PM SHRI STUDY MATERIAL

Class: 10+1, Subject: Economics

Section: Indian Economic System

Question: What was the condition of Indian agriculture at the time of independence?

Answer:- At the time of independence, Indian agriculture was backward. The reasons for the backwardness of agriculture were as follows:-

(1) Feudalism (2) High population density on land (3) High dependence on rainfall (4) Old farming methods (5) Lack of proper irrigation system.

All these reasons prove that Indian agriculture was backward at the time of independence.

Question: What was the condition of Indian industries at the time of independence?

Answer:- At the time of independence, the Indian economy was very backward from the point of view of Indian industry. The reasons for this are as follows:- (1). There was a lack of basic industries. (2). Cottage and small industries were going towards decline. (3). There was a lack of government incentives. (4). The benefit of tariff policy was more for British industries and very less for Indian industries. (5). Cottage industries had declined due to the policy adopted by the British.

Question: Describe the main features of the Indian economy at the time of independence?

Answer:- According to Dr. Karam Singh Gill, at the time of independence, the Indian economy was an underdeveloped, sluggish, semi-consensual economy. The Second World War had made it a worn-out economy. The partition of the country had made it a fragmented economy.

1. Underdeveloped economy:-At the time of independence, the Indian economy was an underdeveloped economy. According to M.P. Todaro, “An underdeveloped economy is a system in which the standard of living is very low, poverty is prevalent, per capita income is low, the rate of economic growth is slow, the level of consumption is low, and health services are poor.

2.Stagnant economy:-At the time of independence, the Indian economy was a stagnant economy. A stagnant economy is one in which there is very little change in the rate of growth of income. During the nearly 100 years of British rule, the average annual growth rate of per capita income was around 0.5 percent.

3. Depriciated economy:-At the time of independence, the Indian economy was a worn-out economy. In every economy, excessive use of resources leads to wear and tear and fragmentation. But if no provision is made to remove the wear and tear of the resources of an economy, then the amount of capital formation decreases. In this way, the capacity of production also decreases, such an economy is called a worn-out economy. Because during the Great War, machines and other tools were used more. As a result, the Indian economy also became a depriciated economy.

4. Divided economy:-When British rule ended in 1947, the economy of this country was divided into the Indian economy and the Pakistani economy. The partition had the following effects on the Indian economy:-

(I) India got 82 percent of the population and only 77 percent of the area. (II). India got only 65 percent of the cultivable land. Pakistan became a food-saving state. (III)91 percent of the industries of undivided India came to India. Due to which India benefited in terms of industries.

5. Population problem:-At the time of independence, India's total population was 36 crore. 82 percent of the country's population was illiterate. The birth rate was 40 per thousand and the death rate was 27 per thousand. The infant mortality rate was 218 per thousand. The population growth rate was lower than the current rate. The average age of the population was only 31 years. 17 percent of the country's population lived in cities. India's population was second in the world, but qualitatively one of the poorest in the world.

Question: What do you know about NITI Aayog?

Answer:- NITI Aayog was formed by the NDA government of India in 2014. It made several changes in the institutional and policy framework. One such change was the establishment of NITI Aayog in place of the 'Planning Commission'. NITI Aayog came into existence as a result of a resolution passed by the Government of India on 01 January 2015. It was established as the main institution of the Government of India regarding economic planning. NITI Aayog is responsible for promoting the process of economic development in the country. The main reason for this is to create a conducive environment for economic development by promoting a multi-faceted and comprehensive process towards economic development. At present, the head/chairman or president of NITI Aayog is the Prime Minister of the country, Shri Narendra Modi. Similarly, the Vice Chairman of NITI Aayog is Shri Suman Beri.

Question: What are the main objectives of NITI Aayog?

Answer:- 1. To develop priorities and strategies for the development of the nation with the full participation of the states. 2. To promote 'cooperative federalism' in the country.

3. Adopt a 'bottom-up' approach to planning and develop a system for planning that aggregates village-level plans to create efficient plans at the national level.
4. Paying special attention to those sections of society that have not benefited from economic progress.
5. Formulate strategic and long-term policies and programs and monitor their achievements.
6. Building a knowledge, research and entrepreneurship support system.
7. To achieve sustainable and equitable development.
8. Developing a shared vision for national economic development.

Question: Explain in detail the main long-term objectives of the Indian Five Year Plans?

Answer:- The rationale behind India adopting Five Year Plans can be understood through the long-term objectives of the plan which are as follows:-

1. Increase in national income or economic development
2. Increase in standard of living
3. Reducing economic inequalities

4. Comprehensive Development

5. Regional Development

6. Economic Stability

Question: Give information about any four human factors of agricultural backwardness in India?

Answer:- The human factors responsible for the backwardness of agriculture in India are as follows:-

(a) Population pressure on land (b) Social Environment

(c) Illiteracy (d)Disguised unemployment

Question:- Give information about any four technical factors of agricultural backwardness in India?

Answer:- The technical factors responsible for the backwardness of agriculture in India are as follows:-

(a) Lack of irrigation facilities

(b) Old methods of farming

(c) Faulty sales practices

(d) Lack of credit facilities

Question:- Give information about any four institutional elements of agricultural backwardness in India?

Answer:- The institutional elements responsible for the backwardness of agriculture in India are as follows:-

(a) Land ownership system:-The landlord system in India is the main reason for the backwardness of agriculture. Under this system, the farmer does not own his land. He only cultivates the land. The real owner of the field is the landlord. He can evict the farmer at any time. Although this system has been abolished now, the condition of the farmer is still not satisfactory.

(b) Small scale of farms :- Farms in India are mostly small in size. The average farm size in India is 1.32 hectares. While the average farm size in the US is 122 hectares. The small size of the farms makes it difficult to farm scientifically.

(c) Scattered fields in different places:-In India, the fields of farmers are scattered in different places. Due to which they are not able to provide irrigation facilities to these scattered fields. Apart from this, the cost of cultivation of the farmer also increases. Apart from this, the farmers also face difficulty in adopting new technologies.

Question:- Describe the importance of industrialization in the economic development of India?

Answer:- The importance of industrial development for the Indian economy is as follows:-

1. Increase in national income :-Due to industrial development, more utilization of the country's natural resources is possible. As a result, there is an increase in production. Industries increase the value of many goods. This also increases the national income.

2.Increase in productivity:-Production in the agricultural sector is through natural resources. It can be increased only to a certain extent. But industrial production is related to human efforts. It can be increased through division of labor, use of machines.

3. Balanced Development:-The Indian economy is an unbalanced economy. Because most of the country's population and capital are engaged in agriculture. Agriculture is backward. Due to the increase or decrease

in rainfall, there are ups and downs in the economy. The development of industries is necessary for the balance of the economy.

4. Development of the agricultural sector:-The development of industries also increases the productivity of the agricultural sector. Agricultural production can be increased by using machines and tools produced by industries. The production of chemicals, fertilizers, pesticides for the agricultural sector increases the productivity of the agricultural sector many times over.

Question:- Describe the main problems of industrial development of India?

Answer:- Industries in India are facing various types of problems. The description of these problems is as follows:-

(a) inferior Basic Infrastructure

(b) Raw material problem

(c) Lack of capital

(d) Problem of power resources

Question: What is the meaning of New Economic Policy or Economic Reforms?

Answer:- Economic reforms refer to all those efforts aimed at making the economy more efficient, useful and developed. Since 1991, the Government of India has adopted various economic reforms to bring the country out of the economic crisis and to accelerate the pace of development. This policy is also called the policy of New Economic Policy (LPG). These reforms were based on the following policies:-

(a) A policy of liberalization in place of a policy of licensing for industry and trade.

(b) Privatization policy in place of quota system for industrialists.

(c) Policy of globalization in place of permit system for import and export.

Question: What is meant by World Trade Organization (WTO)?

Answer:- WTO is the full form of the English word WORLD TRADE ORGANIZATION. This international organization was established on 01 June 1995. The headquarters of this organization is located in Geneva (Switzerland). India has been a member of this organization since its inception. The main function of this organization is to protect international trade in goods and services, foreign investment and intellectual property rights.

Question: What measures has the Government of India taken under liberalization?

Answer:- Liberalization means the liberation of the economy from the direct or physical controls imposed by the government. Before the year 1991, the government had imposed many types of controls on the economy, such as industrial licensing system, price or financial controls on goods, import licenses, foreign exchange controls, investment and restrictions by big business houses, etc. Economic reforms are based on the belief that forces can properly guide the economy instead of government control. Other less developed countries of the world have also achieved rapid economic growth as a result of liberalization. The measures of liberalization are as follows:-

(a) Termination of License and Registration:-A key feature of the new industrial policy is the adoption of a policy of liberalization in place of a controlled economy. Till now, India's private sector was operating

under a rigid licensing system. In 1991, the Government of India abolished the system of obtaining industrial licenses, except for five industries: liquor, tobacco, safety equipment, industrial explosives and hazardous chemicals.

