ACADEMIC WINDOW

ECONOMICS GRADE XI

(2023-2024)

Note from HOD

"The more that you read, the more things you will know. The more that you learn, the more places you'll go." — Dr. Seuss

This book you hold in your hands today is a collection of different exercises that will challenge you to think,and encourage critical analysis and lateral thinking. Through a series of well-developed questions, targeting different levels of comfort, this Academic Window aims to bridge the gap between 'where you are' and 'where you can be'.

Recognizing the world of constant change, where students are routinely expected to think out of the box, the CBSE has revised the design of the question paper and included application-based questions, HOTS, and reasoning and assertion questions. Solutions to these questions are possible only with a sound conceptual base. It is a consolidated effort of Faculty of Department of Commerce to provide students with not only a wide-ranging support for crunch-time preparation before exams, but also provide step-by-step learning for a comprehensive grasp of the subject matter. On the one hand, the level of students has been kept in mind on developing this manual, and on the other, the intent of the curriculum has also been given due consideration.

At the end of this AW, you will find the Past Year's question papers and their Answer keys. This gives you a targeted practice that will help you in your preparations and let you confidently enjoy your academic journey in Grade 11.

Hema Narula

HOD, Economics & Marketing

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SYLLABUS AS PRESCRIBED BY CBSE

ECONOMICS (030)
CLASS – XI (2023-24)

Theory: 80 Marks **3 Hours**
Project: 20 Marks

Units		Marks	Periods
Part A	**Statistics for Economics**		
	Introduction	15	10
	Collection, Organisation and Presentation of Data		30
	Statistical Tools and Interpretation	25	50
		40	
Part B	**Introductory Microeconomics**		
	Introduction	04	10
	Consumer's Equilibrium and Demand	14	40
	Producer Behaviour and Supply	14	35
	Forms of Market and Price Determination under perfect competition with simple applications	08	25
		40	
			200
Part C	**Project Work**	**20**	**20**

Part A: Statistics for Economics

In this course, the learners are expected to acquire skills in collection, organisation and presentation of quantitative and qualitative information pertaining to various simple economic aspects systematically. It also intends to provide some basic statistical tools to analyse, and interpret any economic information and draw appropriate inferences. In this process, the learners are also expected to understand the behaviour of various economic data.

Unit 1: Introduction **10 Periods**

What is Economics?

Meaning, scope, functions and importance of statistics in Economics

Unit 2: Collection, Organisation and Presentation of data **30 Periods**

Collection of data - sources of data - primary and secondary; how basic data is collected with concepts of Sampling; methods of collecting data; some important sources of secondary data: Census of India and National Sample Survey Organisation.

Organisation of Data: Meaning and types of variables; Frequency Distribution.

Presentation of Data: Tabular Presentation and Diagrammatic Presentation of Data: (i) Geometric forms (bar diagrams and pie diagrams), (ii) Frequency diagrams (histogram, polygon and Ogive) and (iii) Arithmetic line graphs (time series graph).

Unit 3: Statistical Tools and Interpretation **50 Periods**

For all the numerical problems and solutions, the appropriate economic interpretation may be attempted. This means, the students need to solve the problems and provide interpretation for the results derived.

Measures of Central Tendency- Arithmetic mean, Median and Mode

Correlation – meaning and properties, scatter diagram; measures of correlation - Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation (Non-Repeated Ranks and Repeated Ranks).

Introduction to Index Numbers - meaning, types - Wholesale Price Index, Consumer Price Index and index of industrial production, uses of index numbers; Inflation and Index Numbers, Simple Aggregative Method.

Part B: Introductory Microeconomics

Unit 4: Introduction **10 Periods**

Meaning of microeconomics and macroeconomics; positive and normative economics

What is an economy? Central problems of an economy: what, how and for whom to produce; concepts of Production Possibility Frontier and Opportunity Cost.

Unit 5: Consumer's Equilibrium and Demand **40 Periods**

Consumer's equilibrium - meaning of Utility, Marginal Utility, Law of Diminishing Marginal Utility, conditions of consumer's equilibrium using marginal utility analysis.

Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.

Demand, market demand, determinants of demand, demand schedule, demand curve and its slope, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand – percentage-change method and total expenditure method.

Unit 6: Producer Behaviour and Supply **35 Periods**

Meaning of Production Function – Short-Run and Long-Run

Total Product, Average Product and Marginal Product.

Returns to a Factor

Cost – Short run costs - Total Cost, Total Fixed Cost, Total Variable Cost; Average Cost; Average Fixed Cost, Average Variable Cost and Marginal Cost - meaning and their relationships.

Revenue – Total Revenue, Average Revenue and Marginal Revenue - meaning and their relationship.

Producer's Equilibrium - meaning and its conditions in terms of Marginal Revenue-Marginal Cost.

Supply, market supply, determinants of supply, supply schedule, supply curve and its slope, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply - percentage-change method.

Unit 7: Perfect Competition - Price Determination and simple applications.

25 Periods

Perfect competition - Features; Determination of market equilibrium and effects of shifts in demand and supply. (Short Run Only)

Simple Applications of Demand and Supply: Price ceiling, Price floor.

Part C: Project in Economics **20 Periods**

Guidelines as given in Class XII curriculum

Suggested Question Paper Design
Economics (Code No. 030)
Class XI (2023-24)
March 2024 Examination

Marks: 80 **Duration: 3 hrs.**

SN	Typology of Questions	Marks	Percentage
1	**Remembering and Understanding**: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	44	55%
2	**Applying**: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	18	22.5%
3	**Analysing, Evaluating and Creating:** Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	18	22.5%
	Total	**80**	**100%**

UNIT 1- INTRODUCTION

Things to remember:

What is Economics? (Scarcity Definition)

Economic and Non Economic Activity.

Components of Economics – Production, Consumption and Distribution.

Statistics a plural noun – aggregate of facts.

Statistics a singular noun – technique of collection, presentation etc.

Scope and importance of statistics in Economics.

