

DETAILS EXPLANATIONS**[PART : A]**

1. Faster, Sustainable and more inclusive growth.
2. Micro Units Development refinance Agency.
3. Demonetization is the act of stripping a currency unit of its status as legal tender. It occurs whenever there is a change of national currency.
4. Social engineering is the process of attempting to change people's behaviour in a predictable manner, usually in order to have them comply with some new system.
5. Macroeconomics is the branch of economics that studies the behavior and performance of an economy as a whole. Macroeconomics included concepts such as inflation, international trade, unemployment and national consumption and production.
6. The national development agenda aims at good governance and best practices in sustainable and equitable development.
7. Total quality management is a philosophy and system that focuses on customer satisfaction in terms of continuous improvement of the quality of products and services.
8. A public-private partnership (PPP) is a longterm contract between a private company and a government, for providing a service, in which the private company bears significant risk and management responsibility and remuneration is linked to performance.
9. *The name of major challenges :*
 - Financial challenges.
 - Environmental challenges.
10. Thermal comfort is a condition of mind that expresses satisfaction with the thermal environment. It is maintained when the heat generated by the human metabolism is allowed to dissipate at a rate that maintains thermal equilibrium in the body.
11. *Main components of a solar water heater :*
 - Solar collector.
 - Hot water storage tank.
 - Air vent valve.
 - Circulation pump.
 - Temperature sensors
 - Expansion Tank
 - Pressure and Temperature relief valve.

12. Public authorities have designated some of its officers as public information officer. They are responsible to give information to a person who seeks information under the RTI act.
13. The primary objective of PMGSY is to provide connectivity by way of all weather roads.
14. Appropriate Technology is an ideological movement that involves small-scale, labor-intensive, energy efficient, environmentally sound, people centered and locally controlled projects.
15. Trade union are formed to protect their members from the exploitation by their employers.
The first organised trade union in India named as the Madras Labour Union was formed in the year 1918.
16. Industrial dispute can be defined as conflict between management and workers regarding payments or conditions related to work.
17. Leadership is the art of influencing and directing people in such a way that will win their obedience, confidence, respect and loyal cooperation in achieving common objectives.
18. The break-even point is that point of activity where total revenues and total expenses are equal. It is the point of zero profit.
19. Life cycle costing (LCC), is the process of economic analysis to asses the total cost of ownership of a product, including it's cost of installation, operation, maintenance, conversion and decommission.
20. The forest conservation act, 1980 came into force with effect from october 25, 1980.

[PART : B]

21. Yes, over population create environmental degradation. As no of people increases demand for land, water and food increases. All these requirements are met from resources of earth only. Besides meeting his/her needs the human population increases more stress on environment by creating more waste and effecting environment by misusing it in haphazard manner.
22. Urban waste and better utilization :-
 - We can use urban waste as building material.
 - Urban waste can be used to create energy.
 - Recycling of urban waste means reprocessing of discarded materials into new useful product.
 - Reuse of urban waste i.e. adopting composting i.e. decompositing the waste.

- By adopting bioremediation in this technique waste product is transformed to useful material by injecting oxygen and organisms into waste.
23. Right to information act 2005 empowers every citizen to ask any questions from the govt or seek any information.
- Take copies of any government document.
 - Inspect any govt. documents.
 - Inspect any govt. works.
 - Take sample of materials of any government works.
24. WTO stands for world trade organisation, which was started at the initiative of developed countries to liberalise international trade. The short coming of WTO are :
- It is dominated by the developed countries who manipulate its policies to favour their interest, thus ignoring the developing countries.
 - It was supposed to allows free trade, but developed countries have unfairly retained trade barriers whereas it forced the developing countries to remove the trade barriers.
25. Total quality management describes a management approach to long term success through customer-satisfaction, in a TQM effort all member of an organisation participate in improving processes, product, service and culture in which they work.
26. Functions of state pollution control board :-
- To advice state govt. on matter relating to pollution and on siting of industries.
 - To plan programme for pollution control.
 - To collect and disseminate information.
 - To carryout inspection.
 - To laydown effluent and emission standard.
27. Role of engineers in better waste management.
- By adopting proper waste destruction technology :
 - (i) Thermal treatment
 - (ii) Neutralization
 - Properly adopting waste disposal methods using open dumps or ocean dumping.
 - By doing waste export to required countries.
 - Using recycling methods of reprocessing discarded materials into new and useful products.

- Dumping of wastes into sanitary landfills not designated for toxic or hazardous wastes.
- Placement of liquid wastes or sludges in surface pits, ponds or lagoons.

