computer to read it.



GIS is a computer-assisted system devised to store, retrieve, analyse and display spatial data arranged in a systematic manner. It can also be defined as a computer based system that provides the following sets of capabilities to handle geo-referenced data: –

- **Data Input**
- **Data Management (data storage and retrieval)**
- **Manipulation and analysis**
- **Data Output**

Geo-Reference

In some online mapping service, you may have seen satellite imagery. When these images are captured from a satellite or an airplane, they are just plain images, like photographs. But to display these images on a map, they need to be associated with map coordinates. This process is called Geo-Referencing. Once the image is associated with the map coordinates it can be overlaid on top of street maps.

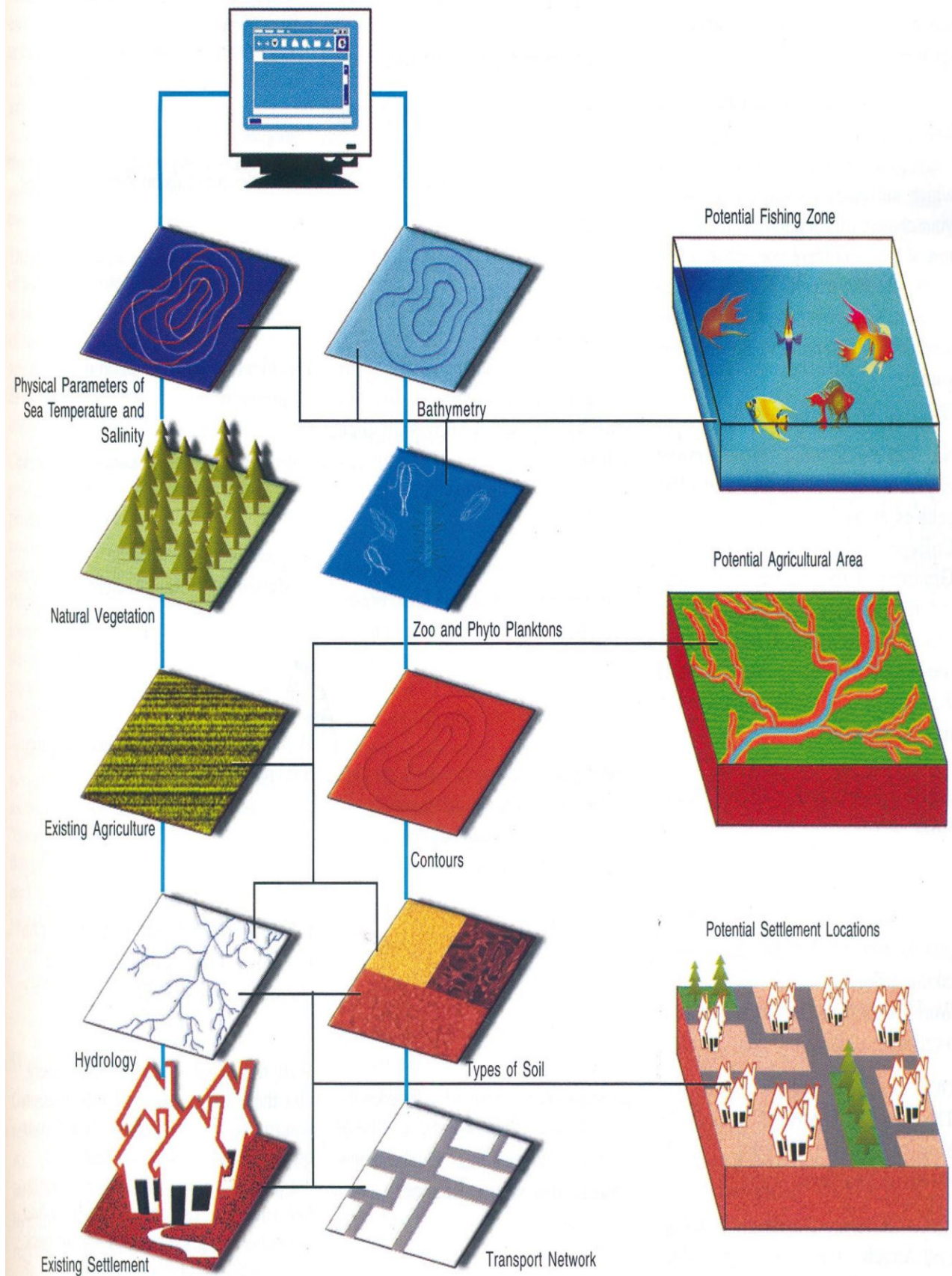
Geo-Coding

When you type an address or a place name in the search box and in return the map shows a marker at the place. The process of associating an address or a place name with coordinates on the map is called Geo-Coding. In a spatial database this is done as a point layer with name of the place as an attribute to the point location. This is one way of Geo-Coding.

For addresses, the associated coordinates are not saved in a database directly, but computed using a method called linear referencing. The start and end addresses along a line segment are saved and intermediate addresses are interpolated and the coordinates are calculated.

With the knowledge of Geo-Referencing and Geo-Coding, it is now possible to link it to a database, which is nothing but a collection of information about spatial and non-spatial data and their relationship to each other.

GIS APPLICATIONS FOR PLANNING : THE LAYER-BASED APPROACH



Software

The software module is the core of GIS and should be application specific. It must be chosen according to the requirement. The functions of GIS software include storage, analysis and display of geographic information. QGIS – Formerly Quantum GIS, gvSIG, Whitebox GAT and SAGA GIS are some of the well-used free GIS softwares.

Map Creation

There are various techniques used for map creation for further usage in planning for a project. The map creation can be done by either an automated raster to vector creator, using vectorisation packages which convert directly from raster to vector, or manually vectorising, using the scanned images. These digital maps may be products of a survey agency or the result of satellite imagery.

GIS's broad applications work in tandem with various fields from cadastral mapping, which is a map showing ownership of land-usually large in scale to accurately depict individual landholdings, to utility networks, topographic mapping, thematic cartography, surveying and photogrammetry remote sensing, image processing, computer science, rural and urban planning, earth sciences and geography.

It helps in urban planning, housing, transportation planning, architectural conservation, urban design and managing landscapes. Networking and Disaster Management is also its forte.

