

# SELF ASSESSMENT PAPER

## ECONOMICS

### Solutions

#### UNIT-1 : Definitions of Economics

Time : 1 hr

Maximum Marks : 30

##### PART I (6 Marks)



#### 2 Marks Questions

Ans. 1. Main features of welfare definition are as follows :

- (i) Study of mankind.
- (ii) Study of ordinary business of life.
- (iii) Study of material welfare.
- (iv) Emphasis on requisites of well-being.
- (v) Exclusion of non-economic activities.

Ans. 2. The reasons behind Economic Problems are :

- (i) Unlimited human wants which are recurring in nature , having different degrees of urgency.
- (ii) Limited resources to satisfy unlimited wants.
- (iii) Alternative uses of scarce resources.

Ans. 3. Criticisms of the definition given by Marshall :

- (i) Economics as a social science only.
- (ii) Impractical classification of activities
- (iii) Materialistic aspect
- (iv) Restricted scope of economics
- (v) vague concept of material welfare

##### PART II (24 Marks)



#### 3 Marks Questions

Ans. 4. Two features of Samuelson's definition of economics are as follows :

(i) **Dynamic approach :**

Prof. Samuelson has adopted a dynamic approach to the study of economics by taking economic growth as an integral part of economics. This has not only imparted dynamism to economic problems but also has widened the subject matter of economics too.

(ii) **Comprehensive :**

Samuelson's definition of economics is very comprehensive. It is growth-oriented as well as future oriented. It has included Marshall's welfare aspect as well as Robin's scarcity and choice aspect

Ans. 5 Scarcity Oriented definition is given by Leonel Robbins. According to him "Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses." Main features of the definition are :

- (i) Definition was given by Robbins who emphasized four fundamental characteristics of human life.

**Ans. 6.** According to Robbins who gave Scarcity Oriented definition four fundamental characteristics of human life are :

**(i) Unlimited ends :**

The fundamental fact of human life is that human wants are unlimited.

**(ii) Scarce Resources (means) :**

The means at our disposal to satisfy the human wants are scarce or limited. This scarcity forces us to postpone some of our wants.

**(iii) Alternative uses of means/resources :**

Not only human means are scarce in relation to unlimited wants but they can also be put to a number of uses.

**(iv) Choice :**

Since wants are numerous but means are scarce, humans have to select the most urgent want leaving other wants, which can be satisfied later on. Therefore, scarcity and choice go together.

**Ans. 7.** The comparative analysis of Marshall's and Robbins definition of economics as under :

**(i) Importance to the Study of Man :**

Both the definitions gives greater importance to man than to wealth. In both definitions, man is primary and wealth is secondary objective.

**(ii) Scarcity :**

According to Robbins, all those means, which are scarce, are subject of study of Economics. Marshall holds that Economics studies those means, which are material. In short, both these definitions are not complete; both have some shortcomings. Although Marshall's definition is more practical, simple and human in approach, yet it is criticised narrow, incomplete and unscientific. On the contrary, through Robbins definition is more scientific and logical, yet it is impractical and complete as it also lacks, full utilisation growth of resources issue of economics.



## 6 Marks Questions

**Ans. 8** Growth oriented definition given by P. A. Samuelson is regarded as the best definition of economics. Samuelson's definition of economics is considered to be the most satisfactory definition because of the following features :

**(i) Emphasis on economic problems :**

Samuelson also like Lionel Robbins emphasises on the problem of choice arising out of scarcity of resources and unlimited wants. Thus, this definition gives a realistic explanation of problem of choice and of economic problems.

**(ii) Long-term perspective :**

Wants are not static, they are dynamic and grow and multiply over-time. Along-with expansion of wants, resources also increase overtime. Hence, we are not merely concerned with allocation of given resource but also with how the growth & expansion of resources is to be rationally used to satisfy the increasing human wants. Thus, Samuelson has taken the long-term perspective of economic problems.

**(iii) Dynamic Approach :**

Prof. Samuelson has adapted a dynamic approach to the scope and study of economics by taking economic growth as an integral part of economics. This has not only widened the subject matter of economics but has also imparted dynamism to economic problems.

**(iv) Universal problem :**

Prof. Samuelson has rightly emphasised that the problem of resource allocation is a universal problem, both for barter economics as well as for monetary exchange based on economics.

**(v) Comprehensive :**

Samuelson's definition of economics is very comprehensive. It has incorporated Marshall welfare as well as Robbins scarcity and choice aspects. It focuses on the problem of an economy not at a point of time but over a period of time. It is growth oriented as well as future oriented.

**(vi) Broader perspective :**

Samuelson's growth oriented definition has broadened the subject matter of economics so as to include consumption, production, exchange, distribution, economic growth, etc.

**Ans. 9.** Adam Smith is regarded as the father of modern economics. He gave wealth oriented definition and defined "Economics is an enquiry into the factors that determine the wealth of a country and its growth". In the ordinary

language, wealth means money. But in economics, the term 'wealth' refers to those goods which satisfy human wants. Main features of his definition are :

**(i) Study of wealth :**

According to the wealth oriented definition , the main objective of economics is to examine how people earn wealth and how they spend it. The focal point of this definition is the study of wealth.

**(ii) Causes of wealth :**

According to this definition, economics seeks to examine the causes which lead to making and increasing wealth. Wealth can be increased by its production and accumulation of income.

**(iii) Economic man :**

An economic man is the one who is aware of his self interest, according to wealth definition. Through acquisition and increasing wealth, an economic man can fulfil his self interest



OSWAAL BOOKS  
LEARNING MADE SIMPLE

## SELF ASSESSMENT PAPER

### UNIT-2 : Micro and Macro Economics

Time : 1 hr

Maximum Marks : 30

#### PART I



#### 2 Marks Questions

- Ans. 1.** It is that branch of economics which studies the economic behaviour of individual economic units and individual economic variables. In other words it studies the economic issues at the level of an individual viz. an individual person, an individual firm's output, an individual industry, market price of a commodity, etc. Vital theories of microeconomics are : Theory of price, Theory of consumer behaviour, etc.
- Ans. 2.** Features of Utility :
- (i) Utility is subjective.
  - (ii) Utility is not measurable.
  - (iii) Utility is relative.
  - (iv) Utility is different from usefulness.
- Ans. 3.** Real value of a commodity refers to the purchasing power of a commodity in terms of other commodities. For example, real value of 2 kg. of rice is equal to 1 meter of cloth. Nominal value of a commodity refers to the value of a commodity measured in monetary terms or monetary units. For example, if Oswaal Economics book for class XI is sold for ₹ 200, it's nominal value is ₹ 200.

#### PART II



#### 3 Marks Questions

- Ans. 4.** Differences between Microeconomics and macroeconomics are as follows :
- (1) **Meaning :** Microeconomics is the study of economic behaviour of individual economic units and individual economic variables.  
**For example :**  
 Theory of price, theory of consumer behaviour etc. Macroeconomics Macroeconomics is that branch of economics which deals with the functioning of the economy as a whole.  
**For example :**  
 Aggregate demand and Aggregate supply, National income, etc.
  - (2) **Scope :** Microeconomics has narrow scope as it studies individual economic units. of Macroeconomics has a wider scope, as it studies the economy as a whole.
  - (3) **Area of study :** Microeconomics deals with determination of price and output in individual market. Macroeconomics deals with determination of general price level and national output of the country.
- Ans. 5.** Factors of production are classified into four main groups :
- Land, Labour, capital and entrepreneur. Land includes all those free gifts of nature such as land, forests, minerals, etc., which are commonly called natural resources. Labour is the human efforts, both physical and mental involved in the process of production. Capital is defined as the man made or produced means of production, consisting of such things as machinery tools, equipment and factory buildings, which are used in future production that is used making other goods and services in future. Entrepreneur is the one who organises production, takes important decisions regarding production and bears the risk and uncertainty involved in production.
- Ans. 6.** A barter economy is one where money does not exist or has ceased to be functional. It means consumers have to exchange goods and services for goods and services instead of money To barter means to trade goods directly rather than through the medium of money. An example of a barter exchange may involve swapping a bag of nuts for some fruit or food grains.

Primitive economies developed through bartering goods. But, this is very inconvenient for a developing and more complex economy. Therefore, money tends to involve as a way to facilitate transactions between two people. Money economy on the other hand in a monetary economy, goods and services are exchanged for money. Money plays the role of a measure of value of all goods, so their values can be assessed against each other; this role may be absent in a barter economy.

**Ans. 7. Total utility :**

Total utility refers to the total satisfaction gained after consuming all the specified units. Total utility is calculated as summation of marginal utility that is  $TU = MU_1 + MU_2 + MU_n$ . TU is maximum when MU is zero.