28. Reforestation is a process of planning new trees on the land where there was a forest which have been destroyed by a forest fire or illegal felling of trees. It has also a great role to play to save animal life and to convert barren land into a forest to provide human being an healthy environment.

Reforestation also reduce floods and further desertification providing humans sufficient oxygen and jobs to unemployed people.

29. *Benefits of The Project*

- **New Employment Opportunities :**

- (i) 40000 indirect during peak construction period
- (ii) 1000 direct employment

- **Social Upliftment :**

- (i) Skill development and education
- (ii) Increasing earning potential
- (iii) Improvement in living condition

- **Economic Development :**

- (i) Downstream industries based on petrochemicals
- (ii) Ancillary Support Industries

- **Infrastructure Development**

- (i) Roads and communication network
- (ii) Schools and Colleges
- (iii) Medical, Health and Service Industries

30. For a sand dune to form, following conditions must be met :

- Deposition of sand must take place quicker than the obstruction material is eroded to enable build up of sand.
- There must be abundant supply of sand transported to beach from longshore drift.
- Energy for movement, which is strong winds to transport sand particles. However, dunes can also form form underwater in rivers.
- There must be a huge range between high & low tides so that when the tide subsides a large area of land is exposed and candry out to enable the wind to pick up the sediments.

31. The wildlife protection act 1972 is an umbrella act to protect plants as well as animals. It was last amended in 2006 to give statutory status to project tiger.

This act extends to whole of india, except the state of jammu & Kashmir which has its own wildlife act.

It defines five types of protected areas :

- National Park
- Wildlife Sanctuaries
- Community Reserves
- Conservation Reserves
- Tiger Reserves

32. *Advantages of Science & Technology in The Economic Development :*

- The production with case compared to animal power machines increased and much more quantitatively and qualitatively.
- Standard of human benings influenced to a greather extent. Development of new towns, modernisation in life, increasing demand for necessities of life such as refrigerator, washing machine, rescuing uneducated and orthodox parevits and ensuring them a decent life are no less achievements of tehcnology.
- Technical change has altogether altered the concept of religion.
- Technology has drastically influenced the rural lifes. It has brought social awakening among the villagers. Their migration to cities is increasing continuously in pursuit of independent economics existance.
- The methods of agriculture are getting improved day by day. Tractors have replaced old plough and bullocks. The farmer need not to depend upon the mercy of rain rod for water.

[PART : C]

33. Economic development is not possible without the social and technology is most necessary faetor in the change from the traditional stage to modernisation one. This shows that social, economic and scientific are all highly intervelated. Modern society is very complex and complicated thus, one aspeet of development affects the others. Economic development brings social prosperity, better education, quality food and shelter, etc. In the same way, scientific factors brings about the economic advancement. When the society adopts the largest scientific means of production, then there is economic properity and the living standard of the people goesup.

The society, its institution and the people should ready to accept change. The customs and traditions of society, the relationship between government and the people, the religions and their sentiments must all be conducive for change, so that social transformation may occur for economic growth.

34. *Important measure which should be taken to reduce poverty in India are as follows :*

Accelerating Economic Growth :

Poverty in India can be significantly reduced by accelerating economic growth. It will benefit to the poor in the form of more employment opportunity, greater productivity and higher wages. For accelerating economic growth increasing the rate of capital formation.

Agriculture Growth and Poverty Alleviation :

Agriculture growth has been recognised as an important factor that contributes to marked reduction in poverty. Agriculture growth and poverty are inversely related, the higher agriculture growth leads to lower poverty ratio.

Speedy Development of Infrastructure :

An important measure to generate employment opportunity for the poor and to raise their productivity is the speedy development of infrastructure. Infrastructure development consists of building of roads, highways, ports, telecommunication power and irrigation.

To Develop Human Resources Development :-

Human resources development requires greater investment in educational facilities such as schools to promote literary, technical training institute and vocational colleges to impart skills to the people. This human resource development not only generates a good deal of employment opportunity but also raise productivity and income of the poor.

35. GST is a single tax on the supply of goods and services, right from the manufacture to the consumer. Credits of input taxes paid at each stage will be available in the subsequent stage of value addition, which makes GST essentially a tax on value addition at each stage. The final consumer will thus bear only the GST charged by the last dealer in the supply chain, with set off benefits at all the previous stages.

The passage of a single goods and services Tax would be a remarkable achievement with few comparable precedents in the world. GST is one indirect tax for the whole nation, which will make India one unified common market.

Salient Features of the GST bill :

Conferring simultaneous power upon parliament and the state legislatures to make laws governing goods and service tax.