MCQ (1 mark each)

1) It deals with the collection, presentation, analysis and interpretation of quantitative information. This statement defines
   a) statistics in singular sense
   b) statistics in plural sense
   c) Both
   d) None
2) A person who buys goods and services for the satisfaction of human wants
   a) Consumer
   b) Merchant
   c) Producer
   d) Service holder
3) Economics is divided into three parts
   a) Consumption, Production and Distribution
   b) Conserve, Product and Distribution
   c) Consumption, Capital and Data collection
   d) Consumption, Production and Data collection
4) Which of the following is not the character of statistics in plural form
   a) Collection of data
   b) Numerically expressed
   c) Aggregate of facts
   d) Collected in a systematic manner
5) Arrange stages in a statistical investigation
   (a) Collection of data; (b) Analysis of data ; (c) Presentation of data ; (d) Organization of data; ((e) Interpretation of data. . Options are
   a) a,d,c,b,e
   b) a,e,b,d,c
   c) c,a,d,b,e
   d) a,c,d,b,e

6) Identify non-economic activity
   a) Distribution of goods as charity
   b) Buying and selling of goods
   c) Production of goods
   d) None
7) It is a process which is concerned with sale and purchase of commodities
   a) Distribution
   b) Exchange
   c) Investment
   d) Production
8) Economics that deals with economic problems as a whole are called
   a) Macro economics
   b) Micro economics
   c) Both
   d) None
9) Production is
   a) Process of converting raw material into useful things
   b) The process of using up utility value of goods and services for the direct satisfaction of our wants
   c) Both
   d) None
10) It is the part of income which is not consumed
   a) Production
   b) Saving
   c) Interest
   d) Consumption
11) The study of mankind in the ordinary business of life
   a) Econometric
   b) Economics
   c) Economy
   d) Environment

Very Short Anwers (1 marks)

1.	Define Economics?	1
2.	Which of the following activity is an economic activity? a) teacher teaching his own son b) Social services rendered by NGO's in flood victims. c) Cooking of food by the housewife in her home d) Working in a factory or office.	1
3.	Define statistics in singular sense	1
4.	What is economic problem and why does it arise?	1
5.	Economic Problem is the cause of scarcity. How?	1
6.	Name the stages of statistical study?	1
7.	Distinguish between ‘qualitative’ and ‘quantitative’ data, giving examples of both.	1

Short Answers (3 and 4 marks) and Long Answers (6 marks)

8.	Differentiate between Micro and Macro Economics.	3
9.	State three main functions of statistics and briefly explain any one	3
10.	Briefly explain the three distinct components of economics?	3
11.	Statistics has emerged as the center stage of economics. Explain three points highlighting the significance of statistics in economics?	3
12.	Discuss the importance of Statistics in economic planning with special reference to India?	3
13.	Statistical methods are no substitute for common sense. Comment.	3

Higher Order Thinking Skills (HOTS)

1.	Conventional divisions of the study of economics comprises study of consumption, production and distribution. Explain. Ans: Economics involves the study of men engaged in economic activities of all kinds which are production, consumption and distribution. i) Production : Manufacturing of goods by producers for the market or for profit motive is called production ii) Consumption: Purchase of goods by the consumers to satisfy their various needs is called consumption. iii) Distribution: Division of national income into wages, profit, rent and interest is called distribution.	3
2.	There is a general perception that statistical knowledge, is frequently intentionally misused. Explain how. **Answer**: Statistics ids the most dangerous tool in the hands of inexpert. Data can be manipulated to conceal the truth and present the facts to meet selfish ends. Manipulations can arise from unintentional biases of the researchers or faulty choice of sample. If results contradict each other it creates mistrust on the statistical analysis. Before interpreting the results it is necessary to know the facts and verify the results.	3
3.	Suppose, 30% rise in price have been due to several causes ,like reduction of supply, increase in demand, shortage of power, rise in wages, rise in taxes etc. Which feature of statistics does it indicate. **Answer:** It indicates that statistics are affected by multiplicity of causes	3
4.	If 'Ram is 30 years old, Mohan is 5ft tall, Sohan's weight is 70 kg ' then will these numbers be called statistics? **Answer:** No, as they are neither mutually related nor comparable.	

UNIT 2 – COLLECTION, ORGANISATION AND PRESENTATION OF DATA

Points to Remember:

Collection of Data

1. Collection of data is the first important aspect of statistical survey.

2. Data – Information which can be expressed in numbers.

3. Two sources of data – Primary & Secondary Primary data – data collected by Investigator himself secondary data – data collected by someone and used by the Investigator..

4. Difference between Primary and Secondary Data

a] Primary data is original data collected by the investigator while secondary data is already existing and not original.

b] Primary data is always collected for a specific purpose while secondary data has already been collected for some other purpose.

c] Primary is costlier or is more expensive whereas secondary data is less expensive.

5. Methods / Sources of Collection of Primary Data:

a] Direct Personal Interview – Data is personally collected by the interviewer.

b] Indirect Oral Investigation – Data is collected from third parties who have information about subject of enquiry.

c] Information from correspondents – Data is collected from agents appointed in the area of investigation.

d] Mailed questionnaire – Data is collected through questionnaire [list of questions] mailed to the informant.

e] Questionnaire filled by enumerators – Data is collected by trained enumerators who fill questionnaires.

f] Telephonic interviews – Data is collected through an interview over the telephone with the interviewer.

Questionnaire – A list of questions with space for answers.

6. Pilot Survey – Try-out of the questionnaire on a small group to find its shortcomings.

7. Qualities of a good questionnaire:

a] A covering letter with objectives and scope of survey.

b] Minimum number of questions.

c] Avoid personal questions.

d] Questions should be clear and simple.

e] Questions should be logically arranged.