Uses of geospatial maps:

- Geospatial maps reflect how our neighbourhoods are mutating in real time.
- They allow us to capture the extent and nature of air pollutants around us
- plot the unsustainable plundering of our groundwater
- gauge the spread of a new flu outbreak to confirm if official estimates of, say, a malaria outbreak are understated
- simply plot restaurant options in a neighbourhood.
- Geo-spatial maps contemporary usage in industries such as taxi services, Google map, and other location based updates could be added.
- Once a tool that was affordable only to the largest organizations, geospatial systems have become a cost-effective option for even the smallest organizations.
- problems in the environmental and life sciences, in particular ecology , geology and epidemiology .
- It has extended to almost all industries including defense, intelligence, utilities, Natural Resources (i.e. Oil and Gas, Forestry ... etc.), social sciences, medicine and Public Safety (i.e. emergency management and criminology), disaster risk reduction and management (DRRM), and climate change adaptation (CCA)

12) Discuss the various aspects of digital piracy with a special reference to India and the recent developments in this regard.

Answer Script:-

With the recent shutting down of many torrent sites by the US government, the issue of online piracy has once again come to the fore. This is not first such crackdown. Similar closures took place in the past. The authorities will most likely win this battle. But these are not the most effective tactics in the longer war.

Aspects associated with this issue:

Economic logic: Disseminating and consuming material under copyright without due payment to content creators is certainly an ethical wrong. However, in contrast to the popular claims, economic harm caused by online piracy is very little. Assuming that every download of illegal content is a lost sale as industry bodies do is logically flawed. Much of the content is consumed only because it is free; there would be no corresponding legal transaction if the illegal avenue were closed. And given that digital content essentially has no production cost per copy—or that it is so minuscule beyond a point so as to be irrelevant—nor does the aggregate economy take a hit. The resources that would have been spent on acquiring digital content legally are simply utilized in other economic activity. There can be an overall loss in allocative efficiency coupled with a certain amount of financial loss, but this is qualitatively different from the damage claimed.

Cost and collateral damage of the law enforcement approach: Often, in the name of curbing online piracy, government authorities go beyond their legal limits, hurting innocent individuals and enterprises. Legislation such as the Stop Online Piracy Act, introduced and then abandoned in the US Congress due to controversy over its provisions, is an example of the danger of overreach. Many websites that facilitate peer-to-peer content distribution are not illegal in themselves; innocent individuals and enterprises are also hurt when such sites are shut down, denying access to services and uploaded data.

Freedom of speech: There are issues related to freedom of speech—such legislation can be used for online censorship—an excessive burden on content-hosting websites and a stifling of the creative chaos that fosters digital innovation.

Innovation: Over the 15-odd years, digital piracy has, in effect, been a process of consumers nudging content producers and marketers to keep pace with technological evolution. It has led to innovation and content delivery via digital pipelines in a manner consumers want, a hallmark of an effective market, not one dictated by producers. That innovation has led consumers to choose legal avenues over illegal, undercutting piracy.

Indian scenario:

In a first-ever judgment on online piracy, the Delhi High Court recently banned as many as 73 “rogue” websites that were illegally streaming “pirated” videos of cricket matches. The reason

being- mere blocking of uniform resource locators (URLs)—where the infringing content is located—is not sufficient to stop piracy as it could be easily removed or replaced, like an email password.

- Observing that it was the “duty of the government” and its agencies to “assist in the enforcement of court orders,” the High Court asked the ministry of information technology to issue orders to internet service providers (ISPs) to block access to these websites for showing “substantial” pirated content.
- Industry and legal experts have welcomed the judgment, saying the positive decision will prove beneficial to the entertainment industry, especially the film industry.

Way ahead:

India has the largest creation of copyright work. It is in the country’s interest to protect artists, authors, musicians and film producers from piracy. The decision to block entire websites to tackle online piracy is the first step in the right direction. It will ensure that all government agencies and the industry work towards stopping infringement on sites that are involved in widespread piracy.

- The landmark judgment will have a positive impact as it creates a fair balance between the rights owners and public interest, allowing for the rights owners to more efficiently protect their rights against outright rogue or pirate websites that blatantly infringe copyright and contain a huge extent of infringing content.
- However, the judgment has left government officials fuming. They feel they will be subjected to unnecessary harassment for possible contempt if the websites played a cat and mouse game. This will cause unnecessary harassment to the officials as they will be hauled up for potential contempt in case of any violation.

Conclusion:

As of now, there is a lot of ambiguity even with regard to the freedom of speech. This judgment will prompt many others to approach courts for blocking websites. There is a need to have greater clarity on the issue. The law needs to be codified, especially liability of the government and its officials. Sensible legislation centred around digital rights management coupled with constant evolution in content delivery mechanisms could do a far better job.

13) Discuss the water scarcity scenario in India and suggest methods to properly manage and utilise the water resources of India.

Answer Script:- Along with the points mentioned below do add a map showing water stressed parts (drought regions) of India.

- Water scarcity is defined as the ratio of total surface / groundwater availability in a given river basin . If the ratio is 1 it means that available surface / groundwater is being fully utilized

- Averting water scarcity requires that not more than 20% of the water that flows on the ground is used by humans. So even a ratio of 1 denotes moderate scarcity
- Water footprint network database recognises four kinds of water scarcity situations.
- - low(ratio<1)
 - moderate (ratio between 1 and 1.5)
 - significant (ratio between 1.5 and 2) and
 - severe (ratio > 2)
- Data of India shows that except for Brahmaputra and Mahanadi all river basins with a population of more than 20 million experience water scarcity for a major part of the year
- Ganga and Indus suffer significant and severe levels of water scarcity for 7 and 11 months in a year respectively.

Why is India a large virtual net exporter of water?

- India is a large virtual net exporter of water because of agricultural products like cereals, tea, coffee , sugar etc which all require vast amounts of water .
- Majority of population still depend on agriculture ,It has no sustainable agricultural techniques to cultivate crops, even government focus on agriculture did not yield much change .
- In 2014-15 India exported 372 lakh tons of basmati which required 10 trillion tons of water I.e., India virtually exported 10 trillion litres of water
- According to water footprint network database India had the least virtual imports of water in the world
- Along with that rise in minimum support prices for agricultural products especially water intensive crops like cereals, sugarcane made farmers prefer them more
- All these contributed for India to be a virtual net exporter

Should it continue?