Consistently, but this growth is contributed some section and some sectors only, though our GDP is rising people are not getting the benefits out of it. That is why govt in its 11th and 12th five year plans emphasized on inclusive growth. In this growth model every section particularly vulnerable section are given more emphasis. They are emphasized on inclusive growth. In this growth model every section particularly vulnerable section are given more emphasis. They are empowered with necessary basic requirements, basic structural infrastructural facilities, for examples education for all, health facility for all, improve the institutional deliveries reducing the IMR, MMR. Creating employment, targeting the agriculture growth, labour issues, problems of unorganised sector workers, women participation in work force, empowerment of specially abled persons, investment attraction, creating basic amenities etc. If we provide them then automatically that growth become inclusive growth.

36. *Deforestation :-*

Deforestation refers to the removal of forest cover where the land is there after converted to a non-forest use. The loss of the forest cover results change in the climatic condition and also affects the biodiversity which in turn threatens the life of the people. Deforestation comes in many forms, including forest fires, ranching and development, unsustainable logging for timber, clear-cutting for agriculture, and degradation due to climate change. Some 46 to 58 thousand square miles of forest are lost each year due to deforestation.

Causes of Deforestation

The most common pressures causing deforestation and severe forest degradation are agriculture, forest fires, mining, infrastructure projects and increased logging. Some of the causes of deforestation are discussed below.

- (1) **Agriculture :** The conversion of forests into agricultural land is one of the major causes of deforestation. Many forest cover has been converted into agricultural lands in order to satisfy the growing needs of the people. It is estimated more than 5 lakh hectares of forest area is been converted into agricultural land every year.

- (2) **Logging** : Commercial logging along with illegal logging contributes a lot to deforestation around the world. Trees are cut down in order to obtain firewood and building materials due to overpopulation and the growing demands.
- (3) **Mining** : Environmental problems such as loss of biodiversity, erosion, contamination of soil and water are mainly caused due to the mining process. Due to the growing demand of minerals, the impact of mining on forests is rising day by day. In some places, the trees are cut down in the surroundings of the mining region to increase the place for the storage of soil and created debris.
- (4) **Rapid Growth In The Industries** : As urbanization and industrialization are growing at a very fast rate, trees have been cut off in order to meet the needs of the evolution. This has an adverse effect on the ecosystem.
- (5) **Forest Fires** : Forest fires also lead to a large loss of the forest cover. Each year, fires burn millions of hectares of forest worldwide. The resulting loss has wide-reaching consequences on climate, biodiversity, and the economy.

Effects of Deforestation

Deforestation has a lot of consequences on the environment. Environmental effects like global warming, floods and droughts, soil erosion, loss of biodiversity, and climate change are caused due to deforestation. Some effects of deforestation are explained below.

- (1) **Global Warming** : Trees play a major role in controlling global warming. The trees balance in the atmosphere by controlling the greenhouse gases. With the increase in deforestation, a number of greenhouse gases is increasing causing global warming.
- (2) **Mining** : When it rains, trees absorb and store a large amount of water with the help of their roots. Due to deforestation, the trees are cut down and the flow of rainwater is disrupted which causes a flood in many areas.
- (3) **Soil Erosion** : Tree roots anchor the soil. Due to the loss of forests, the topsoil gets direct access to sunlight and heavy rainfall which causes soil erosion. This leads to the fall in the quality of soil which makes it useless for any purpose.

- (4) **Loss of Biodiversity** : This is one of the main problems caused due to deforestation. It leads to the extinction of many animal and plant species which in turn affects the food cycle. Due to deforestation many wonderful species of animals and plants have been lost, and many others remain endangered. It is estimated that around 50 to 100 species of animals are lost each day as a result of the destruction of their habitats.
- (5) **Climatic Change** : Due to the loss of the forest covers, the carbon dioxide concentration in the atmosphere increases which results in global warming. This results in a change in the climatic condition.
37. Labour unions or trade unions are organizations formed by workers from related fields that work for the common interest of its members. They help workers in issues like fairness of pay, good working environment, hours of work and benefits. They represent a cluster of workers and provide a link between the management and workers.

The purpose of these unions is to look into the grievances of wagers and present a collective voice in front of the management. Hence, it acts as the medium of communication between the workers and management. Regulation of relations, settlement of grievances, raising new demands on behalf of workers, collective bargaining and negotiations are the other key principle functions that these trade unions perform. Trade unions perform substantial roles in increasing the wages of the workers. Trade union can stop supply of labours in the specific trade which may have consequence of increased wage.