**Marginal utility :**

Utility or satisfaction derived by consuming one additional unit of a commodity is referred to as Marginal utility. MU is calculated as change in TU when more unit of the given commodity is consumed. It can be written as  $MU = TU_n - TU_{n-1}$ .



## 6 Marks Questions

**Ans. 8.** Saving refers to that part of income which is not spent on consumption. Household do not spend a part of their income on purchasing goods and services rather they would like to save a part of their income to meet future financial requirements. Different types of saving are as follows :

- (i) **Personal saving:** Saving done by the households is known as personal saving.
- (ii) **Business saving :** A part of the profits earned by business, is retained to meet future contingencies or to be ploughed back for the expansion and growth of the business is known as business saving.
- (iii) **Government saving :** It is the saving done by the Central, State governments, Local authorities and Public Corporation as their budget-surplus.
- (iv) **Individual saving :** Saving done by an individual income earner is known as individual saving.
- (v) **Private saving :** Savings by individuals, families and by business firms is known as private savings. It doesn't include Govt. saving.
- (vi) **Aggregate saving :** Aggregate saving is the total savings done by all the people in an economy including saving of both public sector and Private sector.

**Ans. 9.** A typical business cycle is generally divided into four phases :

- (i) **Expansion or prosperity :** The expansion phase is characterised by expansion in the level of output, employment and income.
- (ii) **Recession :** During the phase of recession, there is a downward trend in the level of economic activity. It is sustained period of falling level of income, output and employment.
- (iii) **Depression :** It is the phase of severe recession. It is characterised by severe and general decline in the level of economic activity. There is a large reduction in employment, output income and prices.
- (iv) **Recovery or Revival :** It marks the revival of economic activity from the situation of depression. During this phase, the level of output, employment and income in the economy rise steadily.



## SELF ASSESSMENT PAPER

### UNIT-3 : Basic Economic Problems and Types of Economies

Time : 1 hr

Maximum Marks : 30

#### PART I

#### 2 Marks Questions

**Ans. 1.** The two key factors responsible for rapid economic growth of China after 1980 are:

(a) **High investment rate :**

A significant portion of China's recent growth is attributed to large scale investment in new machineries, better technologies, and infrastructure. The investment rate in China was 45 percent in 2016. High rate of investment was financed mainly by large domestic savings and partly by foreign investments.

(b) **Increase in productivity :**

Sustained Increase in productivity was the driving force behind the high growth rate of Chinese economy. It was largely due to reallocation of resources towards more productive sectors, agricultural reforms, emergence of non-state enterprises, exposure to competitive forces, import of improved technology etc.

**Ans. 2.** Marginal Opportunity Cost is the rate of sacrifice of units of Y Commodity for every additional unit of X Commodity to be increased.

**Ans. 3.** (i) It provides an elegant device of deciding about production, consumption, investment etc.

(ii) Price mechanism acts as a coordinating and organising force in a free market economy.

#### PART II

#### 3 Marks Questions

**Ans. 4.** In a socialist economy the economic problems are solved by the Planning authorities. The Planning authority takes decisions about what to produce by taking into account the availability of resources, needs of the people and the national priorities. The decisions about technique of production is taken on the basis of social objectives and goals, economic efficiency of techniques of production and economic resources of the country. The wages are determined by the planning authority by taking into account the quality and quantity of work done by the workers.

**Ans. 5** According to Murad, "Mixed economy is that economy in which both government and private individuals exercise economic control". A mixed economy is a mixture between a capitalist economy and a socialist economy. It is an economic system where the price mechanism and economic planning are used side by side. There is mixture of private and public ownership of the factors of production and distribution.

**Ans. 6.** Every economy has to take the basic decisions of making the best use of the available resources in producing various goods and services. In other words, as human and non-human resources are scarce in relation to their wants and have alternative uses so it is not possible for the economy to produce various types of goods in unlimited quantity and there arises the problem of choice regarding the use of these resources. Whenever we have scarcity we have to make a choice in allocation of resources. Therefore, we can say that scarcity and choice go together. The economic problem is the problem of relative and the problem of choice arising therefrom. Thus, scarcity is the root of the basic economic problem that is problem of choice, so they both go together.

**Ans. 7.** Features of PPC

(i) PPC slopes downwards :

PPC shows all the maximum possible combinations of two goods, which can be produced with the available resources and technology. In such a case, more of one good can be produced only by taking resources away from the production of another good. As there exists an inverse relationship between changes in quantity of one commodity and change in quantity of the other commodity, PPC slopes downwards. (for diagrams refer to QB, page 25, Q1 (6marks))

- (ii) Production Possibility Curve is concave to origin :

Production Possibility Curve is concave to the origin because to produce each additional unit of good X, more and more units of good Y is to be sacrificed. Opportunity cost of producing each additional unit of good A tends to increase in terms of the loss of production of good Y. It is so because factors of production are not perfect substitute of each other.



## 6 Marks Questions

**Ans. 8** Merits of Free Market Economy are as follows :

- (i) **Incentive for technological advancements :**

In this economy, producers are encouraged to develop new techniques of production for their survival in the competitive market and to maximise their profits. Competition motivates the producers to invent and innovate some new and improved techniques of production and products.

- (ii) **Efficient use of resources :**

In a capitalistic economy, the efficient individuals are rewarded and inefficient ones are penalised. Producers are under constant pressure to maximise efficiency of resources and to keep the cost to the minimum so as to earn profits. Similarly the workers work most efficiently to earn higher incomes.

- (iii) **Incentive for capital formation :**

In this economy, the desire to earn higher incomes, profits provides motive for higher investment. Similarly the right to personal property and the right of inheritance also encourages investment and savings which results in higher rate of capital formation and leads to higher rate of economic growth.

- (iv) **Spirit of enterprise :**

Desire to maximise profits infuses the spirit of risk-taking and enterprise in the individuals encouraging new creativity and entrepreneurial abilities. Neck to neck competition forces the producers to create new business ideas, to bring improvements in the production activities to have strong market standing and to withstand the competition.

- (v) **Economic freedom :**

A salient feature of capitalistic economy is the individual freedom. There is freedom to consumers and producers to save and invest, to produce and to consume, to acquire private property, etc. The restrictions by the government are kept to minimum. Thus, economic freedom is the virtue of capitalism.

- (vi) **Increase in production and standard of living :**

The greatest achievement of capitalistic economy is that it leads to large increase in production and national income, resulting in high rate of economic growth, which makes such economies to become affluent economies. People in capitalistic economies enjoy higher incomes, higher standard of living, more leisure, more luxuries.

**Ans. 9.** The central problems of an economy are discussed below :

- (i) **What to Produce :**

The first central problem which every economy has to face is briefly termed as 'what to produce'. It involves to interrelated issues, namely what commodities shall be produced and in what quantity. In other words, it is the problem of determining the quantity of each commodity or service to be produced. The problem of what to produce is the problem of resource allocation since choosing to produce a particular commodity means allocating resources in the production of that commodity.

- (ii) **How to Produce :**

The second problem which an economy has to face is how the goods are produced. This is the problem of 'choice of method or technique of production' from various alternative techniques using different combinations of resources like labour and capital. This question of choosing appropriate technique arises because there are various alternative methods or techniques available to produce a commodity. By 'technique', we mean which particular combination of inputs to be used. Generally, techniques are classified as: Labour intensive techniques (LIT) and Capital intensive techniques (CIT).

(a) **Labour Intensive Technique :** In Labour intensive technique, more labour and less capital (in the form of machines, etc.) is used.

(b) **Capital Intensive Technique :** In Capital intensive technique, there is more capital and less labour utilization.

- (iii) **For whom to produce :**

For whom to produce is the problem of 'distributing the total output of goods and services' produced in an economy among its members. Since resources are scarce in every economy, no society can satisfy all the

wants of its people. Thus, a problem of choice arises. Goods are produced for those people who have the paying capacity. The capacity of people to pay for goods depends upon their level of income. It means, this problem is concerned with distribution of income among the factors of production (land, labour, capital and enterprise), who contribute in the production process.





## SELF ASSESSMENT PAPER

### UNIT-4 : Planning and Economic Development in India

Time : 1 hr

Maximum Marks : 30

#### PART I

#### 2 Marks Questions

**Ans. 1.** Limitations of Per Capita Income Index are as follows :

- (i) A rise in per capita income is due to rise in prices and not due to increase in physical output, so it is not a reliable index of economic development.
- (ii) It excludes all nonmarketable goods and services, even though they may be important for human happiness and better quality of life.

**Ans. 2.** The two major achievements in the expansion of economic infrastructure during the five- year plans :

- (i) The installed capacity of electricity generation has increased from 2300 MW in 1950-51 to 377000 MW in 2016-17, showing 164 fold increase.
- (ii) The finance and banking system in the country has made an impressive expansion. There has been a remarkable increase in the number of branches of commercial banks from 8260 in 1969 to over 1, 50, 800 in June 2018 implying over 18 times increase. This at present India has a sound and strong well developed financial system.