(b) Exemption from monopoly law:-According to the Monopoly and Restrictive Trade Act, companies with assets exceeding Rs 100 crore were declared MRTP firms. Several restrictions were imposed on them. Now this act has been abolished. These firms do not need to take prior approval from the government while taking investment decisions. They have been given the freedom to expand their business.

(c) Expansion and production exemption to industries:-According to the policy of liberalization, industries have the freedom to expand and produce. For this, they do not need any prior approval from the government.

(d) Increase in investment limits of small scale industries:-The investment limit for small industries was increased to Rs 5 crore so that they can modernize themselves. The investment limit for very small industries was increased to Rs 25 lakh.

Question: What measures have been taken by the Government of India under privatization?

Answer:- In the context of economic reforms, privatization means opening up more and more industries to the private sector out of the industries reserved for the public sector. Under this, the existing public sector enterprises are sold in whole or in part to the private sector. Privatization is the general process by which the private sector becomes the owner or manages a government enterprise. The measures of privatization are as follows:-

(a) Shrinkage of the public sector:-The public sector was given a prominent place in India's economic development from the very beginning. But Dr. Manmohan Singh had said that public enterprises were given priority thinking that they would help in capital accumulation, industrialization, development and poverty alleviation, but none of these objectives were fulfilled. Therefore, the 17 industries reserved for the public sector were reduced to 8 in 1991 and later to 2. Only atomic energy and rail transport will remain reserved. The remaining industries have been opened for the private sector.

(b) Government disinvestment in public sector enterprises:-The government has been involved in many public sector industries, especially in loss-making industries. Disinvestment means that the government is selling these industries to the private sector. In this way, the owner and manager of government enterprises becomes the private sector instead of the government. Till the end of March 2018, the government has sold industries worth about Rs 2,47,383 crore to the private sector. In 2017-2018, the proceeds from disinvestment touched a record of Rs 1,00,000 crore.

(c) Sale of shares of government enterprises:-The government is selling shares of several public sector enterprises and banks to financial institutions and the public. This will lead to partial ownership of these enterprises by the private sector. This is also an important step towards privatization.

(d) Increase in private investment:-Due to economic reforms, the share of private sector investment in the country's total investment has increased. This is also an indicator of privatization. The share of private sector investment in total investment has increased from 45 percent to 55 percent.

Question: What measures have been taken by the Indian government under globalization?

Answer:- Globalization means the government's intention to link the country's economy with the economies of other countries through free trade, capital and labor mobility. Due to globalization, the integration of the Indian economy with different countries of the world will increase. Capital and technology will be able to flow to India from the developed countries of the world. The measures of globalization are as follows:-

(a) Increase in foreign capital investment:-As per the economic reforms, the foreign capital investment limit has been increased from 40 percent to 51 and from 51 to 100 percent now. Up to 100 percent capital investment has been allowed in high-priority industries without any restrictions or red tape. 100 percent foreign capital investment has also been allowed in exporting business houses. In this regard, the Foreign Exchange Management Act (FEMA) has been implemented.

(b) Partial convertibility of rupee:-In order to achieve the objective of globalization, the Indian rupee was made partially convertible as per the economic reforms. This means that foreign currency like dollar or pound can be bought or sold in the market at the price determined by the market for foreign transactions. This conversion could be done only for the following transactions: (i) For import and export of goods and services. (ii) For payment of interest and income from investments. (iii) For remittances to meet family expenses.

(c) Long-term trade policy:-In line with the economic reforms, the foreign trade policy was implemented for a long term period of five years. The main feature of this policy is its liberality. In this policy, all the controls and restrictions on trade were removed. Open competition was encouraged and all facilities were provided for it.

(d) Reduction in tariff rates:-As per economic reforms, the customs duties and tariffs imposed on imports and exports are being gradually reduced to make the Indian economy internationally viable.

Question:- Explain the difference between human capital and human development?

Answer:- Human capital is a resource in a sense because it contains skills which are utilized in the process of production. It contains knowledge, ability and proficiency which are utilized in the production process. Increase in productivity is a goal. Therefore, through extensive and intensive utilization of human capital, we want to achieve the highest possible level of production. On the other hand, human development is a goal in itself. It means developing the valuable personality of individuals by getting good education and good health.

Question: What is meant by human capital stock?

Answer:- Human capital stock refers to the stock of 'skills and expertise' found in a nation at a given time. It is the total sum of the skills and expertise of those engineers, doctors, and all types of workers who are engaged in the process of production. For example, if the human capital stock of a nation at the beginning of 2025 is 10,000 skilled workers. Then the human capital stock of that nation will be 10,000.

Question: What is meant by on-the-job training?

Answer:- On-the-job training helps the workers to further enhance their specific skills. It increases their productivity. Firms are always ready for on-the-job training programs. For example, in a firm, the

production technology is being updated with new machines instead of old machines. In that firm, the training given to the craftsmen working on the old machines to work on the new machine by a technical expert is called on-the-job training.

Question: What is the meaning of migration?

Answer:- Migration contributes to human capital formation because it helps in the utilization of the latent skills of people. It helps in the full utilization of their skills. The expenditure on migration is as follows:- (a) Transportation cost to move from one place to another. (b) Cost of living in different social environments. Migration for better utilization of skills or talents is also a source of human capital formation.

Question: What is meant by brain drain?

Answer:- A serious threat to the process of human capital formation in the country is posed by those individuals who are born in India and after receiving education and training from there, migrate to developed countries. These highly qualified individuals are mostly scientists, administrators, engineers, doctors, educationists, professors, etc. The migration of these talented individuals from their own country to other countries is a huge loss for the process of human capital formation of our country.

Question: What is the source of human capital formation? Or

What elements contribute to human capital formation?

Answer:- The determinants of human capital refer to the sources of human capital formation or the methods that increase the human capital stock. These are as follows:-

(a) Expenditure on education:-The most important way to increase and expand the number of productive workforce in a country is to spend on education. Therefore, it is a very important element of human capital formation. A person who spends on education earns well over the long term of life. He gets many times more income throughout his life compared to the initial expenditure on education.

(b) Expenditure on health:-There is an old saying that a healthy mind resides in a healthy body. Spending on health makes a person more efficient and more productive. His contribution to the production process is greater. A healthy person contributes more to the nation and the gross domestic product than a sick person.

(c) On-the-job training:-On-the-job training helps workers to further enhance their specific skills. It increases their productivity. Firms are always ready for on-the-job training programs. For example, in a firm, the production technology is being updated with new machines instead of old machines. In that firm, the training given to the craftsmen working on the old machines to work on the new machine by a technical expert is called on-the-job training.

(d) Migration:-Migration contributes to human capital formation because it helps in the utilization of the latent skills of people. It helps in the full utilization of their skills. The expenditure on migration is as follows:- (a) Transportation cost to move from one place to another. (b) Cost of living in different social environments. Migration for better utilization of skills or talents is also a source of human capital formation.

Question:- Describe the problem of human capital formation in India?

Answer:- Human capital formation is facing some serious problems. These problems are as follows:-

I. Growing population:-Rapidly growing population has an adverse impact on the quality of human capital. As a result, the per capita availability of existing facilities is decreasing. These facilities are related to housing, sanitation, water drainage, drinking water system, hospitals, education, etc. Due to the decreasing availability of these facilities, the quality of life decreases.

II. Brain drain:-A serious threat to the process of human capital formation in the country is posed by those individuals who are born in India and after receiving education and training from there, migrate to developed countries. These highly qualified individuals are mostly scientists, administrators, engineers, doctors, educationists, professors, etc. The migration of these talented individuals from their own country to other countries is a huge loss for the process of human capital formation of our country.

III. Incorrect manpower planning:- Not enough efforts have been made to maintain a balance between the demand and supply of the ever-increasing labour force in the country. As a result, India faces the problem of unemployment of educated people.

IV. Lack of on-the-job training in the primary sector-The primary sector is the backbone of the Indian economy but unfortunately its professional skill sector is not given the attention it should have. Traditional thinking prevails in the primary sector and on-the-job training is minimal or non-existent. Thus, the lack of human capital formation in the primary sector is a concerning issue.

V. Lack of good Education facilities:-In the passion to spread higher education, we are establishing universities indiscriminately without caring about educational standards. As a result, an army of educated educational people has gathered in our country. But there is a shortage of skilled and competent people among them. The main reason for which is the low standard of education and lack of vocational orientation.

Question: What do you understand by rural credit?