No:

- Even rudimentary trade theory suggests that a country should be exporting things which it has in abundance and importing those which are scarce. According to this India should be virtual importer of water especially when it is reeling under water scarcity
- China which is the only other country with similar population size like India also has more virtual water imports than India . China is conserving its water supply by importing water intensive crops like soya

- India is poised to its entire available water supply within 500 years if it's current food export policy continues
- Being net exporter of water can lead India to a slow but irreversible loss of water sustainability
- Rising water demands for agriculture and other sectors such as manufacturing, services and construction will pose additional constraints on water sustainability in future
- India's per capita water supply is less than China
- India's water management , agricultural pattern, groundwater exploitation , all indicate India has to change the pattern

Yes:

- Since the virtual water export for India and China is less than 2 % of the total water resources of the two countries it cannot raise any serious sustainability issue
- To suggest virtual water exports can endanger sustainability over 300 years period is preposterous because agriculture economies as well as water in India and China will change profoundly in unknown ways over such a long period

Suggestions:

- India should change its food trade policy like China did way back in 2001 by importing more water intensive crops like grain, soybean from US , Brazil and Argentina
- Enhance Skill development so that people start depending on other fields not just agriculture
- International cooperation and sharing water across borders will be of significant importance
- In rainfed areas like Maharashtra drought resistant crops rather than sugarcane need to be promoted.
- Government should provide support by increasing MSP of pulses
- Water conservation techniques like drip irrigation, rainwater harvesting go a long way
- Technical expertise in cultivation of crops is needed for farmers

Drought and Water Scarcity:

What needs to be done is as follows:

1. Augmentation of water resources: –

- catch every drop of water; store it; recharge groundwater.
 - To do this we need to build millions more structures. It also means giving people the right to plan where to locate the water body and the right to manage it for their need.
 - Today, invariably, the land on which the water body is built belongs to one department and the land from where the water will be harvested and channels from where the water will be brought belong to another person or even another government department. These kind of confusions need to be solved
2. Revise and update the drought code:
 - Governments need to respond by shutting off all non-essential water use from watering lawns to hosing down cars and much more as done in developed countries like US, Australia .
 3. Securing water:
 - This means insisting on water codes for everyday India i.e., reduce water usage in all sectors – from agriculture, urban to industry.
 - This means benchmarking this use and setting targets for reduced consumption year on year.
 4. Short term measures:
 - ways and means to curb misuse of water and non-essential consumption of electricity
 - Local authorities should launch public awareness campaigns on ways to escape heat-related hazards.
 - Setting up temporary day shelters on the lines of the night shelters in winters, and provision of potable drinking water can help alleviate human misery
 - Cloud seeding – a form of intentional weather modification to induce rainfall.
 - Drought monitoring – Continuous observation of rainfall levels and comparisons with current usage levels can prevent man made drought.
 - Rainwater harvesting – Collection and storage of rainwater from roofs or other suitable catchments.
 - Recycled water – Former wastewater (sewage) that has been treated and purified for reuse.
 - Planting trees to fight against the effects of deforestation
 - Water intensive crops like sugarcane especially in drought prone areas like Maharashtra need to be controlled and crop insurance need to be strengthened

- Implementation of government schemes like NFSA ,MNREGA so that people are not distressed.

5. Long term measures:

- well-judged measures would be needed to mitigate thermal stress on livestock and human beings.
- time is ripe for another revolution — this time in water-use efficiency.
- The Centre must take the lead in shifting the focus from high-cost large irrigation projects towards
- Desalination – of sea water for irrigation or consumption.
- Carefully planned crop rotation can help to minimize erosion and allow farmers to plant less water-
- Transvasement – Building canals or redirecting rivers as massive attempts at irrigation in drought-prone

14) Given that India has more than 7000km of coastline that not only provides employment to millions but became a necessary habitat for billions, mangroves are touted as saviour of the coasts. Discuss.

Answer Script:-

Mangrove shrubs, known best for a thriving aquatic life nurtured within their mesh of stilt-roots also serve a vital socio-economic function. They act as “green shields” buffering the coastline against sea erosion, and the potentially devastating impacts of cyclones and tsunami.

Its impact-reducing potential was best evident along the east coast after tsunami struck India in December 2004. The team looked at high spatial resolution, multi spectral data to infer the geographical distribution and status of mangroves, including plant species, along the coast. And they found that while mangroves have been declining in several parts of the world from timber harvesting and pollution, these forests in Karnataka have in fact grown spatially over the last two decades.

Mangroves also support livelihood, essentially aquaculture, they supply medicinal plants, and fuel wood and construction materials. And in terms of ecological services, they stabilise shorelines, are nurseries for fish breeding and filter heavy metals.

Importance of mangroves:

Mangroves protect coastal areas from erosion, storm surge (especially during hurricanes) and tsunamis

The mangrove’s massive root system is efficient at dissipating wave energy. Likewise, they slow down tidal water so that its sediment is deposited as the tide comes in, leaving all except fine

particles when the tide ebbs. Mangroves protect coastal areas from erosion, storm surge (especially during hurricanes) and tsunamis

Mangrove forests are regarded as the most productive wetlands in the world on account of the large quantities of organic and inorganic nutrients released in the coastal waters by these ecosystems.

They also act as nurseries for fin fish, shell fish, crustaceans and molluscs.

The fine, anoxic sediments under mangroves act as sinks for a variety of heavy metal in the sediments scavenged from the water.

Red mangroves are being cultivated in Japan for use in marine aquariums in a sump to reduce proteins and other minerals in the water.

Mangroves in India:

Mangroves in India account for about three per cent of the world's mangrove vegetation. Mangrove cover in India is 4,662 sq. km, which is 0.14 per cent of the country's total geographical area. Sundarbans in West Bengal accounts for almost half of the total area under mangroves in the country. The Sundarbans covers approximately 10,000 square kilometres of which 60 percent is in Bangladesh with the remainder in India. The Sundarbans is a UNESCO World Heritage Site.

The forest survey report, 2013, notes down that the overall Mangrove cover in the country in 2013 has decreased compared to 2011. The reasons for the decrease in the mangrove cover may be

1. grazing by domestic cattles and exploitation of mangrove woods for fuel and timber
2. the neo-tectonic movement of river courses
3. abatement of upstream freshwater discharges due to construction of dams and reservoirs
4. rapid trend of reclamation of mangrove forests for habitations
5. pollutant discharges from cities and industries etc.
6. Mangrove in India is famous for its rich variety of flora and fauna.