**Ans. 3.** Human development is the process of widening people's choices as well as raising the level of well-being. It views economic development with the purpose of improving the human conditions from all angles. It is concerned with widening not merely income choices but covering all aspects of human development - Economic, social, cultural or political.

#### PART II

#### 3 Marks Questions

**Ans. 4.** United Nations Development Programme (UNDP) has used the criterion of Human Development Index to measure the development of countries. HDI is calculated on the basis of :

- (i) **Per capita income :**  
When the total national income of the country is divided by its population, we get the per capita income.
- (ii) **Life expectancy :**  
It measures the average age of a person in a country. It helps us to know the health facilities of the country.
- (iii) **Literacy rate :**  
Education is also one of the most important criteria for the development of a country.
- (iv) **Gross enrolment ratio :**  
It measures the education gained at three levels—at the primary, secondary and higher education level.

**Ans. 5** The main objectives of India's five year plans (or economic planning) are as follows :

- (i) **Economic Growth :**  
The basic aim of economic planning in India is the rapid economic growth of the economy through development in all the major sectors of the economy.
- (ii) **Modernisation :**  
It is the newer objective which implies updation and adoption of modern technology in the process of growth.
- (iii) **Reducing inequalities :**  
It is important to ensure that the benefits of economic prosperity reach the poor sections of society, so equity is another important objective of planning in India. It implies reduction of inequalities in distribution of income and wealth i.e. social equality and social justice.

- Ans. 6. NITI Aayog :** NITI Aayog stands for National Institution for Transforming India. It is a Government of India initiative to replace 65 years old Planning Commission on January 1, 2015. The NITI Aayog is headed by the Prime Minister and has a Vice-Chairman and a CEO. The new body has a governing Council comprising chief ministers of all states and Lieutenant Governors of union territories. Niti Aayog is different from the planning commission in terms of its main functions. The two key activities of Planning Commission were to prepare and implement the Five Year Plans and to allocate financial resources to the states. Neither of these two activities form part of the activities of NITI Aayog. The era of economic planning in India is over now. Secondly, NITI Aayog does not allocate any financial resources to states. NITI AAYOG performs three main functions namely :
- (i) It assists the central government in policy making.
  - (ii) It serves as the government's think tank.
  - (iii) It plays an important role in economic federalism in the economy.
- Ans. 7.** The differences between economic growth and development are explained in the points given below :
- (i) Economic growth is the positive change in the real output of the country in a particular span of time economy. Economic Development involves a rise in the level of production in an economy along with the advancement of technology, improvement in living standards and so on.
  - (ii) Economic growth is one of the features of economic development.
  - (iii) Economic growth is an automatic process. Unlike economic development, which is the outcome of planned and result-oriented activities.
  - (iv) Economic growth enables an increase in the indicators like GDP, per capita income, etc. On the other hand, economic development enables improvement in the life expectancy rate, infant mortality rate, literacy rate and poverty rates.
  - (v) Economic growth can be measured when there is a positive change in the national income, whereas economic development can be seen when there is an increase in real national income.
  - (vi) Economic growth is a short-term process which takes into account yearly growth of the economy. But if we talk about economic development, it is a long term process.



## 6 Marks Questions

- Ans. 8** Agricultural Policy of Indian government during the five year plans has the following dimensions :
- (i) **Technological measures :**  
The government has initiated various technological measures to increase agricultural production and productivity. This technological measures consist of increased supply of various agricultural inputs such as extension of irrigation facilities, increased availability of high-yielding varieties of seeds, chemical fertilizers, pesticides, etc.
  - (ii) **Infrastructural facilities :**  
These include credit, marketing, storage, transportation, education, agricultural research, etc.
  - (iii) **Land Reforms :**  
The main land reforms undertaken are :
    - (a) Abolition of intermediaries.
    - (b) Tenancy reforms for fixation of rents paid by tenants, security of tenure and conferment of ownership rights to the tenants.
    - (c) Imposition of ceiling on land holding.
    - (d) Consolidation of land holdings.
  - (iv) **Policy of fixation of minimum support prices and procurement prices :**  
As part of agricultural price policy, the government has been fixing the minimum support prices and procurement prices for a number of agricultural commodities like wheat, paddy, etc. Minimum prices are fixed so as to ensure that prices of agricultural commodities do not fall below these prices.
  - (v) **Input subsidies to agriculture :**  
Under this policy, the government is providing various inputs such as irrigation, fertilizers, and power to the farmers at subsidised prices.
  - (vi) **Food security system :**  
The government has built up an elaborated food security system in the form of public distribution system (PDS) during the planning period. The main purpose of PDS is to provide food grains at cheap and subsidised rates to the people, particularly the poor people.

**(vii) Rural employment programmes :**

The government has introduced the number of specifically designed poverty alleviation programmes in the form of Rural Employment programmes, particularly from the fourth five year plan onwards.

**Ans. 9. (i) Unrealistic Plans :**

One of the important drawbacks of Indian Plans is that the planners have been unrealistic in setting the targets. One of the drawbacks here is that the planners are not able to rank various objectives. As a result, sometimes contradictory policies are adopted to achieve various objectives. Moreover, many a time, planners have formulated Plans on the basis of unrealistic assumptions with regard to the raising of financial resources from taxation and public borrowing.

**(ii) Overambitious Plans :**

One of the reasons for the limited success of Five-Year Plans has been that planners have been unduly overambitious while drawing the plans. They have drawn huge plans without bothering about whether the financial resources are adequate and whether there exists adequate logistics. Plans have been formulated to reflect a particular political ideology and political commitment and sometimes for populist reasons. Many time, plans lack pragmatic approach and outlook.

**(iii) Faulty Implementation :**

Faulty implementation has been a very serious drawback of the Indian planning. Faulty implementation in many cases arises due to the fact that various projects to be undertaken during the Plans have not been worked out in detail. Plans are not properly implemented also because of lack of adequate and efficient implementation machinery.

**(iv) Lack of Coordination :**

Limited success of planning has also resulted from lack of coordination among various components and units of the economy. For example, many a time, there is a lack of proper coordination among central and state governments. Moreover, there is lack of coordination between the public sector and the private sector. India have not been able to develop an efficient machinery and mechanism to influence production and distribution decisions within the private sector.

**(v) Inadequate Infrastructure :**

There is inadequacy of infrastructure. The economy has experienced serious shortage of power, coal, transport, etc. These shortages sometimes assumed serious proportions. They have adversely affected the working and performance of different sectors of the economy.

**(vi) Bureaucratic Approach :**

Plan implementation has been affected by bureaucratic approach. Because of various procedural and bureaucratic bottlenecks, decision-making is slow in India. Delay in decision-making and follow-up action leads to delay in starting and completion of various projects. This results in cost escalations, i.e., the actual cost of completion of projects turns out to be higher than the estimated cost.



## SELF ASSESSMENT PAPER

### UNIT-5 : Structural Changes in the Indian Economy

Time : 1 hr

Maximum Marks : 30

#### PART I



#### 2 Marks Questions

- Ans. 1.** Delicensing means abolishing the requirement of licensing for most of the industries as the regulatory system of licensing and controls became a hurdle in the industrial growth. Industrial licensing led to unnecessary government interference, delays in investment decisions, bureaucratic red tapism. These regulatory measures also created an inefficient, high cost and weak industrial sector.
- Ans. 2.** The government entered into MOU with the public sector enterprises with the objective of improving their performance by granting them autonomy and to bring a balance between autonomy and accountability. The purpose is to ensure a level playing field for the public sector in comparison with the private sector.
- Ans. 3.** Under the pressure from the IMF and the World Bank, the Indian policy makers were almost pressurised to make several changes in the policy before they could obtain fresh credit from the IMF and The World Bank. For availing the loan, these International Agencies expected India to liberalise and open up the economy by removing restrictions on the Private sector, reducing the role of the government in many areas, removing trade restrictions.