MCQ (1 mark)

Collection of Data

1) _____ data are collected by the investigator himself.
   a) Secondary
   b) Primary
   c) both (a.) and (b.) above
   d) none of the above
2) A questionnaire is _____
   a) a list of answers
   b) Doubtful Conclusions
   c) inaccuracy
   d) all the above
3) This method involves study of each and every item of the universe
   a) Sample
   b) Census
   c) Random sampling
4) Under which method, chits are taken out to from a sample?
   a) Lottery method
   b) Tippet‟s method
   c) Sample method
5) Data originally collected in the process of investigation are known as
   a) Secondary data
   b) Third data
   c) Primary data
   d) None
6) Secondary data is
   a) Data collected in the process of investigation
   b) Data collected from some other agency
   c) Both
   d) None
7) Which of the following is not the published source
   a) Semi government publications
   b) International publications
   c) Government publications
   d) Web site
8) Following are the method of collecting primary data except
   a) Direct personal interviews
   b) Mailed questionnaire method
   c) Information through correspondents
   d) Stratified sampling
9) When from a few units out of the entire population is chosen is called
   a) Census method
   b) Sample method
   c) Both
   d) None

10) Census
    a) When from a few units out of the entire population is chosen
    b) In which data is collected from each and every unit
    c) Both
    d) None
11) Data collected by research institutions , scholars , trade associations but not published is
    a) Published source
    b) None
    c) Personal sources
    d) Unpublished source
12) A person who actually collect the desired information is called
    a) Enumerator
    b) Respondents
    c) Investigator
    d) None
13) Sample method is much better compared to sample method because
    a) More expensive
    b) Carried out by large no of investigator
    c) It is less time consuming
    d) None
14) Statistical enquiry means
    a) Search for knowledge
    b) Search for knowledge with the help of statistical methods
    c) It is science for knowledge
    d) None
15) Following are the drawback of the Direct personal investigation method
    a) Limited coverage
    b) It is very costly
    c) This method is very elastic
    d) Difficult to cover wide area
16) Under this method investigator prepare a questionnaire keeping in view the objective of inquiry
    a) Indirect Oral Investigation
    b) Direct personal interviews
    c) Information through correspondents
    d) Information through mailed questionnaire
17) Collection of data includes
    a) Method of collecting data
    b) Sources of data
    c) Both
    d) None
18) Which of the false regarding secondary source of data
    a) Collection of data from sources who have already collected data through survey
    b) It implies collection of data from its original source
    c) Can rely on this data as compare to primary data
    d) It provides first hand information

Very Short Answers (1 marks)

1.	What type of data involve less time and less expenses and Why?	1
2.	Mention two sources of secondary data.	1
	What is indirect oral investigation	

Short Answers (3 and 4 marks) and Long Answers (6 marks)

1.	Which of the following errors is more serious and why?(HOTS) (a)Sampling error (b) Non-Sampling error	3
2.	Distinguish between Primary data and secondary data	3
3.	What are the sources of published data	3
4.	Write a short note on Pilot Survey	4
5.	Differentiate between census and Sampling method of data collection	4
6.	Define the term : a) Investigotor; b) Enumerator; c) respondent	4
7.	What are the qualities of a good questionnaire	6
8.	In which year will be the next Census held in India? How is Census carried out? (HOTS)	

Higher Order Thinking Skills (HOTS)

Collection of Data

1) What care should be taken to select method of data collection?
   To conduct an investigation, the following points should be kept in mind:
   a) The size of population
   b) The objective of the inquiry
   c) The cost to be involved
   d) The nature of inquiry
   e) The extent of accuracy required
   f) The extent of reliability required
2) Construct a questionnaire to collect information on the popularity of a brand of chocolate among consumers.
3) Do samples provide better results than surveys? Give reasons for your answer

Organization of Data

1) _____ of the data refers to the arrangement of figures in such a form that comparison of the mass of similar data may be facilitated and further analysis may be possible
   a) Analysis
   b) Organization
   c) Collection
   d) Interpretation
2) It is the process of arranging things in groups or classes according to their resemblances
   a) Classification
   b) Collection
   c) Analysis
   d) Interpretation
3) Continuous variable
   a) Assume a range of values
   b) Increase in jumps
   c) Both
   d) None
4) Classification data based on the geographical differences of the data is
   a) Spatial
   b) Quantitative
   c) Chronological
   d) Qualitative
5) A characteristics or a phenomenon which is capable of being measured and changes its value overtime is called
   a) Variable
   b) Vector
   c) Sample
   d) None
6) Which variable increase in jumps or in complete numbers
   a) Multiple
   b) Continuous
   c) Individual
   d) Discrete
7) Class limits means
   a) A range of values which incorporates a set of items
   b) Sum of upper or lower limits
   c) Difference between upper or lower limits
   d) Extreme values of a class are limits
8) Series of statistical data with one variable only is called
   a) Discrete
   b) Individual Series
   c) Continuous
   d) None

9) The number of times an item occur in the series is known as
   a) Class
   b) Frequency
   c) Variable
   d) Series
10) A range of values which incorporates a set of items is called
   a) Magnitude of a class interval
   b) Class
   c) Class limits
   d) None
11) Difference between upper or lower limits
   a) Class limits
   b) Class
   c) Extreme class
   d) Class interval
12) Average value of the upper and lower limits
   a) Class
   b) Class limits
   c) Class interval
   d) Mid-value
13) An open-end class is the class which lacks
   a) Higher limit
   b) Either lower limit or higher limit
   c) Lower limit
   d) Both lower limit and higher limit
14) Following are the types of frequency distribution except
   a) Cumulative frequency
   b) Exclusive
   c) Open ended
   d) Frequency array

Presentation of Data

1) With the help of histogram we can draw
   a) frequency polygon
   b) frequency curve
   c) frequency distribution
   d) All the above
2) _____ means exhibition of data in such a clear and attractive manner that these are easily understood and analyzed
   a) Presentation of data
   b) Analysis of data
   c) Interpretation of data
   d) Collection of data
3) Which of the following is one dimensional diagram?
   a) Pie diagram
   b) Cylinder
   c) Bar diagram
   d) Histogram
4) Graphical representation of frequency distribution is called a
   a) Histogram
   b) Scatter diagram
   c) Frequency
   d) Time series graph
5) A good title should have following features except
   a) Brief
   b) Ambiguous
   c) Clear words
   d) Placed centrally
6) Stands for brief and self-explanatory headings of horizontal rows
   a) Caption
   b) None
   c) Stubs
   d) Column
7) Diagrams which take shapes like rectangles, squares, circles, cubes, sphere etc. are called
   a) Pictographs
   b) Line graphs
   c) Geometric graphs
   d) None
8) Percentage bar diagram has
   a) equal width
   b) data expressed in percentages
   c) equal width and equal interval
   d) equal interval