15) What are green bonds? Discuss the various aspects in light of the ambitious renewable energy targets put forth by Government of India.

Answer Script:-

Green Bonds can give a fillip to India's renewable energy goals.

A bond is a debt instrument with which an entity raises money from investors. The bond issuer gets capital while the investors receive fixed income in the form of interest. When the bond matures, the money is repaid.

A green bond is very similar. The only difference is that the issuer of a green bond publicly states that capital is being raised to fund 'green' projects, which typically include those relating to renewable energy, emission reductions and so on.

Therefore, a green bond is a fixed income instrument for the purpose of raising debt capital through markets. It certifies that the proceeds will be used exclusively for specific "green" purposes.

What are its benefits?

1. Green bonds enhances an issuer's reputation, as it helps in showcasing their commitment towards sustainable development.
2. It also provides issuers access to specific set of global investors who invest only in green ventures.
3. With an increasing focus of foreign investors towards green investments, it could also help in reducing the cost of capital.

What are the avenues where these funds can be invested?

SEBI's indicative list includes renewable and sustainable energy such as wind and solar, clean transportation, sustainable water management, climate change adaptation, energy efficiency, sustainable waste management and land use and biodiversity conservation.

Why are green bonds important for India?

India has embarked on an ambitious target of building 175 gigawatt of renewable energy capacity by 2022, from just over 30 gigawatt now.

100GW — is expected to come from solar energy

60GW — from wind energy sources

10GW — from bio-energy

Unfortunately, renewable energy is more capital-intensive than coal, and financing this push will require \$160 billion of capital, \$120 billion as debt, and \$40 billion as equity.

In simple words, this requires a massive \$200 billion in funding. This isn't easy.

Currently, most renewable projects are financed by bank commercial loans at 11-12 per cent interest per annum.

However, the Indian banking sector is currently going through a balance sheet adjustment; banks are unlikely to be able to expand their balance sheets to be able to finance the additional requirements of the renewable sector.

As reports suggest, higher interest rates and unattractive terms under which debt is available in India raise the cost of renewable energy by 24-32 per cent compared to the U.S. and Europe.

“India has big goals in terms of renewable energy installations, but a big hurdle has been financing and the cost of financing”

Green bonds may be able to fill this gap.

Still, why are green bonds an attractive option?

Green bonds typically carry a lower interest rate than the loans offered by the commercial banks. Hence, when compared to other forms of debt, green bonds offer better returns for an independent power producers.

As these bonds are meant for specific investors looking to invest in renewable energy projects, pricing could be attractive.

Green bonds can provide a long-term source of debt capital for renewable infrastructure projects.

Why should an investor get excited with lower interest?

Because, it inherently carries lower risk than other bonds. In case of a green bond, “proceeds are raised for specific green projects, but repayment is tied to the issuer, not the success of the projects.” This means the risk of the project not performing stays with the issuer rather than investor.

What are the risks and challenges?

Certifying a green bond:

The Green Bond Principles are voluntary guidelines issued by the International Capital Market Association which states the procedure for certifying a green bond.

These encompass the use of proceeds, the evaluation procedure, the management of proceeds, and financial reporting.

Globally, there have been serious debates about whether the projects targeted by green bond issuers are green enough. There have been controversies too.

For instance, Reuters a few months back reported how activists were claiming that the proceeds of the French utility GDF Suez’s \$3.4 billion green bond issue were being used to fund a dam project that hurts the Amazon rainforest in Brazil.

Therefore, these guidelines issued by the International Capital Market Association are lacking in specifics, leading to a lack of consensus on what classifies as a green bond.

There could also be a currency risk:

From an Indian perspective, a challenge of making investors subscribe could be the tenor and rating of green bonds.

The downside is that green bonds in India have a shorter tenor period of about 10 years in India whereas a typical loan would be for minimum 13 years. This is less when compared to many international issuances.

Many target buyers of Indian green bonds may not invest in any bonds that are rated lower than the AAA-.

The way ahead: Developing a green bond market

Green bonds have been around for a decade but regulation and investment in them is still minuscule compared to the total market for debt mainly on account of lack of green bond standards, low credit rating of potential issuers, and higher cost of issuance.

Fossil fuels have always enjoyed huge subsidies throughout their history (namely, subsidised diesel, kerosene and gas) and have contributed to environmental degradation and global warming, it is now apt that clean energy initiatives get equitable treatment.

The government essentially needs to increase the funds available for investment in green projects, by providing for specific tax incentives and development of long-term finance markets in general.

Some of the key actionable steps would be

1. changing Insurance Regulatory and Development Authority norms for size of investment for insurance companies,
2. creating mandates for provident funds to invest in infrastructure and environmentally sustainable projects,
3. increasing the priority sector lending limit for bank loans under solar energy from a meagre Rs.15 crore,
4. standardising the definition of green to be able to target government efforts in the direction, and
5. mobilising retail savings by way of tax exemption on the lines of Section 80CCF.

Conclusion: For the green bond market to have long-term credibility, investors and governments would need evidence that the projects funded have in fact delivered the intended environmental benefits.

The Indian government can lead the global push towards green by taking three steps to reduce our races' carbon footprint: standardise "green" bonds as a way to finance environmentally sustainable projects, provide incentives to investing in projects funded by a carbon tax on polluting sources of energy and, finally, increase funds channelled towards investing in environmentally sustainable projects.

16) Discuss the various causes and impacts of air pollution in global context and suggest measure to curb air pollution?

Answer Script:-

Concerns:

- The United Nations Environment Assembly (UNEA) meeting at Nairobi noted that air pollution has increased by 8 per cent and progress and policies on air quality fall short of what is needed to save millions of lives each year.
- At least 600,000 deaths being caused annually in India by fine particulate matter pollution in the air — data released by the World Health Organisation
- So many deaths could be attributed to particulate matter 2.5 micrometres or less in size
- Residents in many urban areas are forced to breathe unhealthy levels of particulates, and the smallest of these — PM10 and less — can penetrate and get lodged deep in the lungs
- A recent study by Yale and Columbia University ranked India 126th out of 132 countries surveyed on environmental performance and worst air pollution; far below all BRICS nations

WHO Global Burden of Disease study has also been working to estimate pollution-linked health impacts, such as stroke and ischaemic heart disease, acute lower respiratory infection and chronic obstructive pulmonary disease.