#### PART II



#### 3 Marks Questions

- Ans. 4. The two major steps taken by the Government are :**  
**Regulated Markets :** Regulated markets may be established with a view to eliminate unhealthy and unethical trade practices and reducing various marketing charges with a view to benefitting the poor cultivator.  
**Expansion of market yards :** This is a vital necessity. This must be supported by a corresponding expansion of ancillary facilities in the various existing markets and setting up new markets. Government also enhances the infrastructural facilities like building of roads, warehouses, cold storage etc.
- Ans. 5 Long term trade policy :** There are different policy strategies promoting globalisation of the Indian economy. One of these is long term trade policy. In conformity with economic reforms, foreign trade policy is enforced for a longer duration which indicates it as a liberal policy. According to this policy, all restrictions and controls on foreign trade have been removed and open competition is encouraged except for some specific goods
- Ans. 6. The points stating the need for the New Economic Policy adopted in 1991 are as follows :**  
 (i) **Weakness of the Pre-1991 Policies :**  
 Low rate of economic growth, rising unemployment, poor performance of the public sector industries, etc. were the factors which led to economic reforms.  
 (ii) **Major foreign exchange crisis :**  
 In the year 1991, Indian economy faced an acute shortage of foreign exchange.  
 (iii) **Fall of USSR (Union of Soviet Socialist Republics) :**  
 The USSR and the East European countries had become the major markets for Indian consumer goods. India had to recognise its own policies to preserve its share in the world market.
- Ans. 7. Disinvestment is the sale of a part of equity holdings held by the government in any public sector undertaking to a private investor or individual. Two points of the failure of disinvestment policy in India are as follows:**  
 (i) Funds realised through disinvestment was used by the government largely to finance the budgetary deficit. The proceeds have not been used to reduce debt burden and other productive purposes.  
 (ii) The disinvestment exercise has lacked maturity and transparency.  
 (iii) It has led to strengthening of private monopolies.





## 6 Marks Questions

**Ans. 8. Changes in the Indian economy after liberalization are as follows :**

**(i) Abolition of Licensing :**

NEP 1991, abolished licensing for most industries except 6 industries of strategic significance. They include alcohol, cigarettes, industrial explosives, defence products, drugs and pharmaceuticals, hazardous chemicals and certain others reserved for the public sector. This encouraged setting up of new industries and shift focus to productive activities.

**(ii) Liberalization of Foreign Investment :**

While earlier prior approval was required by foreign companies, now automatic approvals were given for Foreign Direct Investment (FDI) to flow into the country. A list of high-priority and investment-intensive industries were de-licensed and could invite up to 100% FDI including sectors such as hotel and tourism, infrastructure, software development, etc. Use of foreign brand name or trademark was permitted for sale of goods.

**(iii) Relaxation of Location restrictions :**

There was no requirement for obtaining approval from the Central Government for setting up industries anywhere in the country except those specified under compulsory licensing or in cities with population exceeding million. Polluting industries were required to be located 25 kms away from the city peripheries if the city population was greater than 1 million.

**(iv) Liberalization of Foreign technology imports :**

In projects, where imported capital goods are required, automatic license would be given for foreign technology imports up to 2 million US dollars. No permissions would be required for hiring foreign technicians and foreign testing of indigenously developed technologies.

**(v) Phased Manufacturing Programmes :**

Under PMPs, any enterprise had to progressively substitute imported inputs, components with domestically produced inputs under local content policy. However, NEP 1991 abolished PMP for all industrial enterprises. Foreign Investment Promotion Board (FIPB) was set up to speed up approval for foreign investment proposals.

**(vi) Public sector reforms :**

Greater autonomy was given to the PSUs (Public Sector Units) through the MoUs (Memorandum of Understanding) restricting interference of the government officials and allowing their managements greater freedom in decision-making.

**(vii) MRTTP Act :**

The Industrial Policy 1991 restructured the Monopolies and Restrictive Trade Practices Act. Regulations relating to concentration of economic power, pre-entry restrictions for setting up new enterprises, expansion of existing businesses, mergers and acquisitions etc. have been abolished. **(any six)**

**Ans. 9. Privatisation basically implies the process which leads to transfer of ownership of public sector enterprises from the government to the private sector. The rationale behind privatisation :**

**(i) Ideological grounds :**

Privatisation is favoured on the ground that PSEs should be confined to essential activities, which the private sector cannot or will not perform.

**(ii) Improvement in managerial efficiency :**

Privatisation through disinvestment will establish a direct relationship between the shareholders and the management. The private shareholders would have direct interest in increasing the efficiency of these enterprises. The management would not be subjected to uncalled political pressure and political interference.

**(iii) Creation of competitive environment :**

A competitive environment will be created for public sector enterprises through Privatisation. These enterprises would be under force to increase production efficiency and to have commercial spirit.

**(iv) Profit oriented decisions :**

Privatisation policy will help in infusing the commercial spirit in the functioning of the public sector enterprises which will lead to an improvement in the efficiency and performance of these enterprises.

**(v) Reduction in burden on public exchequer :**

Operation of the public sector enterprises has been putting a large burden on public exchequer because of huge operating losses incurred by a number of PSUs and mounting burden of subsidy. Privatisation would be helpful in reducing this financial burden on the government.



## SELF ASSESSMENT PAPER

### UNIT-6 : Current Challenges Facing Indian Economy

Time : 1 hr

Maximum Marks : 30

#### PART I



#### 2 Marks Questions

- Ans. 1.** The poverty line has been defined largely in terms of food poverty. The poverty line indicates the income level which is just sufficient to buy the basic minimum quantity of food and a few select non-food items.
- Ans. 2.** (i) Pradhan Mantri Suraksha Bima Yojana.  
(ii) Pradhan Mantri Atal Pension Yojana.  
(iii) Pradhan Mantri Kaushal Vikas Yojana.  
(iv) National Heritage City Development and Augmentation Yojana (HRIDAY).
- Ans. 3.** Organic Farming is the form of agriculture that relies on techniques such as crop rotation, green manures, compost and biological pest control.

#### PART II



#### 3 Marks Questions

- Ans. 4.** The main effects of Green Revolution on Indian agriculture are as follows :
- (i) A major achievement of the Green Revolution is that India has become self sufficient in the production of food grains.
  - (ii) The new technology also brought about a sharp rise in the yield of land with respect to food grains. For example, the yield per acre of wheat increased by 3.6 times between 1960 - 61 and 2013-14.
  - (iii) A significant increase in food grains production and productivity as a result of Green Revolution demonstrates that, Indian agriculture is on the move. Agricultural sector is no longer a stagnant sector. This has made agriculture sector a partner in economic development. As a result, income has increased and economic conditions of the farmers have improved.
- Ans. 5.** Rural development means improvement in the standard of living of rural people. It is a comprehensive term. Rural development key issues are as under :
- (i) Do they get minimum requirements of life?
  - (ii) What is the status of education? Is it equal to national level?
  - (iii) Is the development of agriculture just like other sectors?
  - (iv) What is the standard of living of the people living in rural areas?
  - (v) How much per capita income of the rural people is different from industrial and service sectors?
  - (vi) How are their credits needs met?
- Ans. 6.** The consequences of unemployment are as follows :
- (i) Wastage of productive resources.
  - (ii) Loss of labour efficiency.
  - (iii) Adverse effect on savings.
  - (iv) Source of exploitation.
  - (v) Increasing income inequality.
  - (vi) Burden on the government.
  - (vii) Change in work attitude.
  - (viii) Adverse effect on individual's personality.
  - (ix) Moral degeneration.

(x) Adverse social and political effects.

**Ans. 7.** The key features of New Education Policy of 2020 are :

- As per the new policy, there will be 12 years of schooling with three years of Anganwadi/ pre-schooling.
- The new policy emphasises on Foundational Literacy and Numeracy. There will be no rigid separation between academic streams, extracurricular, vocational streams in schools. From class 6, Vocational Education will start with internships.
- As per the New Education Policy teaching up to at least Grade 5 will be in mother tongue or regional language. No language will be imposed on any student.
- NEP 2020 will also emphasise in setting up of the Gender Inclusion Fund, Special Education Zones for disadvantaged regions, and groups.
- To increase the public investment in the education sector to reach 6% of GDP at the earliest and for this, both the Centre and the States will work together.
- In both schools and higher education, NEP will promote Multilingualism. Therefore, the National Institute for Pali, Persian, and Prakrit, Indian Institute of Translation and Interpretation to be set up.



## 6 Marks Questions

**Ans. 8.** Various advantages are as follows :

- (i) Easy availability of cheap labour :  
As the wage rates in India are comparatively lower than that of in the developed countries, MNCs find it economically feasible to outsource their business in India.
- (ii) Reasonable degree of skills :  
Indians have fairly reasonable degree of skills and techniques that need low training period and thus, low cost of training.
- (iii) Virgin market :  
Indian has a virgin market for produced goods and services. This not only helps the MNCs to explore the wide domestic market of India but also conquer the international market as the cost of production in India is relatively cheaper.
- (iv) Lack of competition :  
The most important factor for the MNCs in India is that they don't face stiff competition from the Indian domestic industries. This almost enables them to enjoy a monopoly status in the Indian market.
- (v) Cheap and abundant availability of raw materials :  
India is well enriched in natural resources. This ensures the MNCs cheap availability of raw material and undisturbed and perennial supply of raw materials. This enables proper and smooth operation of MNCs.
- (vi) Reasonable degree of infrastructural investment :  
Indian government has invested heavily in the past two decades in the infrastructural sector. Various steps have been taken for connecting remote and rural areas to the metropolitan and other major cities. This has not only reduced the cost of production of the MNCs but also helped them operate efficiently and effectively.