9) Caption stands for
   a) The table headings
   b) A numerical information
   c) The column headings
   d) The row headings
10) A pie diagram is also called:
   a) Angular diagram
   b) Line diagram
   c) Bar diagram
   d) Pictogram
11) With the help of histogram we can draw
   a) frequency polygon
   b) frequency curve
   c) frequency distribution
   d) All the above

Very Short Answers (1 marks)

3.	What is the difference between Table and Tabulation?	1
4.	Define frequency polygon.	1
5.	What is meant by Purposive or Deliberate Sampling?	1
6	Give the advantage of Sample method over Census method.	1

Short Answers (3 and 4 marks) and Long Answers (6 marks)

9.	Convert the following data in a Simple Frequency distribution 5 students obtained less than 3 marks 12 students obtained less than 6 marks 25 students obtained less than 9 marks 33 students obtained less than12marks	3
10.	Construct Histogram from the following data: Marks Obtained: 0-10 10-20 20-30 30-40 40-60 60-90 No. of Students : 6 10 26 22 10 9	3
11.	Present the following data on the production of food grains in the form of **Sub-divided Bar Diagram**. Production in million tones. Year | Wheat | Rice | Gram 2009 | 10 | 20 | 30 2010 | 40 | 10 | 20	3

12. The following are the figures of sales of a firm A for the year 1998-2001.Present the data graphically. — 3

Year	1998	1999	2000	2001
Firm A	15	10	20	19

Mention **one limitations** of graphic presentation

13. Show the following data in a pie diagram — 4

.Items	Labour	Bricks	Cement	Steel	Timber	Supervision
Expenditure	25%	15%	20%	15%	10%	15%

14. Draw a percentage bar diagram for the following data : — 4

Year	A	B	C	D	TOTAL
1970	40	10	15	35	100
1971	80	120	250	300	750

15. In 2008- 2009 total production of food grains was 1,928 lakh tones of which production of rice, wheat and other crops were 860, 708 and 360 lakh tones, respectively. Percentage share of rice, wheat and other crops in the total production of food grains was 44.60, 36.72 and 18.68 respectively. Present this information in the form of a table — 4

16. What is meant by Pie diagram? Prepare a Pie Diagram to present the following data: — 4

Items :	Food	Clothing	Housing	Fuel	Education
Income spent	15	10	30	25	20

17. On the basis of the following frequency distribution, draw the **Histogram** and **Frequency Polygon:** — 6

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
frequency	5	7	10	12	8	4	3

18.	30 families in an area spend the following monthly expenditure on food Prepare a **Frequency Distribution** with the class interval of 100-150, 150-200 etc Give the percentage of those families who spend more than Rs 200 and less than Rs.250 115 159 196 205 212 223 256 271 310 129 169 184 234 245 241 265 298 144 135 335 229 220 238 278 243 220 238 238 172 173	6
19	The result of grade X class students is given below. Draw a **Multiple and Sub-divided bar diagrams.** Year | 1st division | 2nd division | 3rd division 1999 | 10 | 30 | 50 2000 | 12 | 45 | 70 2001 | 14 | 50 | 60 2002 | 11 | 40 | 75	6

	Higher Order Thinking Skills (HOTS)	
1.	What kind of diagrams are more effective in representing the following? a. Monthly rainfall in a year. b. Composition of the population of Delhi by religion. c. Components of cost in a factory.	
2.	Present the data given in a histogram: Mid-value | 5 | 10 | 15 | 20 | 25 | 30 Frequency | 3 | 5 | 8 | 10 | 6 | 4	
3.	Draw less than and more than ogive using the following data: Marks | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 f | 7 | 10 | 20 | 13 | 12 | 10 | 15 | 8	

UNIT 3 –STATISTICAL TOOLS & INTERPRETATION

Measures of Central Tendency:

Things to remember:

Complete the table with the correct formulae

Calculation of Arithmetic Mean:	
Individual Series	
a) Direct Method	
b) Short Cut Method	
Discrete Series	
a) Direct Method	
b) Short Cut Method	
c) Step Deviation Method	
Continuous Series	
a) Direct Method	
b) Short Cut Method	
c) Step Deviation Method	

Calculation Of Median:	
Individual Series:	a) In case of odd series: b) In case of even series
Discrete Series or Frequency Array	
Continuous Series:	
Calculation of Mode:	
Individual Series	
Discrete Series	
Continuous Series	

Measures of Central Tendency

MCQ (1 mark)

1) The value of the middle item in a set of observations which has been arranged in an ascending or descending order of magnitude
   a) Mean
   b) Median
   c) Mode
   d) Range

2) MODE
   a) The value in the data set that occurs most Number occurs most frequently
   b) Observations which has been arranged in an
   c) The value of the middle item in a set of
   d) Ascending or descending order of magnitude

3) _____ is not capable of algebraic treatment
   a) Both
   b) Median
   c) Arithmetic mean
   d) None

4) Following are the disadvantages of Mean except
   a) Does not possess the desired algebraic property
   b) Easily affected by extreme values
   c) In grouped data with open-ended class intervals, the mean cannot be computed
   d) Cannot be computed if there are missing values due to omission or non-response.

5) _____ divides the data into 4 equal parts
   a) Mean
   b) Range
   c) Quartiles
   d) Median

6) The _____ is the value you calculate when you want the arithmetic average.
   a) Mode
   b) Median
   c) Mean
   d) All of the above

7) Which of the Following statement is false regarding Mode
   a) Does not possess the desired algebraic property of the mean that allows further manipulations
   b) Can be easily identified through ocular inspection
   c) Affected by extreme values

d) Like the median, observations from different data sets have to be merged to obtain a new mode, whether group or ungrouped data are involved

8) The median is _____.
   a) The average
   b) The middle point
   c) Affected by extreme scores
   d) The highest number

9) The mean is
   a) The highest value
   b) The value that occurs most frequently
   c) The midpoint in a set of scores
   d) The sum of all the values in a group, divided by the number of values in that grou

10) There are two methods of finding mode in discrete series
   a) Descending method and grouping method
   b) Inspection method and grouping method
   c) Ascending method and grouping method
   d) Mid-point method and table method