Causes:

Data on fine particulates in India show that in several locations the pollutants come from burning of biomass, such as coal, fuel wood, farm litter and cow dung cakes. In highly built-up areas, construction debris, road dust and vehicular exhaust add to the problem.

SO₂ and NO₂:

- Coal-powered thermal power plants are the leading sources of SO₂ and NO₂ in the environment.
- Growing number of cars:
 - Low standards for vehicle emission
 - Diesel vehicles are responsible for 56% of all PM emissions and 70% of all Nitrogen Oxides (NO_x) emissions
 - Content of sulphur in fuel makes it dirtier and lowers the efficiency of catalytic convertors, which control emissions in automobiles.

Indoor Air Pollution:

- As per Census 2011, 87% of rural households and 26% of urban households depend on biomass for cooking.

- Burning of biomass is a leading cause of indoor air pollution and is responsible for respiratory and pulmonary health issues in approximately 400 million Indians.
- Usage of Kerosene:
- The proportion of rural households using kerosene as a primary source of energy for lighting is almost 30%.
- Kerosene lanterns used in rural areas are a primary source of emission of black carbon soot and cause significant health impact, particularly in the case of women and children.

Impacts

Cost of Air pollution- 3% of the GDP: A World Bank report highlighted that the annual cost of air pollution, specifically pollution from particulate matter (burning of fossil fuels): 3% of the GDP of the country:

- Outdoor air pollution accounting 1.7% and
- Indoor air pollution for 1.3%

The report observed that a 30% reduction in particulate emissions by 2030 would save India \$105 billion in health-related costs and a 10% reduction would save \$24 billion.

Leading cause of Death: The Global Burden of Disease Report has ranked outdoor air pollution as the fifth leading cause of death in India and indoor air pollution as the third leading cause.

Agricultural productivity: A recent research study "Recent climate and air pollution impacts on Indian agriculture" suggested that Short-Lived Climate Pollutants (SLCPs) were having an adverse impact of agricultural productivity of India.

Initiatives & Policy Measures:

1. *Steps to curb vehicular emission*

- **Emission norms and fuel regulation standards:** BS – IV norms are applicable in 34 cities whereas BS –III norms are applicable in the rest of the country. Adaptation of Euro VI norms to Bharat Stage VI.
- **Saumitra Chaudhari Committee:** Government should introduce the Bharat Stage – V norms across the country by 2020.
- **Promotion of cleaner technologies and alternate sources of energy to run vehicles:**
 - National Mission for Electricity Mobility (NMEM): To enhance penetration of efficient and environmentally friendly hybrid and electric vehicles;
 - GoI: 1,000 crores for the Plan in 2015 to decrease CO₂ emissions by 1.2- 1.5% in 2020

- **Promotion of usage of Biofuels: To substitute petrol and diesel in automobiles**
 - target: 20% blending of bio-fuels such as bio-diesel and bio-ethanol by 2017 is proposed;
 - Ethanol run bus launched in Nagpur under 'Green Bus' Project
- **Encouraging greater use of public transport:** To prioritize the use of public transport running on cleaner fuel and technology and developing a people-centric sustainable multi-modal urban transport network, taking into consideration the unique characteristics in cities.

2. *Reducing the dependence on biomass burning*

- **National Biomass Cookstoves Programme:** Promote the use of improved cookstoves resulting in:
 - Reduced emissions,
 - Reduced fuel consumption and
 - Cleaner cooking energy solutions
- **Renewable Energy:**
 - Achieve 175,000 MW of green energy by 2022 including
 - 1 lakh MW of solar power,
 - 60,000 MW of wind energy,
 - 10,000 MW of biomass and
 - 5000 MW of small hydro projects
- **Solar Power:**
 - An enabling policy framework for manufacturing solar components and setting up power plants should be created
 - Off-grid applications should be promoted and steps be taken to bring tariff to grid parity level

Currently,

- Government has revised the target to 100 GW by 2022.
- Gandhinagar Solar Photovoltaic Rooftop Programme

From carbon subsidization to carbon taxation:

- Cess on coal has been doubled which will boost renewable energy financing

- Cess is collected as National Clean Energy Fund and is disbursed for renewable energy-based initiatives and power projects.

National 'Air Quality Index': "One Color, One Number and One Description".

Measurement index consisting of 8 parameters, which would disseminate information in a simple and effective manner (Real time; 8 pollutants)

Conclusion:

Comprehensive measurement of PM2.5 is not yet being done and the linkages between pollution, disease and deaths need further study.

A neglected aspect of urban air pollution control is the **virtual discarding of the Construction and Demolition Waste Management Rules**, notified to sustainably manage debris that is dumped in the cities, creating severe particulate pollution. The Environment Ministry has highlighted the role that debris can play as a resource.

Municipal and government contracts are, under the rules, required to utilise up to 20 per cent materials made from construction and demolition waste, and local authorities must place containers to hold debris. This must be implemented without delay.

Providing cleaner fuels and scientifically designed cook stoves to those who have no option but to burn biomass, would have a big impact on reducing particulate matter in the northern and eastern States, which are the worst-hit during winter, when biomass is also used for heating.

Greening the cities could be made a mission, involving civil society, with a focus on landscaping open spaces and paving all public areas to reduce dust. These measures can result in lower PM10 and PM2.5 levels.

17) Role of external state and non-state actors are threatening India's internal security and the situation is getting complex with time. In light of this, discuss the various aspects of "proxy war". In your opinion, how should India respond to this situation.

Answer Script:-

The terror attack on an army camp in Uri, Kashmir, has once again put the spotlight on Pakistan-sponsored terrorism. Four suspected Jaish-e-Mohammad terrorists stormed the army camp, killing 18 jawans and injuring at least 30 before being eliminated themselves. The strike was uncannily similar to the Pathankot terror attack on an airbase earlier this year.

- Two fidayeen strikes on major Indian military bases within a span of nine months is certainly worrisome for the Indian security establishment. It clearly shows that the military needs to tighten its defences and boost security measures at its bases near the border with Pakistan.
- These attacks, according to experts, may give rise to proxy war.

Changing nature of warfare:

Today, with conventional war becoming a receding option, we are said to be in an era of hybrid warfare; a diverse and dynamic blend of conventional, low intensity, and cyber operations. Low intensity warfare is being orchestrated through both regular forces and irregulars. Examples include Russia's actions in Ukraine, and the Iranian sponsoring of Hezbollah against Israel.