**Ans. 9.** The Govt.'s approach to Poverty Alleviation has three dimensions :

- (i) **Growth-oriented approach :**  
This approach was initiated from the first five year plan. It is based on the expectation that effects of economic growth would spread to all the sections of the society and will trickle down to the poor sections also. It was realised that rapid industrialization and growth of agriculture sector through green revolution in select areas, would benefit the underdeveloped regions and more backward sections of the society.
- (ii) **Poverty Alleviation Programmes :**  
This approach has been initiated from the third five years plan and progressively extended since then. The govt. had introduced a variety of PAPs for reducing, eradication of Poverty.
- (iii) **Minimum Needs Programme :**  
This third approach has been initiated from the fifth five year plan to provide minimum basic amenities to the people such as providing food and essential commodities to poor, creating employment opportunities and to bring improvement in health and education. Three major programmes that aim at improving the food and nutritional status of poor are: Public distribution system, Integrated Child Development Services (ICDS) and Mid Day Meal Scheme.

## SELF ASSESSMENT PAPER

### UNIT-7 : Sustainable Development

Time : 1 hr

Maximum Marks : 30

#### PART I

#### **2 Marks Questions**

- Ans. 1.** Global warming is the observed and projected increase in the average temperature of Earth's surface and oceans. It is adversely affecting the life on earth. Glaciers are melting worldwide leading to steep rise in sea-level and coastal flooding, making hurricanes and another tropical storm more stronger. Also, global warming has increased the incidence of tropical diseases, putting thousands of species in danger of becoming extinct shifting climate zones, changes in agricultural and natural vegetation, flooding of coastal areas etc. has become glaring issues globally.
- Ans. 2.** Today the rate of regeneration of the natural resources is relatively much lower than the rate of their extraction. In other words, the rate of consumption (demand) of the natural resources exceeds that of their supply. This is beyond the absorptive capacity of the environment and has made environmental crisis more probable. This reversal in the demand and supply relationship is referred to as the supply-demand reversal of the environmental resources.
- Ans. 3.** Effect of economic development on resources and environment :
- (i) Depletion of natural resources.
  - (ii) Water pollution.
  - (iii) Air pollution.
  - (iv) Solid and hazardous wastes.
  - (v) Soil erosion.
  - (vi) Global warming.
  - (vii) Loss of biodiversity
  - (viii) Deforestation

#### PART II

#### **3 Marks Questions**

- Ans. 4.** Benefits of Organic farming are as follows :
- (i) **Inexpensive Process :**  
Organic agriculture offers a means to substitute costlier agricultural inputs (such as HYV seeds, chemical fertilizers, pesticides, etc.) with locally produced organic inputs that are cheaper and thereby generate more return on investment.
  - (ii) **Generates Income :**  
It generates income through international exports as the demand for organically grown crops is on a rise.
  - (iii) **Healthier and Tastier Food :**  
Organically grown food has more nutritional value than that of food grown with chemical farming. It, thus, provides us with healthy foods.
- Ans. 5** The necessary conditions for achieving sustainable development are :
- (i) Sustainable development requires that the renewable resources are used in a manner which does not degrade or diminish their usefulness for future generations.
  - (ii) Renewable resources should be extracted at a rate which does not exceed its rate of generation.
  - (iii) There should not be wasteful and ruthless exploitation of the non-renewable resources.
  - (iv) Sustainable development should discard those activities which leads to pollution of the environment.

**Ans. 6.** Four factors contributing to Land Degradation in India :

**(i) Soil erosion :**

The removal of upper layer of the soil caused by agents like strong winds or floods is termed as soil erosion.

**(ii) Deforestation :**

The growing population along with their ever growing demand leads to large scale destruction of forests ever. The reduction of forest coverage leads to soil erosion that in turn causes climate change.

**(iii) Shifting cultivation :**

The practice of shifting cultivation and subsistence farming carried by the small and the marginal farmers result in the replenishment of soil nutrients and hence its fertility.

**(iv) Excessive use of fertilizers :**

The excessive use of chemical fertilizers, insecticides and pesticides lowers than quality and fertility of soil.

**Ans. 7.** Modern technology has created a large demand for resources so as to increase production. More production and easy access to products leads to increase in demand for various products by the consumers. Goods, in fact, have been produced in great surplus scale production and excess production leads to large-scale wastage of resources. This results in depletion of resources.



## 6 Marks Questions

**Ans. 8** Economic development may lead to a rapid destruction of rain forests, the over-exploitation of fish stocks and loss of natural habitat created through the construction of new roads, hotels, retail malls and industrial estates.

**Some of the main environmental threats include :**

**(i) Depletion of Natural Resources :**

The depletion of the global resource base and the impact of global warming. There are plenty of examples of the "tragedy of the commons"; the permanent loss of what should be renewable resources from over-extraction of some of our environmental resources.

**(ii) Waste and Pollution :**

A huge expansion of waste and pollution arising from both production and consumption.

**(iii) Over-population :**

Over-population (particularly in urban areas) putting increased pressure on scarce land and other resources. More than half of the world's population lives in cities in 2009, most of them in developing countries according to the United Nations Population Fund.

**(iv) Species extinction leading to a loss of biodiversity :**

Scientists predict that at least a third and as much as two-thirds of the world's species could be on their way to extinction by the end of this century, mostly because people are destroying tropical forests and other habitats, overfishing the oceans and changing the global climate.

**Ans. 9.** Following are the contributing factors to the environment crisis in India :

**(i) Rising population :**

Rising population creates the demand for resources for both production and consumption which puts pressure on the environment. Rising population has resulted in the problems of food, housing and transport facilities.

**(ii) Air pollution :**

Air pollution lowers the quality of air. Air pollution causes a serious damage to public health. Air pollution has increased the burden of heavy expenditure on public health.

**(iii) Water contamination :**

Water becomes contaminated primary from dumping of chemicals and industrial wastes into river, streams, lakes, etc. The consequences of water contamination is spread of water borne diseases and damage to human life as well as animal life. water contamination has increased the burden of heavy expenditure on drinking water, public health and protection of animal life.

**(iv) Affluent consumption standard :**

Affluent consumption standards have created demand for resources and put pressure on the environment. These have resulted in the increase in government expenditure on the protection of environment.

**(v) Illiteracy :**

Illiteracy has added a lot of environmental problems in India. It has created problems in the promotion of Science and Technology and scientific outlook. Illiterate people are not receptive to modern ideas. As a

result, people do not take much interest in the environmental issues. The government has to incur a heavy expenditure on the awareness of environmental issues.

**(vi) Industrialisation :**

Industrialisation has made it impossible to meet the growing needs of the society. There is a heavy demand for resources for production. Industrialisation has created the problems of air pollution, water pollution and noise pollution. The Government of India is spending a good sum of money to control these issues.

**(vii) Urbanisation :**

Urbanisation has created the problems of misuse and overuse of resources. There is a threat of pollution due to deforestation and pressure on land. The government has to create social infrastructure in the urban areas.





# SELF ASSESSMENT PAPER

## UNIT-8 : Introduction to Statistics

Time : 1 hr

Maximum Marks : 30

### PART I



### 2 Marks Questions

**Ans. 1. Example of data which is not Statistics :** If expenditure on electricity is ₹ 3000. But if it is stated that expenditure on electricity for the previous month was ₹ 4000 and of this month is ₹3000 respectively are statistics because this data /Statistic are placed in relation to each other and is required for comparison.

**Ans. 2.** Primary data is the information collected for the first time by a researcher himself for a particular purpose. It is a unique, first-hand and qualitative information not published before. Secondary data, on the other hand, is the information already collected by others or somebody else and later used by a researcher to answer their questions in hand. Hence, it is also called second-hand data.

**Ans. 3. Exclusive Method-** In this method, the classes are formed in such a way that the upper class limit of one class becomes the lower class limit of the next class. Continuity of the data is maintained in this method. Under this method, the upper class limit is excluded but the lower class limit of a class is included in the interval.

e.g., if the class intervals are 0-5, 5-10, 15, 20 and so on, a value of 10 would be included in the 10-15 and not in the interval 5-10.

**Inclusive Method** The inclusive method does not exclude the upper class limit in a class interval. It includes the upper class in a class. Thus, both class limits are parts of the class interval, e.g., the class intervals of 0-5, 6-10, 11-15, and so on are inclusive.