Answer:- Rural credit refers to the demand of finance for the purchase seeds and fertilizers related to the fulfillment of agricultural needs, for paying wages, for purchasing tools and equipment, for constructing wells, and for purchasing tractors, etc.

Question: To whom do Regional Rural Banks lend?

Answer:- The specific function of Regional Rural Banks is to provide loans and other facilities mainly to small and marginal farmers, agricultural labourers, artisans and small entrepreneurs. As a result of this, agriculture, trade, industry and other productive activities could be developed in the villages.

Question: - Please provide detailed information about the problems of agricultural credit?

Answer:- The problems of agricultural credit are as follows:-

I. Insufficient credit:-Considering the needs of agriculture, the achievement of agricultural credit is not much. Although there has been a huge increase in the volume of agriculture, but considering the increase in population and the huge increase in the cost of agricultural equipment, fertilizers and seeds, etc., this amount is still very less compared to our agricultural credit needs.

II. Low recovery of agricultural loans:-The decline in recovery of farm loans and increase in outstanding amounts have affected the creditworthiness of the farmers. In the last 3-4 years, 40 to 42 percent of the

loans have remained in arrears. This has hindered the cooperative societies and banks from providing credit facilities to other individuals.

III. Poor farmers have low creditability:-The benefits of agricultural credit often do not reach those farmers who actually need it. Most of the loans are obtained by rich and influential farmers. As a result, while on the one hand there is an increase in loan recovery, on the other hand, the farmers who are actually in need do not get loans.

IV. Insufficient amount of loans:-One of the main problems of agricultural credit is the very low amount of loans. It has often been seen that farmers do not get loans. Due to this, they do not use that loan for agricultural work but for fulfilling their social needs. Due to this, the purpose of agricultural credit is not fulfilled.

Question:- Give information about non-institutional sources of rural credit?

Answer:- In villages, Mahajans or non-institutional sources are the main sources of credit. Even today, more than 15% of credit is given by Mahajans, traders, moneylenders. The description of non-institutional sources of rural credit is as follows:-

I. Money lender:-Moneylenders in villages are the non-institutional sources of credit for farmers. In 1951-52, 69.2% of the credit farmers used to get from them. Which has now come down to 25%. Moneylenders give expensive loans at high interest rates.

II. Traders and Agents:-Traders and arhatiyas are also the main sources of non-institutional credit. These traders also purchase the crops of farmers. And they extend credit to farmers. The share of credit extended by traders and arhatiyas was 8.8% in 1960-61, which has now come down to 3%.

III. Relatives:-Sometimes farmers also borrow from their wealthy relatives. By taking loans from relatives, farmers can be protected from fraud by other non-institutional sources of credit. Therefore, in 1960-61, 8 percent of loans were taken from relatives.

IV. Rich landlords:-In the villages, big landlords and wealthy people are also sources of informal credit to the farmers. They used to lend money at the time of sowing the crops. But they often cheated the farmers or exploited them.

Question: Explain in detail the institutional sources of rural credit?

Answer:- The institutional sources of rural finance are cooperative societies, land development banks, commercial banks, regional rural banks etc. These instruments have given credit to agriculture in different years. The institutional sources of rural credit are as follows:-

1. Cooperative Societies:-Cooperative societies are an important instrument of agricultural credit. About 17% of the rural credit requirement is met by cooperative credit.

(a) Agricultural Cooperative Credit Societies provide loans to underdeveloped agriculture. These societies have made considerable progress during the period of five year plans. At the time of independence, only 9% of the population was under these societies and now 90% of the population is under these societies.

(b) Rural Development Banks hold the land of farmers and provide loans for 15 to 20 years for the construction of tubewells, tractors, etc. In 1950-51, there were 5 Central Land Development Banks and

286 Primary Land Development Banks in the country. At present, there are 19 Central Land Development Banks and 745 Primary Development Banks.

2. Commercial Banks:-Before 1969, commercial banks used to give only 0.9% share of agricultural credit, but after the nationalization of 14 banks in 1969 and 6 banks in 1980, the proportion of credit extended by banks to the organized sector's agricultural credit has increased significantly. After nationalization, banks have opened a large number of new branches in the villages. Till 1969, agriculture accounted for 5.5% of the total loans given by commercial banks. In 2008, the share of agricultural credit increased to 78%.

3. Regional Rural Bank:-A new agency, Regional Rural Bank, was established on Mahatma Gandhi's birthday, October 2, 1975, to provide rural credit. The specific function of these banks is to provide loans and other facilities mainly to small and marginal farmers, agricultural labourers, artisans and small entrepreneurs. As a result, agriculture, trade, industry and production activities have been developed in villages. At present, the number of these banks has increased to 56, with 15,475 branches. The total loans given through these banks during 2018-19 increased to Rs 1,51,258 crore.

4.State Bank and Agriculture credit:-State Bank was established in the year 1955 mainly to implement the Integrated Rural Credit Scheme. This bank helps farmers in many ways. (a) This bank has opened its branches in small towns and markets to develop banking culture among farmers (b) This bank has implemented the Dillilag Adoption Scheme to provide more credit to agriculture. (c) This bank lends money to cooperative societies at low interest.

5.National Bank for Agriculture and Rural Development or NABARD

6. Kisan Credit Card Scheme

7. Local Regional Bank

Question: Define unemployment.

Answer:- In economics, unemployment refers to a state in which people are willing to work at the current wage rate but are unable to find work. Unemployment in a country is a state in which there are many people in the country who are able to work and are willing to work at the current wage rate but are unable to find work due to various reasons.

Question: What is under-employment?

Answer:- The state of under-employment is the situation in which a worker gets less work than he should be working, i.e. he has to remain idle for a few months in a year or a few hours out of each day. If a person gets work for 273 days in a year and 8 hours per day, then he will be called underemployed.

Question: What is meant by jobless growth?

Answer:- The situation of jobless growth is that situation under which the level of production increases in the economy through new technologies but there is no visible increase in employment opportunities. Due to jobless growth, there is cyclical unemployment, although there is an increase in the Gross Domestic Product (GDP).

Question:- Explain in detail the causes of the problem of unemployment in India.

Answer:- The main reasons for the problem of unemployment in India are as follows:-

1. Slow economic growth
2. Rapid growth in population
3. Agriculture is a seasonal industry
4. Lack of irrigation facilities
5. Joint Family System
6. Further expansion of universities
7. Decline of small and cottage industries
8. Less mobility of workers

Question:- Give the definition of sustainable development?

Answer:- Sustainable development means that the per capita income or quality of output of an economy can be maintained so that the present and future generations can get maximum net benefits. Sustainable development means that strategy of development that manages all natural, human, financial and physical resources for long-term increase in wealth and economic welfare.

Question:- Define environment?

Answer:- Environment refers to the conditions and their effects that affect human life at any place and at any time. Environment includes all those elements that affect the quality of life. According to the Environment Protection Act, 1986, the environment includes water, air and land, the interrelationship between humans and other living beings, plants, microorganisms, and property.

Question: What is meant by global warming?

Answer:- Global warming means a gradual but continuous increase in the temperature of the earth. The global temperature is increasing year by year due to environmental pollution and deforestation. The earth's surface is warming rapidly due to the emission of greenhouse gases. The earth's temperature has increased by 0.60% in the last century. Due to the warming temperature, the polar ice melts, which leads to a rise in sea level. Due to which the ecological balance deteriorates. Ultimately, this poses a threat to human life.

Question:- Explain the meaning of Green National Income?

Answer:- Green National Income is a new concept. Green National Income means producing goods and services of the country in such a way that there is no adverse impact on the environment. There is no reduction in the ability to meet the needs of future generations. Apart from this, the exploitation of natural resources can be reduced by using them efficiently.

Question:- Describe the characteristics/conditions of sustainable development?

Answer:- The characteristics/conditions of conceptual development are as follows:-

I. Efficient use of natural resources

II. There should be no reduction in the quality of life of future generations

III. Environment Friendly

IV. Continuous Development

V. Distributive Equality

Question: - Please provide information about the meaning and need of alternative/organic farming?

Answer:- Meaning of Alternative Agriculture:- Organic farming is a sustainable farming system that maintains the long-term fertility of the soil and uses the limited resources of the soil to produce high quality nutrients. The development of organic technology is the result of knowledge of geology, crop breeding,

animal husbandry and ecology etc. Organic farming involves the use of crop rotation, animal manure and waste compost, mechanical farming and natural pest control.

Need for organic farming:-

I. In the name of producing more food grains, we have chosen the wrong path of instability. The large number of farmer suicides every year, the horrific consequences of pesticide spraying in a government orchard in Kerala, the contamination of water bottles and soft drinks with pesticides. All these present the need for organic farming.