Proxy wars by Pakistan:

The prosecution of hybrid warfare through irregulars and non-state actors has gained currency over a period of time. Pakistan, after enacting the role of a front line state and supporting the mujahideen to defeat then Soviet Army in Afghanistan in the 1980s at the behest of the United States, has gone on to master this art.

How is this affecting India?

Having repeatedly failed to defeat India in conventional war, the Pakistan Army has pursued the low intensity warfare option, with non-state actors as its strategic asset. It has employed terrorists belonging to various groups to wage proxy war in order to achieve its prime political objective of internationalising the Kashmir issue.

- As a low cost option, this has also well served the interest of Pakistan's military to keep the Indian Army engaged in combating terrorism. To inflict casualties of the magnitude of the Uri strike through conventional means would imply launching a major operation with a high risk of own losses.
- Thus the proxy war strategy suits the political bosses in Islamabad and the military brass in Rawalpindi. Given its internal turbulence, Pakistan is likely to continue to pursue this policy, may be even more proactively in future, unless India takes effective counter measures to thwart Islamabad's grand design.

How should India respond?

- To start with, policy makers have to formulate a well-defined security strategy to defeat Pakistan's proxy war strategy.
- India's response ought to be at both strategic and operational levels. The strategic dimensions have to be driven through politico- diplomatic means, complemented by Comprehensive National Power, including both hard and soft power to bring requisite pressure to bear on Islamabad to mend its ways.
- Today, Pakistan is being perceived as a nation which is sponsoring terrorism as state policy. India has to exploit opportunities across the border to pay back Pakistan in the same coin. This entails the creation of requisite wherewithal.
- With regard to the operational aspects, it should be best left to the field commanders. There are a number of tactical options, including local punitive actions, surgical operations, upping the ante along the Line of Control (LoC), and precision air strikes against the terrorist infrastructure, to name a few.

- The counter infiltration posture along the LoC and the counter insurgency grid in the hinterland must be continuously reviewed and perfected. The security of vulnerable areas which have been repeatedly targeted needs to be revamped.
- There is also an urgent need for force restructuring and modernization to enhance the operational efficiency of the armed forces, thus enabling them to undertake multiple missions across the spectrum.
- It is also imperative that operational actions be in sync and aligned with the strategic direction to achieve the desired results. Besides, there is a need for coordination between various internal security agencies and the armed forces to ensure seamless synergy. The roles of the two sets of forces need to be clearly defined.
- Despite fool proof security measures, the odd terrorist related incident cannot be ruled out. To this end, the tendency of the top political leadership and senior military commanders to rush to the scene of action needs to be curbed. This adversely impacts upon the efforts of the local commanders in handling the crisis at hand, with their focus shifting to VIP management.

Way ahead:

That said, government now needs to formulate an appropriate post-Uri response. And while the political and military establishment mull over a calibrated approach, there's no denying the fact that one of the most effective tools to put pressure on Pakistan is to move China. True, hitherto China has played the role of an all-weather friend to Pakistan. But New Delhi should cite the Uri attack and tell Beijing that a similar fate could befall it should it not put pressure on Islamabad to crack down on terror groups.

Plus, let's not forget the fact that Pakistan is a nuclear-armed state. It would be dangerous for the entire world if those nukes fall into terrorist hands. Hence, it is the responsibility of the entire international community to jointly tackle Pakistan-based terrorism. And given that India and China are Pakistan's immediate neighbours, the two countries have the highest threat perception of Pakistan-origin terrorism. Thus, New Delhi and Beijing have ample reasons to work together to find a solution to this terror menace.

Conclusion:

India is being perceived as an emerging regional power and a key player in the new world order. To be a deserving claimant for a seat at the top table, India needs to project itself as a responsible and resilient nation that is capable of not only safeguarding its own security but also serve as a stabilizing factor in the region at large. Ironically, the Indian response to such terrorist actions has basically been incidence-specific and tactical, without a strategic approach. It is time to draw out a calibrated response mechanism to defeat the proxy war unleashed by our Western neighbour. Pakistan cannot be allowed to get away with its nefarious designs. Through a pragmatic strategy coupled with national will, India should undertake calibrated responses to defeat Pakistan's proxy war game plan with a view to making its misadventures prohibitively costly and unsustainable.

18) The rampant drug abuse has created a social menace in India. As such “drug cartels” usually operate cross-country and hence to tackle the menace there is a need for regional and international forums and co-ordination between governments is need of the hour. Discuss the drug abuse with a special reference to India and its engagements in international forums in this regard.

Answer Script:-

The inauguration of the second **Anti-Drug Working Group** meeting of **Heads of Drug Control Agencies** was held in New Delhi. It comprises heads of **Anti-Narcotics Bureau** of 5 countries. Drug Abuse is a subject which is posing a serious challenge to the global community today and most recently highlighted in India with the controversy of the movie Uda Punjab.

BRICS angle to the issue

- 2013 BRICS meeting at Durban saw some very important decisions like the establishment of **BRICS Bank**. In the same meeting it was decided that the drugs are becoming the major problem for BRICS and the outside world.
- One of the areas the BRICS members could focus would be Drugs and Anti Drugs policy.
- The first meeting of heads of Anti-Narcotic agency was held in Moscow in Nov 2015.

The focus area of the meeting

- There is so much to do as far as Drug prevention, cure, how to vain people away, money laundering and Information exchange. The international trade in drugs is estimated to be about \$500 billion to more than a \$trillion.
- The aim of the meeting is to evaluate the drug abuse situation in the member countries and analyze the legislations of BRICS member states as well as devise modalities to share the best practices of enforcement and demand reduction being followed in the member countries.

The issue of Drug Abuse

- Today the drug business generates the highest illegal fund flows and leads to **Narco-Terrorism**, which poses a serious threat to global security and endangers peace, health and stability across regions.
- Today Russia is affected by terrorism, China has terrorism in Xinjiang province, and India is also the victim of terrorism. There are estimates from the western writers that almost 25 % of the ISI (Pakistan) funding to terrorists is generated through drug trafficking.
- Recently, in Pathankot attack, there were allegations that it was mixed up with drug trade and drug mafia and that is how they could enter India. The inquiry is still going on.
- India is poorly situated in the sense that on its west is the ‘**Golden Crescent**’ and on east is the ‘**Golden Triangle**’. The usage of drugs in India is increasing, particularly in the border areas due to their porous nature, especially in Punjab and North East states.