### PART II



### 3 Marks Questions

**Ans. 4.** A single numerical fact cannot be called statistics, even though the fact is numerically expressed and affected by multiplicity of causes, etc. No conclusion can be drawn from a single numerical fact. If this numerical fact is not placed in relation to any other numerical fact, it is not statistics. Statistics should be aggregates of facts and not one fact only as these fact can be compared and conclusions can be drawn from them. For example, if we say that there are 1500 students in our school, then it has no statistical significance. But if it is stated that there are 200 students in class XII, 300 students in class XI and so on, it makes statistical sense.

**Ans. 5 (i) Census 'Method :**

Census method is that method in which data are collected covering every item of the universe or population relating to the problem under investigation. Merits and demerits of this method are given follows :

(a) Merits

- Reliable and accurate
- Less biased
- Extensive information
- Study of diverse characteristic
- Study of complex investigation
- Indirect investigation

**(b) Demerits**

- Costly
- Large manpower
- Not suitable for large investigation

**(ii) Sample Method :**

It is that method in which data is collected about the sample on a group of items taken from the populations for examination and conclusions are drawn on their basis. Merits and demerits of this method are given below

**(a) Merits**

- Economical
- Time saving
- Identification of error
- Large investigation
- Administrative convenience
- More scientific

**(b) Demerits**

- Partial
- Wrong conclusions
- Difficulty in selecting representative sample
- Difficulty in framing a sample

- Ans. 6.** (1) The monthly rainfall in a year can be best represented by a bar diagram as only one variable i.e., monthly rainfall is to be presented diagrammatically. The rainfall is plotted on Y-axis in the corresponding month that is plotted on the X-axis.
- (2) Composition of the population of Rajasthan by religion can be represented by a component bar diagram. A component bar diagram shows the bar and its sub-divisions into two or more components. Thus, the total population can be sub divided in terms of religion and presented through a component bar diagram.
- (3) Different components of cost in a factory can most effectively be depicted through a pie chart. The circle represents the total cost and various components of costs are shown by different portions of the circle drawn according to percentage of total cost each component covers.

**Ans. 7.** The different types of Classification of data :

- (1) **Qualitative Classification** : When classification is done according to attributes such as social status, nationality, etc. It is called qualitative classification.
- (2) **Quantitative Classification** : In this, the data are classified on the basis of characteristics which are quantitative in nature. e.g., age, height, income, etc.
- (3) **Temporal or chronological classification** : In this, time becomes the classifying variable and data are categorised according to time. Time may be in hours, weeks, years, etc.
- (4) **Spatial or geographical classification** : When classification is done on the basis of place, it is called spatial classification. The place may be village, town, state, country, etc.



## 6 Marks Questions

**Ans. 8** Some of the limitations of statistics are explained below :

**(i) It doesn't study the qualitative aspect of a problem :**

Statistical methods deal with those objects which can be measured in quantitative terms. Qualitative phenomenon, e.g. honesty, beauty, integrity, intelligence etc. cannot be studied in Statistics unless these attributes are expressed in quantitative or numerical terms.

**(ii) Does not study individual observations :**

Statistics is the study of mass data and deals with the aggregate of facts which are ultimately reduced to a single value for Statistical analysis. It does not give any specific importance to any individual value. For example : the income of a family is ₹ 20,000, does not convey statistical meaning while the average income of ₹ 100 families say ₹ 2,000, is a Statistical statement.

**(iii) Statistical generalisations are true only on average :**

Statistical generalisations arrived from Statistical data are not exactly accurate; they are true only on average because the results are affected by a large number of causes. The ultimate results obtained by Statistical

analysis are true under certain circumstances only. For example, if we say that industrial production has been increasing at the rate of 5% per year for last five years, it doesn't mean that production has been increasing at this rate every year.

**(iv) Statistics can be misused :**

Expertise is essential for proper use of statistics and statistical methods, otherwise is a vast scope for misuse of statistics or for drawing misleading conclusions from them. The results can be manipulated according to one's own interest and such manipulation can mislead the community. In the words of Yule and Kendall "Statistical tools are most dangerous tools in the hands of an inexpert."

**(v) Statistics simply is one of the methods of studying a phenomenon :**

Statistical calculations are simple expressions which should be supplemented by other methods for complete understanding of the results. Thus, we can say that Statistics is only a means and not the end.

**(vi) Statistical results lack mathematical accuracy :**

The results drawn from Statistical analysis are normally in approximates. As the Statistical analysis is based on observations of mass data, number of inaccuracies may be present and it is difficult to rectify them. Statistical studies are a failure in the areas where hundred percent accuracy is desired.

**Ans. 9. The scope of statistics is explained below :**

- (1) Statistics and planning :** Statistics is indispensable into planning in the modern age which is term as " the age of planning". Almost all over the world the govt are re-storing to planning for economic development.
- (2) Statistics and economics :** Statistical data and technique of statistical analysis have to immensely useful involving economical problem. Such as wages price, time series analysis, termed analysis.
- (3) Statistics and business :** Statistics is an irresponsible tool of production control. Business executive are relying more and more on statistical technique for studying the much and desire of valued customers.
- (4) Statistics and industry :** In industry is widely used inequality control. In production engineering to find out whether the product is confirming to the specification or not. Statistical tools, such as inspection plan, control chart etc.
- (5) Statistics and Mathematics :** Statistics are intimately related recent advancement in statistical technique are the outcome of wide application of Mathematics.
- (6) Statistics and Modern science :** In medical science the statistical tools for collection and incidence of diseases and result of application various drugs and Medicines are of great importance.



# SELF ASSESSMENT PAPER

## UNIT-9 : Measures of Central Tendency

Time : 1 hr

Maximum Marks : 30

### PART I

#### 2 Marks Questions

**Ans. 1.** Characteristics of a good average/measures of central tendency.

It should be easy to understand.

Simple to compute be rigidly (well) defined based on all the observations not be unduly affected by the extreme values. and should be capable of further algebraic treatment.

**Ans. 2.** Mode = 3 Median – 2 Mean

$$25 = 3 \text{ median} - 2 \times 30$$

$$= 25 + 60 = 3 \text{ median}$$

$$= \frac{85}{3} = 28.33$$

Median = 28.33.

**Ans. 3.** Change in origin is a condition in which all values of a series are increased or decreased by constant value. For example, five values are given as 2, 3, 4, 5, 6. Now each value is increased by 2, so this represents change in origin. Change in scale is a condition when all values of a series are multiplied or divided by a constant value. For example, five values are given as 2, 3, 4, 5, 6. Now each value is multiplied by 2, so this represents change in scale.

### PART II

#### 3 Marks Questions

**Ans. 4.**

Marks	frequency. f	Cumulative frequency. cf
10	18	18
5	20	38
7	15	53
9	17	70
8	10	80
	$\Sigma f = 80$	

$$\text{median} = \text{size of } \frac{(N+1)^{\text{th}}}{2} \text{ item}$$

$$\text{size of } \frac{(80+1)^{\text{th}}}{2} \text{ item}$$

= Size of 40.5<sup>th</sup> item = 40.5 item lies in 53 c.f. Thus, median marks is 7

**Ans. 5** Here,  $n_1 = 10$ ;  $n_2 = 12$ ;  $\bar{X} = 100$ ,  $\bar{X} = 90$

$$\text{Combined Mean} = \frac{(Xn_1 + Xn_2)}{n_1 + n_2}$$

$$\begin{aligned}
 &= \frac{10 \times 100 + 12 \times 90}{10 + 12} \\
 &= \frac{1000 + 1080}{22} = \frac{2080}{22} \\
 &= 94.54 \text{ kg.}
 \end{aligned}$$

Hence, Combined Mean = 94.54 kg

**Ans. 6.** Mean  $\bar{X}$  = Sum of all observations / Number of observations.

$$\bar{X} = \frac{1 + 2 + 5 + 6 + 10 + x}{6}$$

$$6 = \frac{25 + x}{6}$$

$$36 = 25 + x$$

$$= x = 36 - 25 = 11 \text{ Value of } x = 11$$

**Ans. 7.** Two merits of Median are :

- (i) Median is defined rigidly i.e. it has definite and certain value.
- (ii) As it is positional average, it is not influenced by the values of extreme items.

Two demerits of median are :

- (i) Median is not based on all the items.
- (ii) The value of median is affected by the fluctuations of the sampling.