II. Another negative impact of this nature has been on the wealth of farmers across the world. Thus, despite the increase in productivity, the wealth of farmers in almost all countries of the world has declined. If anyone has benefited from this new approach to fertilizer and agriculture, it is the agrochemical companies, seed companies or the multinational companies that trade in fertilizers and especially minerals.

III. In this context, organic farming is good. We find solutions to all the above problems in organic farming. Apart from the immediate and positive effects of organic or natural farming on the environment and the quality of the manure, it makes the farmer self-reliant in meeting his agricultural input needs and reduces the costs of production.

IV. Thus, if we want to keep our country free from pollution and maintain its beauty and diversity, then we should adopt organic farming. If we want to get nutritious, safe and healthy fertilizer, then for this we have to get fertilizer produced through organic material.

Section: Economy of Punjab

Question:- Into how many parts are the soils found in Punjab divided?

Answer:- The soils found in Punjab can be divided into three parts:

I. Soil of hilly area:- In this area ,there is forest and mountain soil. This soil is acidic. Nitrogen and phosphorus are less than required.

III Sandy soil:-The soil of some areas of Bathinda, Ferozepur and Faridkot districts is sandy. This land is deficient in water,nitrogen, potassium and phosphorus. This soil is useful for gram,cotton,millet,pulses etc.

III Loamy soil:- In rest of Punjab, the loamy soil is found. This soil is fertile. There is adequate amounts of phosphorus and potassium in it. But there is a deficiency of nitrogen. This soil is very useful for crops like wheat, rice, sugarcane, maize etc. Other soils found in Punjab are alluvial soil and bet soil.

Question:- Give information about the climate and rainfall found in Punjab?

Answer:-(1) Climate:- Punjab's climate is very hot in summers and in winter it is very cold. Punjab has three seasons: (i) Summer season: This season lasts from April to June. In summer's the temperature reaches 46%.

(ii) Rainy season: This season lasts from July to September.

(ii) Winter season: This season lasts from October to March. In this season, the temperature drops to less than 2 degrees.

(2) Rainfall:-Most of the rainfall occurs during the summer monsoon from July to September. This rainfall is useful for the kharif crop. The winter, there is little rainfall from December to February. This rainfall is useful for the Rabi crop. In Hoshiarpur least rainfall (13 cm) is received. Amritsar, Rupnagar, Hoshiarpur, Patiala, Ludhiana, receive more than the state average rainfall, but Faridkot, Bathinda, Ferozepur, Kapurthala, and Sangrur receive less than the state average rainfall.

Question: Is the population growth rate of Punjab less or more than the population growth rate of India?

Answer:- The birth rate of Punjab is lower than the average birth rate of India. The birth rate of Punjab is 14.9 per thousand while the birth rate of India was 20.4 per thousand in 2016. The main reason for this is that the standard of living of the people of Punjab is higher than the average standard of living of India.

Question: What is the literacy ratio in Punjab?

Answer:- Literacy ratio means how many people can read and write for every 100 people. High literacy ratio is a symbol of the progress and potential of economic development of the state. According to the 2011 census, the literacy ratio in Punjab is 75.84% which means that about 3 out of every five people are educated. The literacy ratio in India is 74.04%.

Question: What changes have occurred in the population density of Punjab?

Answer:- The number of people living in a square kilo meter is called population density. According to the 1991 census, the density of Punjab has increased from 403 per square kilometer to 482 per square kilo meter in 2001. In the year 2011, the population density of Punjab has increased to 551 per square kilo meter. While the average density of India was 382 per square kilometer.

Question: What is the occupational distribution of the population of Punjab?

Answer:- 29 percent of the total population of Punjab is working. The main occupation of the people of Punjab is agriculture. About 25.8 percent of the population of Punjab is getting employment in the primary sector, 31.8 percent of the population is getting employment in the secondary sector and 42.4 percent of the population is getting employment in the tertiary sector.

Question:- What are the main reasons for the increase in population in Punjab?

Answer:- The main reasons why the population growth rate in Punjab is lower than the average growth rate of India are as follows:

(i) High birth rate:-The birth rate in Punjab is 16.2 per thousand while the average birth rate in India is 21.8 per thousand.

(ii) Low mortality rate:-The mortality rate in Punjab is decreasing rapidly. It was 11.4 per thousand in 1971. Now it has come down to 6.0 per thousand. The main reason for this is the development of medical facilities. When the mortality rate is low, people have fewer children.

(iii) High per capita income:-Punjab has the highest per capita income of any state in India. Economists estimate that the population growth rate is decreasing due to the improvement in the economic situation.

(iv) High literacy rate:-The percentage of educated people in Punjab is higher than the average percentage of educated families in India. Educated people prefer small families.

(v) Low infant mortality rate:-When the infant mortality rate is high, people are in favor of having more children. The infant mortality rate is decreasing in Punjab. In 1981, the infant mortality rate was 80 per thousand, but in 2016 it decreased to 21.

Question:- Please provide information about the increasing trend of urbanization in Punjab?

Answer:- The process of people leaving the villages and settling in the city in large numbers is called urbanization. The density of is much higher than the average density of India.

The main reasons for the increase in urban population in Punjab are as follows:-

(1) Industrialization:-Industrialization is increasing in Punjab. More people have started living in cities to meet the demand for labor in industry and to reduce population pressure on agriculture.

(2) Increase in farmers' income:-Due to the Green Revolution in Punjab, the income of farmers has increased significantly. Rich farmers prefer to live in cities to enjoy urban life. Educated children of farmers and educated youth prefer to live in cities than in villages. Therefore, the trend of urbanization is increasing in Punjab.

(3) Backwardness of villages:-The villages of Punjab still have very few facilities and there are no amenities of life. There are also less facilities for treatment, higher education and other facilities available in cities. To get these facilities and to improve their standard of living, rural people have started living more in cities.

(4) Development of means of transport:-Punjab's means of transportation have also improved. People can easily connect with villages even while living in cities. They can also monitor their agriculture while living in cities. Therefore, large and middle class landlords are moving to cities to take advantage of urban life and provide higher education to their children.

Question: Why is Punjab called an agricultural state?

Answer:- Punjab is an agricultural state. The credit for making Punjab the richest state of the country goes mainly to the development of the agricultural sector. About 21 percent of the total income (net domestic product) of Punjab is derived from agriculture. About 31.8 percent of the total manpower of this state is involved in agriculture and directly or indirectly depends on agriculture.

Question: What is meant by Green Revolution? Describe the causes of Green Revolution?

Answer:-Meaning of Green Revolution:-Green Revolution refers to the huge increase in agricultural production that has occurred due to the adoption of agricultural policies. Therefore, Green Revolution means (1) a significant increase in agricultural production and (2) maintaining a high level of agricultural production in a short period of time. That is why it was named Green Revolution. In short, Green Revolution refers to the huge increase in agricultural production in the sixth decade that has occurred in a short period of time as a result of the use of high-yielding seeds and new technology of chemical fertilizers. In 1965-66, the production of food grains in Punjab was 33.80 lakh tons which increased to 119 lakh tons in 1971-72. In the year 2017-18, food production increased to 31.7 million tonnes.

Reasons for Green Revolution:- (i) Use of improved seeds

(ii) Chemical Fertilizer

(iii) Irrigation

(iv) Many crops

(v) Mechanization

(vi) Better Credit facilities

Question: What are the problems of small scale industries in Punjab?

Answer: Some of the main problems of small scale industries in Punjab are as follows:- (i) Problem of raw material (ii) Lack of finance (iii) Old methods of production (iv) Problems related to sale of goods (v) High cost of production (vi) Competition with big industries (vii) Problem of electricity and power.

Question :- Name the major large scale and medium scale industries in Punjab.

Answer: The major industries of Punjab are as follows:- (i) Sugar factories, (ii) woolen garment and silk factories (iii) Cotton factories (iv) Fertilizer factories in Nangal and Bathinda (v) Head factories for making bicycles (vi) Tractor factories (vii) Paper factories (viii) Steel girder etc. factories (ix) Dalima and Bechamel biscuit factories (x) Vanaspati ghee (xi) Battery cell (xii) Television (xiii) Tyre and (xiv) Groundnut oil extraction factories have also been established. (xv) Coach factory in Kapurthala.

Question: What is the importance of small industries in Punjab?

Answer:- The reasons and importance of development of small industries in Punjab are as follows:-

(i) Lack of large industries

(ii) Wise and hardworking artisans

(iii) Development of Agriculture

(iv) Unskilled labour

(v) Mineral scarcity.

Question:- Briefly describe the major small scale industries found in Punjab?