Problem Faced by Trade Unions in India

(i) **Uneven Growth** :

Trade union activities are concentrated in large scale industries. There are hardly any trade union activities in small scale enterprises, domestic and agricultural labour. The degree of unionism varies a lot from industry to industry, thus touching only a portion of the working class in India.

(ii) **Multiplicity of Unions** :

Another problem faced by the growth of trade unions is that of multiplicity of unions. There may exist many trade unions in the

same establishment. The existence of large number of trade unions can be attributed to the fact that The Trade Unions Act, 1926 permits any association of seven workers to be registered as a union, and confers upon it certain rights.

(iii) Inter Union Rivalry :

Unions try to play down each other in a bid to gain greater influence among workers. In the process they do more harm than good. Employers are given an opportunity to play unions against each other. They can refuse to bargain on the contention that there is not true representative union. Employers are able to take advantage of in fighting between workers groups.

(iv) Weak Financial Position :

The financial position is very low as their average yearly income is very low and inadequate. Unions interested in increasing their membership keep the subscription rates very low resulting inadequacy of funds with the unions. Another important reason for the weak financial position of unions is that large amounts of subscription dues remain unpaid by the workers.

(v) Lack of Public Support :

The trade unions frequently resort to strike and protest in order to make their demands meet. As a result, inconvenience is caused to public. This is the public support or sympathy is almost negligible.

38. Project is "a unique process, consisting of a set of co-ordinated and controlled activities with start and finish dates, undertaken to achieve an objectives conforming to specific requirements, including constraints of time, cost and resources."

Project management is "The planning, monitoring and control of all aspects of a project and the motivation of all those involved in it, in order to achieve the project objectives with in agreed criteria of time, cost and performance. Project Manager may be defined as" the individual or body with authority, accountability and responsibility for managing a project to achieve specific objectives.

Planning is an important component of the project planning and control, because the planning process not only establishes what is to be done, but also smooth the way to 'make-it-happen.'

Planning is all about thinking forward in time. What varies is how far ahead the plans stretch and how precise they are, churchill is reported to have said, It's wise to look ahead, but foolish to look further than you can see.

The Difference between PERT and CPM.

S.No.	Basis for Comparison	PERT	CPM
1.	Meaning	PERT is a project management technique, used to manage uncertain activities of a project.	CPM is a statistical technique of project management that manages well defined activities of a project.
2.	What is it?	A technique of planning and control of time.	A method to control cost and time.
3.	Orientation	Event-oriented	Activity-oriented
4.	Evolution	Evolved as Research & Development project	Evolved as Construction project.
5.	Model	Probabilistic Model	Deterministic Model
6.	Focuses on	Time	Time-cost trade-off
7.	Estimates	Three time estimates	One time estimate
8.	Appropriate for	High precision time estimate	Reasonable time estimate
9.	Management of	Unpredictable Activities	Predictable activities
10.	Nature of jobs	Non-repetitive nature	Repetitive nature
11.	Critical and Non-critical activities	No differentiation	Differentiated
12.	Suitable for	Research and Development Project	Non-research projects like civil construction, ship building etc.
13.	Crashing concept	Not Applicable	Applicable

39. *Project Evaluation*

Project Evaluation can be defined as a process which determines the systematic and objective assessment of an on-going or completed project, its design, implementation and results. The aim is to determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability. It is the periodic, retrospective assessment of a project that might be conducted internally or by external independent evaluators.

Evaluations are generally conducted by independent external experts. Evaluations investigate the reasons why certain aspects of a project have or have not been implemented as planned. Evaluations are carried out either during the project cycle (Mid-term Evaluation, Formative Evaluation) or at the end of a project (Final Evaluation, Impact Evaluation, Summative Evaluation).

Purpose of Project Evaluations :

Evaluation has several purposes, which include the following:

(i) Learning from Experience :

With the assistance of evaluations, successes and failures can be interpreted. Based on those experiences, both current and future projects can be improved. It assists in the reformulation of objectives, policies and strategies in projects.

(ii) Transparency :

Evaluations illustrate the responsible utilization of the resources and justify the results and their effects in relation to the contractor, the partners and the target groups.

(iii) Deepening Understanding :

Evaluation is a tool for deepening knowledge and understanding of the assumptions, options and limits of development cooperation. It assists to determine the degree of achievement of the objectives and identifies the problems associated with project planning and implementation. It generates data that allows for cumulative learning which, in turn, contributes to better designed project, improved management and a better assessment of their impact.

(iv) Improved Communication :

An evaluation is intended to foster communication and understanding within and between the groups, even if this can only be managed in different ways and with different participations in each case.



ENGINEERS ACADEMY