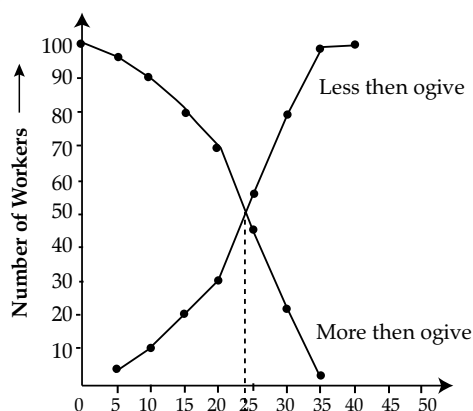


## 6 Marks Questions

**Ans. 8**

Wages	Number of Workers	Wages	Number of Workers
Less than 5	4	More than 0	100
Less than 10	10	More than 5	96
Less than 15	20	More than 10	90
Less than 20	30	More than 15	80
Less than 25	55	More than 20	70
Less than 30	79	More than 25	45
Less than 35	99	More than 30	21
Less than 40	100	More than 35	2

$$Mc = 24$$





**Ans. 9.** For the calculation of mode, inclusive series are first to be converted into exclusive series, as under.

Class Interval	Excusive class Interval	Frequency
6-10	5.5-10.5	20
11-15	10.5-15.5	30
16-20	15.5-20.5	50
21-25	20.5-25.5	40
26-30	25.5-30.5	10

If we look at the above table, we find that 15.5-20.5 is the modal class interval  
the actual value of mode is,

$$Z = L_1 + \frac{f_1 - f_0 \times i}{2f_1 - f_0 - f_2}$$

$$L_1 = 15.5, f_1 = 50, f_0 = 30, f_2 = 40, i = 5$$

$$Z = 15.5 + \frac{50 - 30 \times 5}{2(50) - 30 - 40}$$

$$Z = 15.5 + 3.33$$

$$Z = 18.83$$

# SELF ASSESSMENT PAPER

## UNIT-10 : Measures of Dispersion

Time : 1 hr

Maximum Marks : 30

### PART I

### 2 Marks Questions

- Ans. 1.** Dispersion is the measure of the extent to which different items tend to dispose away from the central tendency. The coefficient of dispersion is relative measure of dispersion that expresses the variability of data in terms of some relative value or percentage.
- Ans. 2.** The highest and the lowest values are given in the frequency table. Highest/largest value = 16, Lowest/smallest value = 8, Range =  $16 - 8 = 8$
- $$\text{Range coefficient} = \frac{L - S}{L + S} = \frac{16 - 8}{16 + 8}$$
- $$= 8 \div 24 = \frac{1}{3}$$
- Ans. 3.** Quartiles are those values which divide the Statistical series into four equal parts when the data are arranged in order of their magnitude, the end value of each part is Quartile. There are three Quartiles, first, second and third Quartile respectively.

### PART II

### 3 Marks Questions

- Ans. 4.** In this Question 25 % out of 100% workers implies Quartile1 and 75% of workers means Quartile 3. Absolute Value of Dispersion : Quartile Deviation =  $\frac{Q_3 - Q_1}{2}$
- $$= \frac{45,000 - 25,000}{2} = \frac{20,000}{2} = ₹ 10000$$
- Relative Measure of Dispersion : Coefficient of Quartile Deviation**
- $$= \frac{Q_3 - Q_1}{Q_3 + Q_1} = \frac{45,000 - 25,000}{45,000 + 25,000} = \frac{20,000}{70,000} = 0.285$$
- Ans. 5** Coefficient of Mean Deviation = M.D from mean  $\div$  mean =  $\frac{6.45}{2.63} = 0.245$
- Ans. 6.** Some measures of dispersion depend upon the spread of values, whereas some calculate the variation of values from the central value. Range and Quartile Deviation measure the dispersion by calculating the spread within which the value lie. Mean Deviation and Standard Deviation calculate the extent to which the values differ from the average or the central value.
- Ans. 7.** Standard deviation is considered to be the best measure of dispersion and is therefore, the most widely used measure of dispersion.
- It is based on all values and thus, provides information about the complete series. Because of this reason, a change in even one value affects the value of standard deviation.
  - It is independent of origin but not of scale.
  - It is useful in advance statistical calculations like comparison of variability in two data sets.
  - It can be used in testing of hypothesis.
  - It is capable of further algebraic treatment.



## 6 Marks Questions

**Ans. 8** We shall first convert the given cumulative frequency distribution into an ordinary frequency.

Marks	f	c.f.
0-10	4	4
10-20	12	16
20-30	24	40
30-40	36	76
40-50	20	96
50-60	16	112
60-70	8	120
70-80	5	125
	N = 125	

Computation of  $Q_1$  :

$$\frac{N}{4} = \frac{125}{4} = 31.25$$

The c.f just greater the or equal to 31.25 is 40.

Therefore,  $Q_1$  lies in the class 20-30

$$Q_1 = 1 + \frac{\frac{N}{4} - C}{f} \times h$$

$$= 20 + \frac{31.25 - 16}{24} \times 10$$

$$= 20 + 6.35$$

$$Q_1 = 26.35$$

Computation of  $Q_3$  :

$$\frac{3N}{4} = 93.75$$

The c.f just greater the or equal to 93.75 is 96.

Therefore,  $Q_3$  lies in the class 40-50

$$Q_3 = 1 + \frac{\frac{3N}{4} - C}{f} \times h$$

$$= 40 + \frac{93.75 - 76}{20} \times 10$$

$$= 40 + 8.88$$

$$Q_3 = 48.88$$

$$\text{Coefficient of Quartile Deviation} = \frac{Q_3 - Q_1}{Q_3 + Q_1}$$

$$= \frac{48.88 - 26.35}{48.88 + 26.35}$$

$$= \frac{22.53}{75.23}$$

$$= 0.299 \text{ or } 0.30 \text{ approx.}$$

**Ans. 9.** Since, cumulative frequencies are given, we first convert them into simple frequencies.

Marks	Number of Students (f)	m	d = m - a A = 50	d' = $\frac{d}{i}$ i = 20	fd'	d' <sup>2</sup>	fd' <sup>2</sup>
0-20	8	10	- 40	- 2	- 16	4	32
20-40	12	30	- 20	- 1	- 12	1	12
40-60	30	50	0	0	0	0	0
60-80	20	70	+ 20	+ 1	+ 20	1	20
80-100	10	90	+ 40	+ 2	+ 20	4	40
					$\Sigma fd' = 12$		$\Sigma fd'^2 = 104$

$$\bar{X} = A + \frac{\Sigma fd'}{\Sigma f} \times c = 50 + \frac{12}{80} \times 20 = 53$$

$$\sigma = \sqrt{\frac{\Sigma fd'^2}{N} - \left(\frac{\Sigma fd'}{N}\right)^2} \times c = \sqrt{\frac{104}{80} - \left(\frac{12}{80}\right)^2} \times 20$$

$$= \sqrt{1.3 - 0.0225} \times 20 = \sqrt{1.2775} \times 20 = 1.130 \times 20$$

$$\sigma = 22.605$$

$$\text{Coefficient of Variation (CV)} = \frac{\sigma}{\bar{X}} \times 100 = \frac{22.605}{53} \times 100 = 42.65$$

# SELF ASSESSMENT PAPER

## UNIT-11 : Correlation

Time : 1 hr

Maximum Marks : 30

### PART I

### 2 Marks Questions

- Ans. 1.** Karl Pearson's coefficient of correlation ( $r$ ) is obtained by dividing the sum of the products of the corresponding deviations of the various items of two series from their respective means by the product of their standard deviations and the number of the pairs of observations.
- Ans. 2.** Methods of measuring correlation :
- (i) **Geometric method :**  
It helps in having a visual idea about the nature of association between two variables. Eg -scatter diagram
- (ii) **Algebraic method :**  
Karl Pearson's coefficient of correlation and Spearman's Rank coefficient of correlation
- Ans. 3.** When more than two variables are studied together to know the relationship between them it is called multiple correlation. For example, we may study and analyse simultaneously the relationship between yield of wheat per acre, the amount of rainfall, and the amount of fertilizer used.

### PART II

### 3 Marks Questions

- Ans. 4.** The value of  $r$  (correlation) being 1 implies that there is a perfect positive correlation between the two variables involved. A high value of  $r$  (i.e. close to 1) represents a strong positive linear relationship between the two variables.  
If  $r = -1$ , then the correlation is perfectly negative. A negative value of  $r$  indicates an inverse relation. A low value of  $r$  (i.e. close to  $-1$ ) represents a strong negative linear relationship between the variables. On the other hand, if the value of  $r = 0$ , then it implies that the two variables are uncorrelated to each other. But this should not be misunderstood as the variables are independent of each other. The value of  $r$  equals zero confirms only the non-existence of any linear relation but the variables may be non-linearly related to each other.
- Ans. 5** Given  $\sum xy = 4880$ ,  $\sigma x = 28.70$ ,  $\sigma y = 18.02$ ,  $N = 10$
- $$r = \frac{\sum xy}{N\sigma x \sigma y} = \frac{4880}{10 \times 28.70 \times 18.02}$$
- $$= \frac{4880}{5171.74} = 0.94$$
- Ans. 6.** Given  $N = 8$ , Mean of  $X = 68$ , Mean of  $Y = 69$
- $$\sum x^2 = 36, \sum y^2 = 44, \sum xy = 24$$
- $$r = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}} = \frac{24}{\sqrt{36 \times 44}} = \frac{24}{39.8}$$
- $$r = 0.603$$
- Ans. 7.** Generally, all the properties of Karl Pearson's coefficient of correlation are similar to that of the rank correlation coefficient. However, rank correlation coefficient is generally lower or equal to Karl Pearson's coefficient. Rank correlation coefficient is generally preferred to measure the correlation between the two qualitative variables. These variable attributes are given the ranks on the basis of preferences. The difference between the two coefficients is due to the fact that the rank correlation coefficient uses ranks instead of the full set of



observations that leads to some loss of information. Secondly, if extreme values are present in the data, then the rank correlation coefficient is more precise and reliable and consequently its value differs from that of the Karl Pearson's coefficient.