Answer:- Some of the major small scale industries of Punjab are as follows:-

(i)Hosiery Industry (ii) Motor vehicle parts (iii) Bicycles and bicycle parts

(iv) Sewing machines and their parts (v) Sports Equipment

Question:- Write a brief note on the non-tax receipts of the income of the Punjab Government?

Answer:-(i) Loan Services, Interest and Benefits:-The Punjab government has given many institutions and individuals loan. This gives the state governments a lot of income in the form of interest. In the year 2017-18, the Punjab government received Rs 1340 crore from dividends and Rs 1.63 crore from profits.

(ii) General Services:-This includes procurement from Public Service Commission, Police, Jail, Supply Printing and Stationery, Public Works, Lottery, Other Administrative Services and General Services. In 2017-18, the Punjab Government has received an income of Rs. 6,831 crore from this item.

(iii) Social and Community Services:-This includes social and collective services and achievements such as education, arts, medical, family welfare and public health, sanitation and water supply etc. In 2015-

16, the Punjab government received an income of Rs 722 crore from this source.

(iv) Economic Services:-The Punjab government has earned a significant amount of revenue from irrigated forests, electricity, agriculture, rural and cottage industries, transport and economic services. In 2015-16, the Punjab government received a revenue of Rs 655 crore from economic services.

(v) Assistance received from the Central Government:-State governments receive grants from the Central Government every year for implementing schemes and other works.

Question:- Provide information about the non-developmental expenditure of the Punjab Government?

Answer:- Punjab government has to spend a lot of money on administration, police, jail, pension to employees. This type of expenditure is called non-developmental expenditure.

(i) Administrative Services

(ii) Expenditure on collection of taxes

(iii) Interest on loan and its repayment

(iv) Pension and Miscellaneous Services

(v) Assistance to Localities

Question:- Describe the tax receipts of the Punjab Government as a source of income?

Answer:- The sources of income of the Punjab Government are the following tax receipts:-

(i) Sales Tax-Value Added Tax

(ii) State excise duty

(iii) Share in Central Taxes

(iv) Land Revenue

(v) Stamp Tax and Registration

Question: Explain the developmental expenditure of the Punjab Government?

Answer:- The Punjab government has to spend a lot of money on the development of education, healthcare, industry, agriculture, transportation, roads, canals, electricity, etc. The expenditure is called developmental expenditure. Punjabi Government's Developmental Expenses are primarily for:

(i) Education, Sports, Arts and Culture

(ii) Treatment and Public Health

(iii) Agriculture and allied activities

(iv) Irrigation and flood control

(v) Social and Family Welfare

(vi) Transportation

Section :- Statistics For Economics

Q. Define statistics in singular sense?

Ans. In singular sense statistics refers to all the statistical techniques. It is related with all the stages of statistical analysis like collection of data, classification of data presentation and analysis of data. In singular sense statistics provides knowledge about different stages of the statistical analysis.

Q. Define statistics in plural sense?

Ans: In plural sense, statistics refers to the statements of facts in the form of numerical data. These data are affected by multiplicity of causes , collected and presented systematically for predetermined purpose.

Q. Explain statistical methods Defining various stages of statistical investigation?

Ans. there are the different stages of statistical statistics in singular sense:

1. Collection of data- First stage of statistical investigation is related with the collection of data with different techniques. Mode of data collection may be on the basis of type of data. For example - direct personal investigation method is used for collecting real and accurate data.
2. Organization of data- In the second stage of statistical analysis data collected through various sources are organized. In order to do so data are classified on the basis of some common characteristics present in all the items of the data.
3. Presentation of data- After collection and organization, data are presented in the form of tables, diagrams and graphs. Presentation of data makes it simple precise and attractive
4. Analysis of data- In this stage data are analysed by using various statistical methods And techniques like averages, dispersion , correlation and index numbers etc. are used.
5. Interpretation of data- Interpretation of the results derived from the analysis of data is the last stage of statistical investigation

Question:- What is the difference between primary data and secondary data?

Answer:- (1) Difference in originality: Primary data is original because the researcher himself collects the primary data for the first time. But secondary data is compiled by some other person or organization. Primary data is used as raw material. While secondary data is already prepared. Therefore, it is a kind of ready-made material.

(2) Difference in suitability for purpose: Primary data is suitable for a specific purpose. It does not require research. On the contrary, secondary data is already collected for some other purpose. It is used in a secondary form to fulfill some other purpose with care.

(3) Difference in cost of compilation: Primary data requires more money, time and effort than necessary in collecting it. Its cost of collection is high. On the contrary, secondary data has to be collected only from published and secondary data only from published and unpublished sources. Due to this, the cost of compilation is less.

(4) Accuracy:- Primary data is found to have more accuracy as it is collected by the researcher himself, whereas secondary data lacks accuracy.

Question:- Describe the qualities of a good questionnaire.

Answer:- While making a good questionnaire, the following things should be kept in mind:

(1) Fewer questions: The number of questions in the questionnaire should be as per the field of research but as far as possible their number should be kept to a minimum. The questions should be related to the research.

(2) Simplicity: The questions should be in simple and clear language. The questions should be short. Very long questions should not be asked. Questions related to mathematics should also not be asked.

(3) Proper order of questions: There should be a proper and logical order of questions.

(4) There should be no inappropriate questions: There should not be any strange questions in the questionnaire that may hurt the honor, dignity or religious and social sentiments of the person giving the information.

(5) Unbiased: The questionnaire should contain questions that can be answered without any bias. Such questions should not be asked which may lead to any kind of disagreement.

Question:- What do you understand by census method? Which method is used to draw a lottery?

Answer:- Census method is the method in which data is collected about each item of a population and conclusions are drawn based on them. For example, if we want to research about the colours of Maruti cars through census method, then we will have to collect data about the colours of cars sold so far in all of India. This method can be used where the size of the population or population is limited and in which there are units with different qualities. The census method is used for lottery because in this method each item of the population gets equal chances of being selected.

Question:- Give information about random sampling method?

Answer:- Random sampling is the method under which each unit of the population gets equal opportunities of being selected. In this method, each unit has equal chances of being included in the sample. Because the selection is done randomly. The researcher cannot decide which unit will be included in the sample and which will not. The task of selecting the units is left to chance or probability. This method is more successful where all the units are uniform. This method is unbiased and less expensive. The methods of sample selection according to random sampling are as follows:-

(1) Lottery method (2) Tables of Random Numbers

Question:- Explain the meaning, utility, advantages and disadvantages of the sampling method?

Answer: Meaning:- Sampling method is the method in which data is collected about a small group representing a sample and their conclusions are drawn. We all use this method in our daily life. Just by looking at some grains of rice, it is known whether it is raw or ripe. A doctor can get the knowledge of blood group by taking few drops of blood.

Suitability:- (1) When the area of research is very wide. (ii) When high level of accuracy is required. (iii) When there is no need for much testing of different units. (iv) When all the items of the population are similar.

Advantages:- (1) Cost-effectiveness (2) Time saving

(3) Identification of error (4) Large scale research

Disadvantages: (1) Bias (2)Wrong conclusions (3) Difficulty in selecting a representative sample

Question What do you mean by classification?

Answer: Classification is a process by which data is divided into different classes based on their similarity and dissimilarity. To make the scattered data meaningful, these data are classified on the basis of different characteristics. For example, you have organized the data to know the percentage of students in your school. You can classify these data into different departments, i.e., males and females.

Question:- What do you mean by individual series?

Answer:- Individual series is a series in which each unit is expressed separately. There is no class interval in this series. This type of series can be of two types:-

(1) According to the ascending order (2) According to the descending order

Question:- What do you mean by frequency series?

Answer:- There are two types of frequency series:

(1) Discrete series:- In discrete series, the definite measure of each unit becomes clear:-

Marks	10	15	20	25	30	35
No. of students	4	5	8	5	4	2

(2) Continuous series:- Continuous series is a series in which definite measurement of units is not possible, hence they are expressed in some limits, these limits are called class intervals .

Marks	10-15	15-20	20-25	25-30	30-35	35-40
No. of students	4	5	8	5	4	2

Question:- On what basis can data be classified? Explain in detail.