11) Relationship between mode is
   a) Mode = 2Median – 1Mean
   b) Mode = 3Median – 2Mean
   c) Mode = 4Median – 2Mean
   d) Mode = 2Median – 3Mean

Very Short Answers (1 mark)

1	Give the formula for finding the median in case of continuous series	1
2	What is meant by a central tendency?	1
3	If the values of mean and median are 40 and 48, find out the value of mode.	1
4	Give the formula for finding the median in case of continuous series.	1
5	How is the value of median computed with the help of Ogive curves?	1
6	Calculate the arithmetic average with the help of the following data: 82, 84, 86, 83, 80, 88, 85, 89, 79, 86 *(Ans: 84.2)*	1

Short Answers (3 and 4 marks) and Long Answers (6 marks)

7	The following table gives the daily income of 10 workers in a factory. Find the arithmetic **Mean** using: (i) Direct method (ii) short cut method and (iii) step deviation method	3

Workers	A	B	C	D	E	F	G	H	I	J
Daily income (in Rs.)	120	150	180	200	250	300	220	350	370	260

(Ans: 240)

8	Calculate the Arithmetic **Mean** from the following series. 	Marks	Less than10	Less than 20	Less than 30	Less than 40	Less than 50
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No of students	10	30	60	80	90		3
9	Calculate the **Median** from the following data 	Marks	More than 0	More than 10	More than 20	More than 30	More than 40	More than 50
---	---	---	---	---	---	---
No of students	50	42	38	28	16	3	3
10	Locate the **Mode** graphically and check the result by using formula. | Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
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No of students	5	10	20	25	20	10	5	4
11	Given below are the marks obtained by students in statistics. Calculate the **Mode**. | Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
---	---	---	---	---	---	---	---
No. of students	2	5	8	10	8	5	2	4
12	Calculate the value of **Median** from the following series. | Age (years)	Number of employees
---	---
Below 20	13
20-25	29
25-30	46
30-35	60
35-40	112
40-45	94
45-50	45
55 and above	21	4

13	Find the **Median** for the following frequency distribution. | Number of days absent	Number of students
---	---
Less than 5	29
Less than 10	224
Less than 15	465
Less than 20	582
Less than 25	634
Less than 30	644
Less than 35	650
Less than 40	653
Less than 45	655		4
14	Calculate average marks from the following distribution using **Step Deviation** method. 	Class limits	10-19	20-29	30-39	40-49	50-59	60-69	70-79	
---	---	---	---	---	---	---	---	---
f	5	9	14	20	25	15	8			6
15	The following table relates to the height of ten students. Find out **Mean, Median and Mode.** | S.N0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	---
height	165	155	173	145	160	164	153	157	161	167 | *(Ans: Mean=Median =Mode=160)*	6

16 Calculate the Mean, Median, Mode and Quartiles from the data given below: 6

Class intervals	Frequency
0-2	2
2-4	5
4-6	6
6-8	9
8-10	15
10-12	28
12-14	14
14-16	5
16-18	3
18-20	1

Higher Order Thinking Skills (HOTS)

Which average would be suitable in the following cases?

a. Average size of readymade garments.
b. Average intelligence of students in a class.
c. Average production in a factory per shift.
d. Average wages in an industrial concern.
e. When the sum of absolute deviations from average is least.
f. In case of open ended frequency distribution.

Following information pertains to the daily income of 150 families. Calculate the arithmetic mean.

Income (More than)	75	85	95	105	115	125	135	145
No. of families	150	140	115	95	70	60	40	25

Calculate median from the following data:

Marks	More than 0	More than 10	More than 20	More than 30	More than 40	More than 50
F	50	42	38	28	16	3

Calculate mode from the following data (a) using formula (b) locate mode graphically

Marks	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50
No. of students	14	37	64	85	100

.

Correlation:

Methods** of **Estimating Correlation – Fill the table with correct formula

Karl Pearson's Coefficient of Correlation Formula r =
Spearman's Rank Correlation Coefficient Formula r_k =

MCQ (1 mark)

1) Two variables are said to be positively correlated when with the _____ in the value of one variable the value of another also _____
   a) Rise , Fall
   b) Fall , fall
   c) Fall, Rise
   d) Rise , Rise
2) If with the fall in the value of one variable the value of another variable rises in the same proportion then it is said to be
   a) Positively correlated
   b) Both
   c) Negatively correlated
   d) None
3) If the coefficient correlation exactly equals to -1 then it will be effect
   a) Positive correlation
   b) Negative correlation
   c) Simple correlation
   d) Multiple correlation
4) When the correlation is only studied between two variables it is called
   a) Positive correlation
   b) Simple correlation
   c) Multiple correlation
   d) Negative correlation
5) Multiple correlation is
   a) When the correlation is only studied between four variables
   b) When the correlation is only studied between three variables
   c) When the correlation is only studied between two variables
   d) When the correlation is studied between three or more variables

6) If the ratio of change between the two variables is a constant then there will be
   a) Positive correlation
   b) Linear correlation
   c) Negative correlation
   d) Non-linear correlation
7) Correlation coefficient is denoted by
   a) c
   b) co
   c) l
   d) r
8) When r = 1, there is perfect
   a) perfect +ve relationship between the variables
   b) perfect -ve relationship between the variables
   c) no relationship between the variables
   d) None

Very Short Answers (1 marks)

1	What does it mean if the correlation between two variables is +1?	1
2	Can coefficient of correlation be 1.98? Why?	1
3	What is the limitation of scatter diagram as a method of estimating correlation?	1

Short Answers (3 and 4 marks) and Long Answers (6 marks)

4	a) How is Karl Pearson's coefficient of correlation defined b) What are the limits of correlation coefficient r? c) If r=+1 or r=-1 then what kind of a relationship exists between x and y?	3
5	Define the following with examples. a) Positive and negative correlation. b) Linear and Non Linear correlation. c) Simple and multiple correlations.	3
6	Two ladies were asked to rank 7 different types of lipsticks. The ranks given by them are as follows:	4

Lipsticks	A	B	C	D	E	F	G
Neelu	2	1	4	3	5	7	6
Neena	1	3	2	4	5	6	7

7 From the following data construct a **Scatter** diagram and show if there is any relation between X and Y series: **4**