- Each country has its own unique method of suffering the problem. **Brazil has Columbia drug trade** which is perhaps the worst in the world. Afghanistan, Laos and Myanmar situated in India's neighbourhood are also suffering from illegal drug trafficking.
- Terrorism is the direct outcome of this industry. All the countries have a large youth component, below 35 years which are badly affected.

Need of the Hour

- For cooperation among BRICS members, **synthetic drugs**, money laundering, banking channel, information exchange etc are the focus areas. Synthetic drugs have become a problem for India, South Africa and Russia.
- The synthetic drugs move as pharmaceuticals. India has lot of exports of pharmaceuticals and chemicals etc. to African and other countries. This area should be focused upon.
- **Money laundering** channels should be targeted. The billions of black money are converted to white money which is detrimental to the economy. Cooperation among BRICS countries would be helpful.

Best practices to tackle Drug Abuse

- **Intelligence sharing:** Usually the last point peddlers get into police net. The real movers or illegal traders get away. So to identify those people and isolate them, the countries have to cooperate.
- To vain people away, drug rehabilitation and Society awareness programmers are very important.
- Global cooperation for AIDS has been successful. It is not a menace now as it was a decade back. It is due to the focused attention against its spread, prevention and taking care of AIDS patients. Africa had a big problem, but now it has been contained due to education and preventive methods.

For effective implementation

- **Law and Order:** If any drug carriers and masterminds have been caught, we should find out what are his/her travel links. This information can be shared.
- **Revenue intelligence:** Huge amount of money is getting transferred across borders and somehow it is getting done through banking channels. Hawala money is also there. There are concerted efforts from India to curb Black money. Wherever there are tax havens, they need to be plugged.
- **Health issues:** Any one consuming drugs suffer physically and mentally. Treating those people and bringing them back to normal health is very important.
- **Awareness programme:** Education through schools and colleges.

- **Social welfare and rehabilitation:** It includes rehabilitation of drug addicts as most of them are very poor and bringing them back into society. **Ministry of Social Justice and Empowerment** task is involved here.

Conclusion

This has been a multipronged effort to contain narcotics problem. If the BRICS countries try to coordinate their position, then with a greater voice they can speak in other international forum like United Nations Office on Drugs and Crime in Vienna and try to set the agenda and make them take steps which we feel would curb this menace

19) Siachen became the national debate after the recent incidents of loss of life of soldiers guarding it .While many opine for demilitarization , many are against demilitarization.In your opinion, Should India demilitarize Siachen ?Provide logical explanation to your answer.

Thirteen rounds of talks to resolve the Siachen issue have already taken place between Government of India and Pakistan, led by the respective **Defence Secretaries**. Indian Government has made it clear to Pakistan that the solution to Siachen Glacier is a part of the larger issue to include Pakistan's support to terrorism in India.

On December 9, 2015 External Affairs Minister met the Pakistani leadership on the side-lines of the Heart of Asia process for regional cooperation on Afghanistan. These discussions directed the Foreign Secretaries of both countries to work out the modalities and schedule of the meetings under the Comprehensive Bilateral Dialogue on various issues including Siachen.

Indian Army soldiers deployed in extremely harsh terrain and weather conditions are suitably equipped and properly trained to undertake the operational challenges and carry out their mandated tasks. The soldiers deployed at Siachen Glacier are provided with quality winter clothing including 'Extreme Cold Climate' clothing. Besides, they are provided with prefabricated insulated shelters and wherever it is not possible to construct such shelters due to technical difficulties, **insulated tents are provided which can withstand low temperatures upto – 500 Celsius.**

In-depth analysis of whether should India demilitarize Pakistan:-

Background :-

Siachen has been in the news recently due to the avalanche which took away precious lives who guard our country. Many news editorials came up with the prescription to demilitarize Siachen. In light of this the debate is indeed quite relevant and a through analysis of it thus called for.

Analysis :-

Before delving in to the various aspects of Siachen , it is necessary to understand what demilitarization is all about.

Demilitarization of an area implies withdrawal of the opposing military forces from the designated area with an agreement that neither side would undertake any military activity till the resolution of

the conflicting territorial claims. Thus, demilitarization necessarily entails withdrawal by both the sides from the disputed area. The area becomes a de facto frontier between the two nations.

In this prospect if you recall the events of Kargil , it was also an agreement between India and Pakistan forces to withdraw from certain difficult terrains in the wake of winter. However, once India withdrew from Kargil and other sector , the military adventurism was started by Pakistan , which ultimately resulted in Kargil war and loss of many valuable lives.

So , the real issues here is even though India has extended many confidence building measures for the past 4/5 decades, yet it has not been reciprocated by Pakistan . The military clout that runs the Pakistan establishments and their military policies have primary objective is not to establish peace but to engage in different activities that do harm to India, whether it is through proxy war or tacit support to terrorists. Given the history , trust is not an option.

War itself has significance influence not only on the psyche of citizenry but also on economy and is best avoided. The only way to avoid war with any rouge state is to build deterrence. For eg- If Indian forces had not withdrawn from the Kargil and other bases in the region in the winter of 1999 , the chances of military adventurism and the subsequent war could have been deterred.

Hence, if we learn anything from history , it is not to repeat the mistakes again. If we have an advantage from military stand point , it should not be given away merely for political reasons without proper assessment of future implications.

Having said that , Siachen , itself is a subject matter that have multiple angles.

Most of India's military policies are reactive in nature and built as defense mechanisms. Siachen is no exception. Once Pakistan started its Siachen adventurism , India in order to secure Kashmir launched Operation Meghdoot in 1984 . It was a reaction too. India would not have sent troops if the conflict had not been escalated in the first place.

Now that India , controls and has significant advantage in Siachen , hence it must not be given away just because of editors of certain newspapers thinks its good thing to do. Of course, India wants to do good things and is neither assertive about its capabilities nor flexes its military muscle beyond requirement or without reason. But we do not live in a ideal world , and just because we are good that does mean other will be good to us.

If we let go off our strategic strengths , it will be the greatest provocation for war. Weakness is the greatest provocation for violence. And demilitarizing Siachen would be a significant strategic weakening.