Ans. Classification of data can be done on the following basis:

(1) Geographical Classification: This type of classification is done on the basis of location or geographical variation of data, for example, the number of bicycle factories at different places in India will be classified according to the following method:

Place	**Number of factories**
Punjab	30
Haryana	20
Uttar Pradesh	25

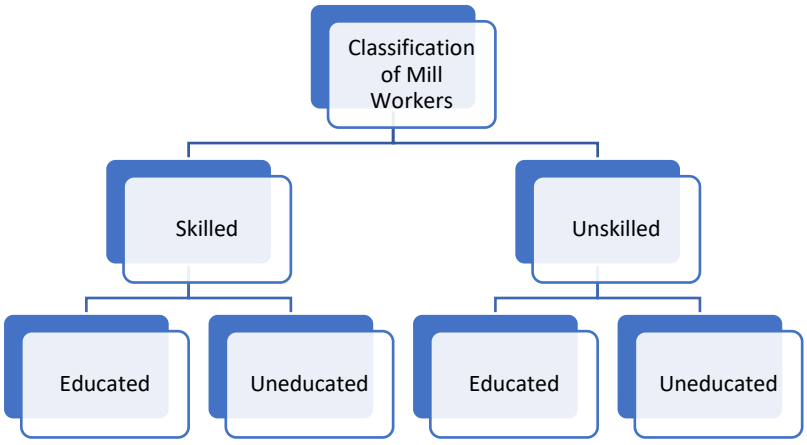
(2) Time-based classification: When data is classified on the basis of time, it is called time-based classification, such as the time-based view of a factory's production:

Year	Production (Rs.)
2016	80 000
2017	95000
2018	10000

(3) Qualitative classification: When data or facts are classified on the basis of characteristics or qualities such as religion, profession, intellectual level of the population, etc., it is called qualitative classification. This type of classification can be of two types:

(i) Simple classification: It is also called double classification because in it, data is divided on the basis of presence or absence of a particular quality such as male-female, healthy, sick, educated-illiterate, etc.

(ii) Multi-Attribute Classification: In this type of classification, classification is done on the basis of more than one attribute. As a result, more than two classes are formed. For example, on the basis of work, the workers of a mill can be divided into two sections, skilled-unskilled, and among them, educated-illiterate and other classifications like urban and rural etc.



4. Quantitative or Numerical Classification: In numerical classification, facts are represented numerically in classes or groups. In other words, the data of each class are capable of being expressed qualitatively or can be expressed in the form of numerical numbers. For example, weight can be expressed in kg and length in cm. Under this, classes are formed on the basis of numerical characteristics of the facts.

Annual income	No. of firms
0 - 1,00,000	5
1,00,000 - 2,00,000	150
2,00,000 - 3,00,000	1500
3,00,000 - 4,00,000	500
Above 4,00,000	400

Question:- Describe the different parts of a table?

Answer:- (1) Table number: The table should first be given a number (table number) i.e. 1,2,3,.....etc. Its number should be given according to the order in which the tables are made in a chapter. Table number It helps in finding them and they can be described easily.

(2) Heading:- Heading shows the information of given data in the table.

(3) Head Note:- Head note can be given on the top of the table.

(4) Stubs: The heading of the rows of the table are called stubs. Through this, it is known in simple language what is being shown through the lines.

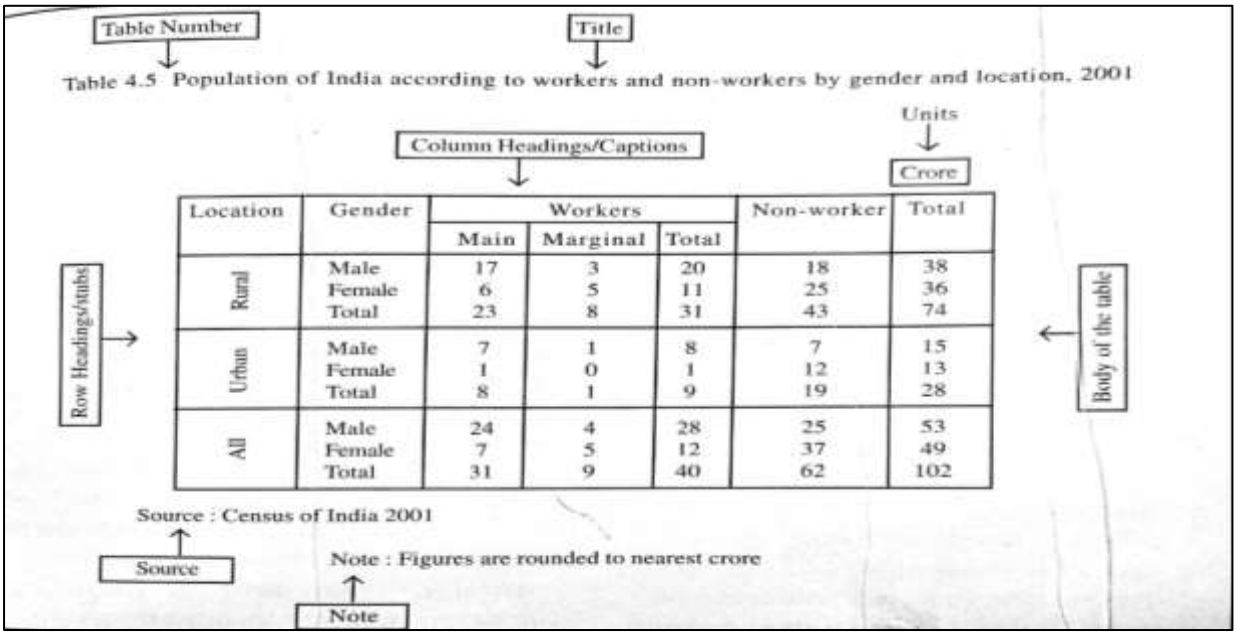
(5) Captions: The heading of the columns of the table are called the captions. Through this, it is known what data is being shown in each column. There can be many other headings under the subtitle. For example, the subtitle of students can be divided into boys or girls.

(6) Body or Area:- This part of the table is deal with the subject matter or information of the table.

(7) Unit of measurement:- The units of data has shown on the left side on the top of table.

(8) Foot note:- Some important notes has been given at the bottom of the table.

(9) Source: If secondary data is expressed in the table, then the source of that data i.e. from where the data is taken, is given below the table. Full information should be given in the subject of the source, like its name, year of publication, number of pages, address of publication etc. The different parts of a table can be made clear through the following diagram: -



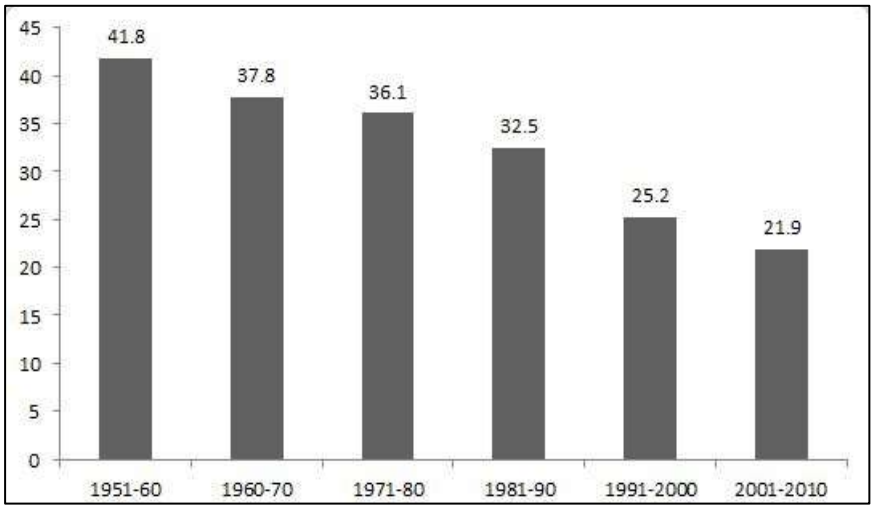
Location	Gender	Workers			Non-worker	Total
		Main	Marginal	Total		
Rural	Male	17	3	20	18	38
	Female	6	5	11	25	36
	Total	23	8	31	43	74
Urban	Male	7	1	8	7	15
	Female	1	0	1	12	13
	Total	8	1	9	19	28
All	Male	24	4	28	25	53
	Female	7	5	12	37	49
	Total	31	9	40	62	102

Question:- Describe the types of bar graphs with examples?