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

8 Calculate the **Correlation Coefficient** between X and Y and comment on their relationship:

X	1	3	4	5	7	8
Y	2	6	8	10	14	16

(Hint: Use Assumed mean method) *(Ans: r = +1)*

9 Compute **Karl Pearson's** coefficient of correlation by actual mean method: **4**

Price (Rs.)	10	12	14	16	18
Quantity (Units)	20	29	21	22	28

10 Five competitors in a beauty contest are ranked by three judges in the following order. **6**

Calculate **Coefficient** of **Rank Correlation.**

Rank by judge A	1	2	3	4	5
Rank by judge B	2	4	1	5	3
Rank by judge C	1	3	5	2	4

11 Calculate **Coefficient** of **Rank Correlation** with the help of these data: **6**

Economics	66	90	89	55	58	44	42
Statistics	58	76	65	58	53	49	56

<table>
<tr><td>12</td><td>Explain the merits and demerits of Scattered diagram method of correlation
From the following data calculate Rank Correlation between X and Y
<table><tr><td>X</td><td>36</td><td>56</td><td>20</td><td>65</td><td>42</td><td>33</td><td>44</td><td>50</td><td>15</td><td>60</td></tr><tr><td>Y</td><td>50</td><td>35</td><td>70</td><td>25</td><td>58</td><td>75</td><td>60</td><td>45</td><td>80</td><td>38</td></tr></table></td><td>6</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td>Higher Order Thinking Skills (HOTS)</td><td></td></tr>
<tr><td>1.</td><td>“ The degree of closeness of scatter points and their overall direction give us an idea of the relationship between the variables”. Explain</td><td></td></tr>
<tr><td>2.</td><td>The sum of squares of difference between the ranks obtained in English and Economics of 10 students is 33. Calculate the coefficient of correlation.
Ans: $R=1-[6\sum D^2]/N^3-N$
$= 1- 6x33/10^{33}-10$
$= 1- 198/990$
$=0.80$</td><td></td></tr>
</table>

Index Numbers

Calculation of Simple Index Number – Fill the table with correct formulae

Simple Aggregative Method:	*Simple Average of Price Relatives:*
P_{01} =	P_{01} =

Calculation of Weighted Index Numbers:

Weighted Aggregative Method:	*Weighted Average of Price Relatives:*
i) Laspeyre's Method P_{01} = *ii) Paasche's Method* P_{01} =	P_{01} =

MCQ (1 mark)

1) The base year of IIP is
   a) 2000-2001
   b) 2004-2005
   c) 2001-2002
   d) 1994-1995
2) Laspeyre's index formula uses the weights of the
   a) Base year
   b) Current year
   c) None of the above
   d) Average of the weights of a number of years
3) An appropriate method for working out consumer price index is
   a) family budget method
   b) none of the above
   c) weighted aggregate expenditure method
   d) price relative method
4) The weights used in Passche' s formula belong to
   a) The base period
   b) To any arbitrary chosen period
   c) The given period
   d) None of the above

5) _____ is known as Ideal index number
   a) Fisher's index number
   b) Laspeyres Index number
   c) Paasche's Index number
   d) None
6) _____ in which current year quantities are used
   a) Laspeyre's
   b) Paasche's
   c) Fisher's
   d) None
7) Index numbers are expressed in
   a) Percentage
   b) Average
   c) Both
   d) None
8) _____is the index showing changes in the Indian stock market
   a) Census
   b) IIP
   c) Sample
   d) Sensex
9) In Laspear's Index number _____ year quantities are used
   a) Current
   b) Base
   c) Average
   d) None
10) WPI stands for
   a) Wholesale Price Index
   b) Whole Price Index
   c) Weighted Price Index
   d) None

Very Short Answers (1 marks)

1	Define index numbers..Mention any two problems in the construction of Index Number.	1
2	Why is the consumer price index called the price deflator of income.	1
3	How would you construct the wholesale price index? Highlight its uses.	3
4	Point out the important limitations of index numbers	3
5	What are the considerations underlying the selection of the base period in the construction of an index number?	3

Short Answers (3 and 4 marks) and Long Answers (6 marks)

6. Distinguish between the following: 3
a) Simple and weighted index numbers.
b) Consumer price index and wholesale price index.
c) Quantity index numbers and value index numbers

7. Construct the following indices by taking 1997 as the base year: 4
a) Simple Aggregative Price Index
b) Index of Average of Price Relatives

Items	**A**	**B**	**C**	**D**	**E**
Prices Rs. (1997)	6	2	4	10	8
Prices Rs. (1998)	10	2	6	12	12
Prices Rs. (1999)	15	3	8	14	16

(Ans: Simple aggregative Price Index : P_{01}= 140, P_{02}=186.67
Index of Average Price Relatives: P_{01}=137.34, P_{02}=188)

8. Calculate **Weighted Average of Price Relative Index** from the following data:

Items	**Weight in %**	**Base Year Price (Rs.)**	**Current Year Price (Rs.)**
A	40	2	4
B	30	5	6
C	20	4	5
D	10	2	3

(Ans:P_{01}=156)

9. Calculate price index number for 2004 taking 1994 as the base year from the following data by simple aggregative method:

Commodities	A	B	C	D	E
Price in 1994 (inRs.)	100	40	10	60	90
Price in 2004 (inRs.)	140	60	20	70	100

(Ans. 130)

10. Calculate weighted average of price relative index number of pricesfor 2010 on the basisof 2004 from the following data:

Goods	Weight	Price 2004 (Rs.)	Price 2010 (Rs.)
Wheat	20	20	35
Rice	12	15	18
Milk	8	10	11
Ghee	4	5	5
Sugar	6	4	5

(Ans. 139.4)

11. Calculate price index number from the following data using Laspeyre's method:

Goods	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	8	100	10	120
B	4	60	5	80
C	10	20	12	25
D	12	25	15	30
E	3	5	4	6

(Ans. 124.44)

12. Calculate price index number from the following data using Paasche's price index method

Goods	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	4	2	6	3
B	3	5	2	1
C	8	2	4	6

(Ans. 69.84)

13. Construct an index number for year 2005 taking 2000 as the base year from the following data by simple average of price relative method:

Commodities	A	B	C	D	E
Price in 2000 (inRs.)	100	80	160	220	40
Price in 2005 (inRs.)	140	120	180	240	40

(Ans. 122.32)

14. Calculate weighed **Aggregative Price Index** from the following data using: 6

a) Laspeyre's method b) Paasches method

commodity	**Base period**		**Current period**	
	price	**quantity**	**price**	**quantity**
A	2	10	4	5
B	5	12	6	10
	4	20	5	15
D	2	15	3	10

15. Calculate **Laspeyr's and Paasche's** price index numbers on the basis of the following: 6

Commodity	**A**	**B**	**C**	**D**	**E**
Base Year Price	10	25	30	15	20
Current Year Price	15	40	45	30	25
Base Year Quantity	6	10	15	20	8
Current Year Quantity	8	20	12	15	6

16. Calculate **Weighted Aggregative** price index from the following data using: 6

a) Laspeyer's Method
b) Paasche's Method and

Item	Price		Quantity	
	2000	2002	2000	2002
A	8	20	50	60
B	2	6	15	10
C	1	2	20	25
D	2	5	10	8
E	1	5	40	30

Construct price index number from the following data by using the Laspeyre's Method and Paasche' s Method

6

	2000		2001	
Commodity	Price	Quantity	Price	Quantity
A	2	8	4	5
B	5	12	6	10
C	4	15	5	12
D	2	18	4	20

OR

What challenges does the statistician face while constructing an index number

Ans:

	2000		*2001*					
Commodity	*Price (p0)*	*Quantity (q0)*	*Price (p1)*	*Quantity(p1)*	*P0Q0*	*P0Q1*	*P1Q0*	*P1Q1*
A	*2*	*8*	*4*	*5*	*16*	*10*	*32*	*20*
B	*5*	*12*	*6*	*10*	*60*	*50*	*72*	*60*
C	*4*	*15*	*5*	*12*	*60*	*48*	*75*	*60*
D	*2*	*18*	*4*	*20*	*36*	*40*	*72*	*80*
					172	*148*	*251*	*220*

Laspeyres – Formula – 1 mark; Table – 1 mark, Answer – 1 mark
Ans: 145.93
Paasches– Formula – 1 mark; Table – 1 mark,
Ans = 148 .7
OR
Challenges/ limitations which constructing index nos: i. purpose of index nos; ii. Selection of base year; iii. Selection of goods and services; iv. Selection of prices or the goods and services; selection of price of goods and services; v. to find out average price; vi. Section of method of weighing, problem of finding average or any other valid reason

MICROECONOMICS

UNIT 4- INTRODUCTION

Points to remember:
What is an economy?
Central Problems of an economy
Allocation of resources - 'what, how and for whom to produce?'
Full Utilisation of Resources
Economic Efficiency
Economic Growth
Why do central problems arise?
Opportunity cost
Concept of PPC- Shape of the PPC and the reasons
Marginal Opportunity Cost – Slope of the PPC

$$\text{Slope of PPC} = \text{MRT} = \text{MOC} = \frac{\Delta Y}{\Delta X} = \frac{\text{Amount of Good Y lost}}{\text{Amount of Good X gained}}$$

PPC and Central Problems- Shift of the PPC to the right - reasons
Microeconomics and macro economics

1.	Problem of distribution of resources is related to For whom to produce what to produce full utilization of resources Economic growth	1
2.	If 200 kgs of sugar is sacrificed in order to produce wheat and this sacrifice is called (a) Average cost (b) Marginal Cost © Opportunity cost (d) Total fixed cost	1
3.	---------- of resources are necessary for the development of the economy (a) Utilisation (b) Growth © Wastage (d) Non utilisation	1
4.	Microeconomics deals with (a) Theory of production (b) theory of cost © Factor pricing (d) All of the above	1
5.	PPC is concave to the origin due to	1

	(a) increasing marginal opportunity cost (b) decreasing marginal opportunity cost © constant marginal opportunity cost (d) None of the above	
6.	PPC shifts to the right when (a) discovery of new resources & advancement of technology (b) destroyal of resources & obsolete technology © advancement of technology only in the production of one good (d) none of the above	1
7.	If the production possibility og good X rises by 1 unit and that of good Y falls from 20 to 15.5 units then MOC is (a) 35.5 (b) 4.5 © 5.5 (d) 15.5	1
8.	State whether the following statements are true or false:- (i) A point on the PPF reflects underutilization of resources (ii) A point outside the PPF is unattainable from the given resources. (iii) If marginal rate of transformation is fixed, then PPC will be negatively sloped straight line curve.	 1 1 1
9.	Differentiate between Economic and Non-economic activities	3
10.	Explain the economic meaning of production on, above or below the PPC?	3
11.	Why is the PPC concave to the origin?	3
12.	Explain the main differences between Micro and Macro economics	3

UNIT 2: CONSUMER EQUILIBRIUM AND DEMAND

Points to remember:

Concepts of utility

Total Utility

$TU = MU_1 + MU_2 + \ldots\ldots + MUn$

$TU = \Sigma MU$

Marginal Utility

$MU = TUn - TUn\text{-}1$

$MU = \frac{\Delta TU}{}$

Law of Diminishing Marginal Utility – graphical and numerical representation

Consumer' Equilibrium -Marginal utility analysis – Assumptions

One good case –Equilibrium in case of one commodity X occurs when

$\frac{MUx}{Px} = Mum$

Two good case/ Many goods / Law of Equi marginal utility -

Equilibrium in case of two commodities X and Y occurs when: (Law of Equi Marginal Utility):

$\frac{MUx}{Px} = \frac{MUy}{Py} = \frac{MUm}{}$

Indifference curve analysis

Assumptions of Indifference approach

Concepts of Indifference curve, Indifference map

Shape of the Indifference curve –

Downward Sloping – Consumer has to sacrifice one good inorder to have more of the other good.

Convex to the origin – Slope of the IC is diminishing as consumer is willing to give less and less inorder to have one more additional unit of the other good.

Two ICs do not intersect – Higher IC show higher level of satisfaction but at the point of intersection show same level of satisfaction which is contradictory.