Often , the policy makers of India contemplate two front war – that is, if we are engaged in a war with Pakistan in west, there are chances that we may have to fight a war with China – leading two front war and most of our military policies are designed to deal with two front war. Two front war may be hypothetical at this point , but the danger of it looms large over Indian policy makers. In this context , Siachen would be a real advantage as a operation base giving India the high ground not only to monitor the Karakoram highway but also the much hyped China -Pakistan Economic corridor. In case of a war , the communication channel can be disrupted and Siachen can act as the choke point.

The other aspect of Siachen and the main reason for promoting idea of demilitarization is due to the following reasons :-

- 1) It is a difficult terrain and military personnel undergo significant stress to guard it
- 2) The region is the highest battlefield in the world and the dangers of climatic accidents and health injuries such as – frost bite, snow blindness, depression etc are real , leading to casualties.

The above two are the main reasons that support the cause demilitarization. But , as we learned from history , if after demilitarization leads to military escapades that ultimately result in a war then there will be a greater number of loss of life. From causality stand point, it is better to avoid war than to demilitarize and then fight a war. The health hazards can be easily avoided by inclusion of certain standards, protocols ,military gears and building few strong and safe bases in Siachen itself. How to survive and avoid casualty at this high ground with sub zero temperature is purely a problem of science and technology , thus proper inclusion and adaptation of the technological solution can minimize the damage to a great extent.

Moreover ,as is apparent, the concept of demilitarization entails two major essentials. One, it presupposes that both sides have their military presence in the said area/zone. Two and more frighteningly, it implies that both sides agree to settle their mutual claims at a later date through non-military means. In other words, it declares the area to be a disputed territory.

In the case of Siachen, Pakistan has no presence on the glacier – not even a toehold. The entire main glacier (76 km by 2-8 km) and the subsidiary glaciers are in India's control. As a matter of fact, Pakistan cannot even have a peek at them as all the three main passes (Sia La, Bilafond La and Gyang La) are under India's occupation. Pakistani positions are well west of the Salto Ridge. Hence, if Pakistan is not present on the glacier, how can the question of its withdrawal arise? If that be so, demilitarization of Siachen would mean unilateral withdrawal by India and accepting it to be a disputed zone. It will amount to forfeiting the territory which is rightfully under India's absolute military control.

Pakistan is adept at achieving through negotiations what it loses in war. Indian soldiers shed blood to gain military ascendancy, only to see their hard fought gains being lost through the misplaced zeal of some self-proclaimed advocates of peace. Their current suggestion of demilitarization of Siachen is an extension of the same subterfuge.

20) India has been trying to strengthen its manufacturing infrastructure for some time now, however with the initiation of National Investment and Manufacturing Zones along with National Manufacturing Policy, the idea seems to have taken roots in reality. Discuss.

Answer Script:-

The National Investment & Manufacturing Zones (NIMZs) are an important instrumentality of the National manufacturing policy. The NIMZs are envisaged as integrated industrial townships with:

- State of the art infrastructure.
- Land use on the basis of zoning.
- Clean and energy efficient technology.

- Necessary social infrastructure.
- Skill development facilities etc.

NIMZs aim to provide a productive environment for persons transitioning from the primary to the secondary and tertiary sectors.

The National Manufacturing Policy (NMP) has the objective of enhancing the share of manufacturing in GDP to 25% and creating 100 million jobs over a decade. The NMP provides for promotion of clusters and aggregation, especially through the creation of national investment and manufacturing zones (NIMZ).

The National Manufacturing Policy (NMP) provides for:

- Relief from Capital Gains Tax on sale of plant and machinery of a unit located in a National Investment and Manufacturing Zone (NIMZ) in case of re-investment of sale consideration within a period of three years for purchase of new plant & machinery in any other unit located in the same NIMZ or another NIMZ.
- Rollover relief from long term Capital Gains tax to individuals on sale of a residential property (house or plot of land) in case of re-investment of sale consideration in the equity of a new start-up SME company in the manufacturing sector for the purchase of a new plant and machinery.
- Simple and expeditious exit mechanism for closure of sick units while protecting labour interests.
- In respect of environmental laws/regulations, inspection by specially trained/designated/notified agencies for third party inspection to supplement the inspection by the Government agencies for compliance monitoring.

Some notable points:

- NIMZ can be proposed with land area of at least 5000 hectares.
- Land will be selected by state governments and preference would be given to uncultivable land.
- NIMZ will be managed by Special Purpose Vehicle, headed by Govt. officials and experts, including those of environment.
- To enable NIMZs to function as self governing autonomous bodies, they will be **declared by the state government as industrial townships under Article 243 Q (c) of the constitution.**
- NIMZs will be **notified by the central government.**

Nine NIMZs outside the Delhi-Mumbai Industrial Corridor (DMIC) region given in-principle approval are (i) Nagpur in Maharashtra; (ii) Tumkur in Karnataka (iii) Bidar in Karnataka; (iv) Kolar in Karnataka; (v) Gulabarga in Karnataka; (vi) Chittoor in Andhra Pradesh (vii) Medak in Telangana; (viii) Prakasam in Andhra Pradesh; and recently at (ix) Kalinganagar, Jajpur district in Odisha.

The Progress made in the implementation of the National Manufacturing Policy (NMP) so far are:

- The Government has made progress on the issue of rationalization and simplification of business regulations:
- The States have been requested to identify land banks for setting up of the National Investment and Manufacturing Zones and to initiate the process of rationalization and simplification of state level business regulations.

- Ministry of Labour and Employment has issued the advisory on simplification & rationalization of business regulations and skill development.
- The Manufacturing Industry Promotion Board (MIPB), Green Manufacturing Committee (GMAC) and the High Level Committee (HLC) envisaged in the monitoring and approval mechanism of NMP have been set up.
- A scheme component on Master Planning of NIMZ under the Plan 'Scheme for implementation of NMP' has been approved.
- Guidelines for establishment of NIMZ and proforma for final approval of NIMZ has been prepared and circulated to all State Governments.
- Definition of Cluster, and guidelines for dispensations for such Clusters outside NIMZ under the NMP has been prepared and circulated to all State Governments.

In conclusion, while Make in India program became the rallying point to encourage FDIs, through NIMZ, the government will be able to channelize the FDIs to their respective destinations. Along with the policy reform, it seems the dream of India as a global manufacturing hub has just begun.