Answer:- The main types of bar graphs are as follows;

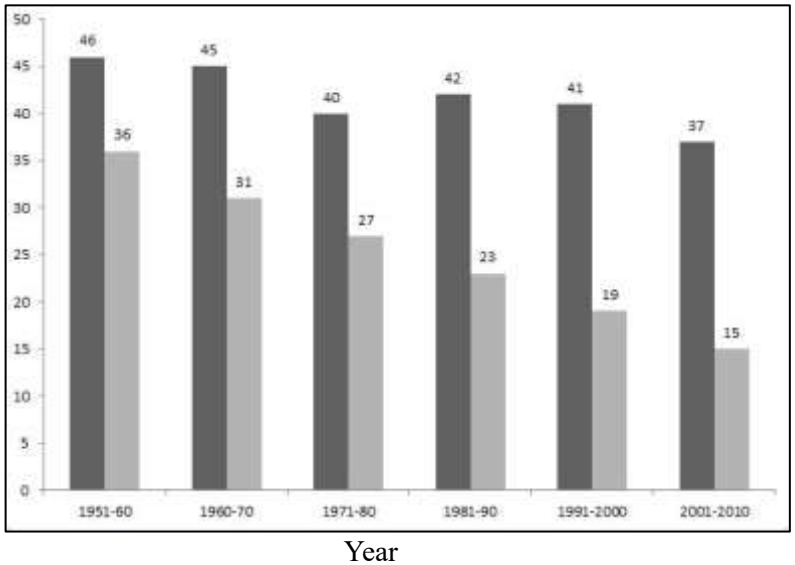
(1) Simple bar graphs: Simple bar graphs are those graphs which represent different values of the same type of numerical facts through bars. These bar graphs represent data related to only one fact like birth rate, death rate, population, income, sales, production, number of students etc.

Year	1951-60	1960-70	1971-80	1981-90	1991-2000	2001-2010
Birth Rate	41.8	37.8	36.1	32.5	25.2	21.9



(2).Multiple bar graph: Multiple bar graphs are the bar graphs that show the data of two or more factors. They are used to compare different factors such as birth rate and death rate. Different bars are made to represent the values of each factor. The bars related to different factors are shown by filling them with different colors. It should be clearly stated in the chart that which color represents which type of bar.

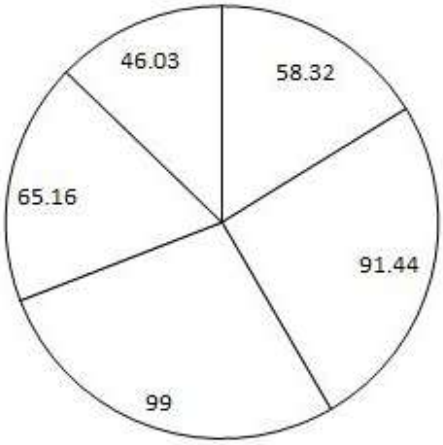
Year	1951-60	1960-70	1971-80	1981-90	1991-2000	2001-2010
Birth Rate	46	45	40	42	41	37
Death Rate	36	31	27	23	19	15



Question: - Represent the data in the given table in a pie diagram.

Ans.

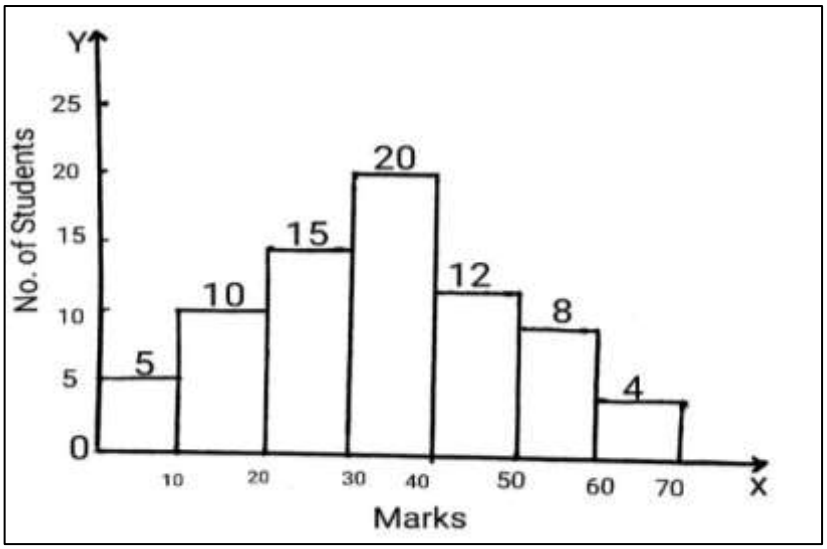
Area	Contribution in %	in degrees
Primary	16.2	$= \frac{16.2}{100} \times 360^0 = 58.32^0$
Secondary	25.4	$= \frac{25.4}{100} \times 360^0 = 91.44^0$
transport	27.5	$= \frac{27.5}{100} \times 360^0 = 99^0$
Police	18.1	$= \frac{18.1}{100} \times 360^0 = 65.16^0$
Banking	12.8	$= \frac{12.8}{100} \times 360^0 = 46.03^0$



Question: - Write note on histograms with equal class intervals?

Answer:- Histograms with equal class intervals are those which are based on data with equal class intervals. When the class intervals of the series are equal, the width of the histogram is equal and the length is in proportion to the frequency. This can be clarified through the example given below.

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
No. of Students	5	10	15	20	12	8	4



Q. What is the average?

Answer: Average is the number that represents all the categories.

Q. What do you understand by mean or average?

Answer: Average is the number that is obtained by dividing the sum of the values of all the terms of a series by their total number.

Q How many types of averages are there?

Answer: Averages are of two types: (i) Arithmetic average (ii) Positional average.

Q. The pocket expenses of 6 boys are 6, 12, 18, 24, 30 and 36. Find the median of the following:

Answer: 21 rupees.

Q. Define central tendency.

Answer: Central tendency means the central value or representative value of a statistical series.

According to Croxton and Cowden, "a value located at the bottom of the range of data and used to represent all the values in the series is called the mean. Since the mean is located at the bottom of the range of the series, it is also called a measure of central tendency."

Question :- Find mean with direct method and assumed mean method of the given series

16,20,30,23,25,21,45,50,55,65

(1) Direct method

Pocket money **(X)**
16
20
30
23
25
21
45
50
55
65
ΣX **= 350**

N = 10, ΣX **= 350**

$\bar{x}=\frac{\Sigma X}{N}$

$\bar{x}=\frac{350}{10}$

$\bar{x}$= 35 Ans.

(2) Assumed mean method-

Pocket money (X)	**(A = 45); (d = X - A)**
16	**16−45 = −29**
20	**20−45 = −25**
30	**30−45 = −15**
23	**23−45 = −22**
25	**25−45 = −20**
21	**21− 45 = −24**
45 (A)	**45−45 = 0**
50	**50− 45 = 5**
55	**55−45 = 10**
65	**65−45 = 20**
	Σd **= −100**

−135

+35

$\bar{x}$**= A +** $\frac{\Sigma d}{N}$

$\bar{x}$**= 45 +** $\frac{-100}{10}$

$\bar{x}$**= 45 + (-10)**

$\bar{x}$**= 35** Ans.

Question: The average marks obtained by 100 students was found to be 40. Later it was discovered that one student had actually obtained 53 marks, but it was recorded as 83. Find the correct average?

Answer: $\bar{x}=\Sigma X/N$, or $\Sigma X = \bar{x} \times N$

Given: - $\bar{x}$ **= 40, N = 100**

$\Sigma X = \bar{x} \times N \rightarrow 40 \times 100 = 4{,}000$

Correct value = 53 , incorrect value = 83

Correct mean ($\bar{x}$) $= \frac{\Sigma X\,(\text{wrong}) + \text{correct value} - \text{incorrect value}}{N}$

$\bar{x} = \frac{4000 + 53 - 83}{100}$

$\bar{x} = \frac{3970}{100}$

$\bar{x}$ = 39.70 Ans

Question: Find mode from the given series: 17,32,35,33,15,21,41,32,11,10,20

Ans. First of all write the series in ascending order

Sr. no.	1	2	3	4	5	6 (M)	7	8	9	10	11
Marks	10	11	15	17	20	21	32	32	33	35	41

N = 11

M = Size of $\frac{N+1}{2}$ th item

M = Size of $\frac{11+1}{2}$ th item

M = Size of $\frac{12}{2}$ th item

M = 6^{th} item = 21

M (Median) = 21 **Ans.**

Question: Find the median value of the following continuous series?

Wages	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of workers	22	38	46	35	20

Wages	**F**	**Cf**
0 – 10	22	22 + 0 = 22
10 – 20	38	22 + 38 = 60 c.f.
20 – 30	46 (f)	60 + 46 = 106
30 – 40	35	35 + 106 = 141
40 – 50	20	141 + 20 = 161
	N = **Σf** = 161	

M = Size of $\frac{N}{2}$ th item

M = Size of $\frac{161}{2}$ th item

M = 80.5th item

l_1 = 20, f = 46, i = 10, c.f. = 60;

$$M = l_1 + \frac{\frac{N}{2} - c.f.}{f} \times I$$

$$M = 20 + \frac{\frac{161}{2} - 60}{46} \times 10$$

$$M = 20 + \frac{80.5 - 60}{46} \times 10$$

$$M = 20 + \frac{20.5}{46} \times 10$$

$$M = 20 + 0.446 \times 10$$

$$M = 20 + 4.46$$

$$\mathbf{M = 24.46}$$

Question: Calculate Mode of the Series

Answer: - The Mode of an ordered series can be found through the example given as;

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	2	5	7	5	2

Class interval	**F**
0 – 10	2
10 – 20	5 (f_0)
20 – 30	7 (f_1)
30 – 40	5 (f_2)
40 – 50	2

i=10 , l_1 = 20 , f_0 = 5, f_1 = 7, f_2 = 5

$$Z = l_1 + \frac{f1 - f0}{2f1 - f0 - f2} \times i$$

$$Z = 20 + \frac{7-5}{2 \times 7 - 5 - 5} \times 10$$

$$Z = 20 + \frac{2}{14-10} \times 10$$

$$Z = 20 + \frac{2}{4} \times 10$$

$$Z = 20 + 5$$

$$\mathbf{Z = 25}$$

Question:- Define correlation?