## 6 Marks Questions

Ans. 8

X-Series		Y-Series		XY
X	X <sup>2</sup>	Y	Y <sup>2</sup>	
10	100	8	64	80
14	196	12	144	168
18	324	20	400	360
24	576	26	676	624
30	900	28	784	840
36	1296	32	1024	1152
132	3392	126	3092	3224

$$\begin{aligned}
 r &= \frac{\sum XY - \frac{(\sum X)(\sum Y)}{N}}{\sqrt{\sum X^2 - \frac{(\sum X)^2}{N}} \sqrt{\sum Y^2 - \frac{(\sum Y)^2}{N}}} \\
 &= \frac{3224 - \frac{124 \times 126}{6}}{\sqrt{3392 - \frac{(142)^2}{6}} \sqrt{3092 - \frac{(126)^2}{6}}} \\
 &= \frac{3224 - \frac{17892}{6}}{\sqrt{3392 - \frac{20164}{6}} \sqrt{3092 - \frac{15876}{6}}} \\
 &= \frac{3224 - 2982}{\sqrt{3392 - 3360.67} \sqrt{3092 - 2646}} \\
 &= \frac{242}{\sqrt{31.33} \sqrt{446}} \\
 &= \frac{242}{5.60 \times 21.19} \\
 &= \frac{66.67}{118.66} \\
 &= 0.56
 \end{aligned}$$

The correlation coefficient between X and Y is 0.56. Therefore, there is moderate relationship between the two variables X and Y.

Ans. 9. Coefficient of correlation by Spearmen's rank correlation method :

X	R <sub>1</sub>	Y	R <sub>2</sub>	D = R <sub>1</sub> - R <sub>2</sub>	D <sup>2</sup>
25	6	55	2	+ 4	16
45	1	60	1	0	0
35	4.5	30	8	- 3.5	12.25
40	2	35	7	- 5	25
15	8	40	5	+ 3	9

19	7	42	4	+ 3	9
35	4.5	36	6	- 1.5	2.5
42	3	48	3	0	0
					$\Sigma D^2 = 73.5$

Here,  $N = 8$ ,  $\Sigma D^2 = 73.5$

$$rk = 1 - \frac{6 \left[ \Sigma D^2 + \frac{1}{12} (m^3 - m) \right]}{N^3 - N}$$

$$= 1 - \frac{6 \left[ 73.5 + \frac{1}{12} (2^3 - 2) \right]}{8^3 - 8}$$

$$= 1 - \frac{6[73.5 + 0.5]}{512 - 8}$$

$$= 1 - \frac{6[74]}{504}$$

$$= 1 - \frac{6 \times 74}{504}$$

$$= 1 - \frac{444}{504}$$

$$= 1 - 0.8809$$

$$= \mathbf{0.1191}$$

## SELF ASSESSMENT PAPER

### UNIT-12 : Index Numbers and Mathematical Tools in Economics

Time : 1 hr

Maximum Marks : 30

#### PART I

#### 2 Marks Questions

- Ans. 1.** The Office of Economic Adviser Ministry of Commerce and Industry publishes WPI in India. The latest WPI in India has a basket of 676 commodities.
- Ans. 2.** The slope or gradient of a line is a number that describes both the direction and the steepness of the line. The intercept of a line is the y-value of the point where it crosses the y-axis.
- Ans. 3.** Wholesale Price Index (WPI) measures relative changes in the price of a representative's basket of goods and services traded in the wholesale market between the current year and the base year.

#### PART II

#### 3 Marks Questions

- Ans. 4.** Consumer price index for industrial workers measures the average change in retail prices of a basket of commodities which an industrial worker generally consumes. Consumer price index for industrial workers is increasingly being considered the appropriate indicator of general inflation, which shows the most accurate impact of price rise on the cost of living of common people.

The items included in CPI (Consumer Price Index) for industrial workers are food, pan, supari, tobacco, fuel and lighting, housing, clothing, and miscellaneous expenses with food being accorded the highest weight. This implies that the food price changes have a significant impact on the CPI.

**Ans. 5**

Items	2004 Price ( $P_0$ )	2014 Price ( $P_1$ )
A	15	30
B	33	35
C	38	57
D	25	35
E	50	63
	$\Sigma P_0 = 161$	$\Sigma P_1 = 220$

$$P_{01} = \left( \frac{\Sigma P_1}{\Sigma P_0} \right) \times 100$$

$$\text{or, } P_{01} = \frac{220}{161} \times 100$$

$$\Rightarrow P_{01} = 136.64$$

- Ans. 6.** Base period should have the following properties

- The base year should be a normal period and periods in which extraordinary events have occurred should not be taken as base periods as they are not appropriate for general comparisons.
- Extreme values should not be selected as base period.
- The period should not be too far in the past as comparison with current period cannot be done with such base year as policies, economic and social conditions change with time.
- Base period should be updated periodically.

**Ans. 7.** Slope is defined as the amount of change in the variable measured on vertical axis or Y-axis with respect to change in the variable measured on the horizontal or X-axis. Slope of a straight line :

Vertical change Horizontal change =

(i)  $(\Delta Y / \Delta X)$  Slope of a vertical line :

It is undefined as it has a math processing error or “run” of zero and the value of denominator of the fraction is undefined. In other words, whenever the value of denominator of the fraction is zero, the function is undefined. The slope of function has no change in horizontal  $\Delta Y$  value i.e.  $\Delta X = 0$ .

(ii) Slope of a horizontal line :

It is zero because it has “rise” of zero. In other words, a horizontal line has no vertical change regardless of change in the horizontal value, i.e.  $\Delta Y = 0$ . Therefore, the slope of line is zero.  $(\Delta Y / \Delta X)$  is zero as  $\Delta Y$  is zero.



## 6 Marks Questions

**Ans. 8**

Items	Weight (W)	Price in 1995 ( $P_0$ )	Price in 2004 ( $P_1$ )	$R = \frac{P_1}{P_0} \times 100$	WR
Food	35	1,400	1,500	$\frac{1,500}{1,400} \times 100 = 107.14$	3,749.90
Fuel	10	200	250	$\frac{250}{200} \times 100 = 125$	1,250
Clothing	20	500	750	$\frac{750}{500} \times 100 = 150$	3,000
Rent	15	200	300	$\frac{300}{200} \times 100 = 150$	2,250
Miscellaneous	20	250	400	$\frac{400}{250} \times 100 = 160$	3,200
	$\Sigma W = 100$				$\Sigma WR = 13,449.9$

$$\begin{aligned} \text{CPI} &= \frac{\Sigma WR}{\Sigma W} \\ &= \frac{13449.9}{100} \\ &= 134.49 \end{aligned}$$

Cost of Living Index = 134.50

Thus, the price rose by 34.50% during 1995 and 2004

**Ans. 9.** For the calculation of mode, inclusive series are first to be converted into exclusive series, as under.

	$P_0$	$q_0$	$P_0 q_0$	$P_1$	$q_1$	$P_1 q_1$	$P_1 q_0$	$P_0 P_1$
A	24	8	192	30	10	300	240	240
B	9	3	27	10	40	40	30	36
C	16	5	80	20	8	160	100	128
D	10	3	30	9	4	36	27	40
			$\Sigma P_0 q_0 = 329$			$\Sigma P_1 q_1 = 539$	$\Sigma P_1 q_0 = 397$	$\Sigma P_0 q_1 = 444$

**Laspeyre's Price index**

$$P_{01} = \left( \frac{\Sigma P_1 Q_0}{\Sigma P_0 Q_0} \right) \times 100$$

$$P_{01} = \left( \frac{397}{329} \right) \times 100$$

$$P_{01} = 120.66$$

**Paasche's Price index**

$$P_{01} = \left( \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \right) \times 100$$

$$P_{01} = \left( \frac{536}{444} \right) \times 100$$

$$P_{01} = 120.72$$

oo



OSWAAL BOOKS  
LEARNING MADE SIMPLE