Answer:- Correlation is a statistical technique that helps in analyzing the relationship between two or more variables. It means the measure of the closeness of the distribution of the values of two or more variables. According to Boddington, 'Whenever a definite relationship is found between two or more groups or classes or series, then they are said to be related'.

Question: Calculate Karl Pearson's Correlation Coefficient of the following data:

X	2	3	5	7	9	10
Y	4	7	14	17	20	22

X	x = (X - $\bar{X}$)	x^2	Y	y = (Y – $\bar{Y}$)	y^2	xy
2	2 −6 = −4	−4 X −4 =16	4	4 – 14 = – 10	−10 X −10 = 100	−4 X −10 = 40
3	3−6 = −3	−3 X −3 = 9	7	7− 14 = −7	−7 X −7 = 49	−3 X −7 = 21
5	5−6 = −1	−1 X −1= 1	14	14 −14 = 0	0 X 0 = 0	−1 X 0= 0
7	7−6 = 1	1 X 1 = 1	17	17 – 14 = 3	3 X 3 = 9	1 X 3 = 3
9	9−6 = 3	3 X 3 = 9	20	20 – 14 = 6	6 X 6 = 36	3 X 6 = 18
10	10−6 = 4	4 X 4 = 16	22	22 – 14 = 8	8 X 8 = 64	4 X 8 = 32
ΣX= 36 N=6 $\bar{X}$=6	Σx= 0	Σx^2= 52	ΣY= 84 N=6 $\bar{Y}$ =14	Σy = 0	Σy^2= 258	Σxy = 114

$\Sigma xy = 114$, Σx^2= 52, Σy^2= 258

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}}$$

$$r = \frac{114}{\sqrt{52} \times \sqrt{258}}$$

$$r = \frac{114}{\sqrt{13416}}$$

$$r = \frac{114}{115.827}$$

$$r = 0.984$$

It shows that X and Y have High Positive correlation.

Question: Two judges in a fashion show awarded the following categories to 10 contestants. Is there any correlation found in the decisions of these judges? Calculate the correlation coefficient.

X	1	2	3	4	5	6	7	8	9	10
Y	9	10	6	5	7	8	2	1	3	4

$X = R_1$	$Y = R_2$	$D = R_1 – R_2$	D^2
1	9	-8	64
2	10	-8	64
3	6	-3	9
4	5	-1	1
5	7	-2	4
6	8	-2	4
7	2	5	25
8	1	7	49
9	3	6	36
10	4	6	36
N=10			ΣD^2= 292

$$rk = 1 - \frac{6\Sigma D^2}{N^3 - N}$$

$$rk = 1 - \frac{6 \text{ X } 292}{10^3 - 10}$$

$$rk = 1 - \frac{1752}{1000 - 10}$$

$$rk = 1 - \frac{1752}{990}$$

$$rk = 1 - 1.769$$

$$rk = -0.769$$

= - 0.769 (A high degree of negative correlation is being found in the decisions of both the judges)

Question- Give the definition of index number?

Answer:- An index number is a numerical measure that measures the relative changes in economic variables such as prices, income, and production over time. According to Croxton and Cowden, "Indices are methods of measuring the differences in the values of a group of related variables."

Question- Mention limitations of the index numbers ?

Answer – The limitations of the index numbers are as follows: -

i. Indices are not completely reliable. They can only be used to estimate the changes in prices.

ii.The base years of the indices vary across countries, making it impossible to make international comparisons. Due to time differences, price changes cannot be accurately estimated with the help of indices.

iv. Indices are usually created for a specific purpose. Therefore, if they are used for any other purpose, their estimates may be wrong.

v. Most of the indices do not have any scientific method of weighting due to which the indices do not provide accurate results.

vi. Indices are based on wholesale prices, whereas in real life retail prices are more important, but it is very difficult to collect information on them. Therefore, indices based on retail prices also lead to wrong conclusions.

Que: Calculate Index number with (1) Simple Aggregative Method (2) Method of Averaging Relatives.

Commodities	A	B	C	D	E	F
Price of commodities in 2011	20	30	10	25	40	50
Price of commodities in 2021	25	30	15	35	45	55

Sol:- **(1)** Simple Aggregative Method:

Commodities	**Price of commodities in 2011** P_0	**Price of commodities in 2021** P_1
A	20	25
B	30	30
C	10	15
D	25	35
E	40	45
F	50	55
Total	$\Sigma P0$**= 175**	$\Sigma P1$ **= 205**

$$\mathbf{P}01 = \frac{\Sigma P1}{\Sigma P0} X100$$

$$\mathbf{P}01 = \frac{205}{175} X100$$

$$\mathbf{P}01 = 1.17142X100$$

$$\mathbf{P}01 = 117.142$$

(2)Method of Averaging Relatives:

Commodities	**Price of commodities in 2011** P_0	**Price of commodities in 2021** P_1	$\frac{P1}{P0} X100$
A	20	25	$\frac{25}{20} X100$=125
B	30	30	$\frac{30}{30} X100$= 100
C	10	15	$\frac{15}{10} X100$= 150
D	25	35	$\frac{35}{25} X100$= 140
E	40	45	$\frac{45}{40} X100$= 112.5
F	50	55	$\frac{55}{50} X100$= 110
N= 6			$\Sigma\{\frac{P1}{P0} X100\}$=737.5

$$\mathbf{P}01 = \frac{\Sigma\{\frac{P1}{P0} X100\}}{N}$$

$$\mathbf{P}01 = \frac{737.5}{6}$$

$$\mathbf{P}01 = 122.916$$

Question : Calculate price index number with the help of
(i)Laspeyre's method
(ii) Paasche's method
(iii) Fisher's method

Commodities	Base year 2012		Current year 2020	
	Price	Quantity	Price	Quantity
A	12	7	24	15
B	25	5	30	10
C	30	4	35	12
D	10	15	15	25
E	40	3	50	5

Sol:

Commodities	Base year 2012		Current year 2020		p_1q_1	p_0q_0	p_1q_1	p_0q_1
	Price p_0	Quantity q_0	Price p_1	Quantity q_1				
A	12	7	24	15	168	84	360	180
B	25	5	30	10	150	125	300	250
C	30	4	35	12	140	120	420	360
D	10	15	15	25	225	150	375	250
E	40	3	50	5	150	120	250	200
Total					**Σp_1q_1 = 833**	**Σp_0q_0 = 599**	**Σp_1q_1= 1705**	**Σp_0q_1 = 1240**

i. Laspeyre's method:

$$\mathbf{P}01 = \frac{\Sigma p1q0}{\Sigma p0q0} X100$$

$$\mathbf{P}01 = \frac{833}{599} X100$$

$$\mathbf{P}01 = 1.39065X100$$

$$\mathbf{P}01 = 139.065$$

ii. Paasche's method:

$$\mathbf{P}01 = \frac{\Sigma p1q1}{\Sigma p0q1} X100$$

$$\mathbf{P}01 = \frac{1705}{1240} X100$$

$$\mathbf{P}01 = 1.37500X100$$

$$\mathbf{P}01 = 137.500$$

iii. Fisher's Method:

$$\mathbf{P01} = \sqrt{\frac{\Sigma p1q0}{\Sigma p0q0} X \frac{\Sigma p1q1}{\Sigma p0q1}} \mathbf{X100}$$

$$\mathbf{P01} = \sqrt{\frac{\mathbf{833}}{\mathbf{599}} \mathbf{X} \frac{\mathbf{1705}}{\mathbf{1240}}} \mathbf{X100}$$

$$\mathbf{P01} = \sqrt{\mathbf{1.39065X1.37500}}\mathbf{X100}$$

$$\mathbf{P01} = \sqrt{\mathbf{1.91214}}\mathbf{X100}$$

$$\mathbf{P01} = \mathbf{1.38280X100}$$

$$\mathbf{P01 = 138.280}$$

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