Slope of an indifference curve = Marginal Rate of Substitution (MRSxy) = $\frac{\Delta Y}{\Delta X}$

Budget Line – Shows all combinations of two goods that a consumer can buy with his given income and prices of the two goods.

Shifts of budget line – can be due to change in income or change in prices

Slope of the budget line = $\frac{Px}{Py}$ = Price Ratio

Consumer's equilibrium – Indifference Approach/Optimal Choice

Conditions:

i) $MRS_{xy} = \frac{P_x}{P_y}$

Demand –

Determinants of demand - Law of demand

Reasons for downward sloping demand curve -

- Law of diminishing marginal utility
- Income effect
- Substitution effect
- New consumers creating demand
- Effect of change in the Price of Substitute Goods on the Demand

Reasons for Shift in Demand Curve

- Effect of change in the Price of Complementary Goods on the Demand
- Effect of change in the income of the consumer and Demand - Normal good -and Inferior good
- Effect of change in the taste and preferences of the consumer on the Demand

Market Demand - Determinants of Market demand

Change in Quantity Demanded (Movement) and Change in Demand (Shift) / Differences between Increase in demand & Expansion – Decrease in demand & Contraction

Demand function – numericals

Price elasticity of demand:

Factors effecting price elasticity of demand

Degrees of price elasticity

Measurement of price elasticity

Percentage method –

- $Ed = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$

1	A rise in the income of the consumer leads to a fall in demand for the good X by the consumer, then the good is Complementary good Substitute good Inferior good Normal good	1
2.	Which of the following has inelastic demand- (a) Salt (b) A particular brand of lipstick (c) laptop (d) pen	1
3	Starting from an initial situation of consumers equilibrium, suppose the marginal utility of a rupee increases, then the quantity demanded of the good will increase decrease remain the same none of the aboe	1
4.	When the rise in demand at the same price then it is called increase in demand decrease in demand expansion of demand contraction of demand	1
5.	When the percentage change in quantity demanded is more than the percentage in price then the elasticity of demand is said to be elastic inelastic perfectly elastic perfectly inelastic	1
6.	An increase in the price of ink will lead to _____ in the demand for fountain pens increase decrease constant none of the above	1
7.	If a consumer has monotonic preferences then among the two bundles available (10,8) and (8,6), the consumer a. would prefer (10, 8) b. would prefer (8,6) c. would be indifferent d. would prefer (8,8)	1
8.	When price elasticity of demand is (-) 0.2 and price reduces by 5 %, then the total outlay would a. reduce b. increase c. constant	1

	d. none of the above	
9.	Distinguish between inferior good and normal good.	3
10.	Give three reasons for leftward shift in demand curve.	3
11.	Explain in brief the properties of indifference curve.	3
12.	How many commodities are to be consumed by consumer A when price of the commodity in the market is Rs 4/- , and when consumer's total utility schedule is given	3

Quantity Consumed	1	2	3	4	5
T U (Utils)	15	24	28	29	29

13.	Price elasticity of a good is -4.When price of this good rises from Rs. 5 to Rs.6 per unit, a consumer buys 40 units less. How many units did he buy at Rs. 5?	3
14.	Ratio of the price elasticity of demand for two commodities X and Y is 1:2. 20% fall in the price of Y commodity results in rise in its demand by 20 percent. What is the % fall in quantity demanded for X commodity when its price increases by 50%	4
15.	How does the following affect the elasticity of demand- (a) availability of substitutes (b) Proportion of income spent on the commodity.	4
16.	How does the change in the price of related goods affect the demand of a commodity? Explain.	4
17.	Explain the relationship between TU and MU with the help of a schedule and diagram.	4
18.	Given $P_1 = 8$, $P_2 = 10$ and M = Rs 40. How does price line change if P_2 decrease by Rs 2, but P_1 remains constant? Also find the difference in slope of price line.	4
19.	Why is there an inverse relationship between price and quantity demanded of a commodity? Explain.	6
20.	Explain various degree of price elasticity of demand. Use diagram.	6
21.	Discuss how the market demand curve is derived from the individual demand curves and the determinants of market demand.	6
22.	Given the market price of a good how does a consumer decide as to how many units of that good to buy .Explain?	6
23.	Explain consumer's equilibrium in case of single commodity with the help of utility schedule.	6
24.	A consumer consumes only 2 goods .What are the conditions of consumer's equilibrium as per the Utility approach. Explain the changes that will take place if the consumer is not in equilibrium.	6
25.	Explain the distinction between shift in the demand curve and movement along the demand curve.	6
26.	Explain the condition of consumer's equilibrium using the Indifference curve analysis. Explain with a diagram.	6

UNIT 5- PRODUCERS EQUILIBRIUM AND SUPPLY

Points to remember:

Production function

Concepts of Product-

Total Product –

$$TPP = \sum MPP$$

Marginal Product –

$$MPP = TPP_n - TPP_{n-1}$$

Average Product –

$$APP = TPP/L$$

Relation between TP, MP and AP- Graphs and numericals

Law of Variable Proportions/ Returns to factor – Stages and reasons, Identification of the stages in terms of TPP and MPP

Cost and revenue

Short Run costs :

Total cost –

Total fixed

$$TC = TFC + TVC$$

cost

Total variable cost -

$$TVC = \sum MC$$

Average cost (AC)= Average fixed cost (AFC)+ Average variable cost (AVC)

$$AFC = TFC/Q$$

$$AVC = TVC/Q$$

Marginal cost –

$$MC = TVC_n - TVC_{n-1}$$

Relationship between MC& AC, AVC – Graph and numerical.

Revenue- Total revenue, average revenue and marginal revenue – meaning and relationship under perfect and imperfect competition - graph and numericals

Producers Equilibrium – meaning and conditions under Perfect Competition and Monopoly

Marginal Revenue and Marginal Cost approach -

Conditions:

- MC = MR and
- MC should be rising after the equilibrium level of output

Supply - Market Supply - Determinants of supply- Law of supply Change in quantity supplied (Movement) and Change in supply (shifts)

Supply function - numericals

Price elasticity of supply:

Factors effecting price elasticity of supply

Degrees of elasticity of supply

Measurement of price elasticity

Percentage method –

- $Es = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$

1.	What effect does a cost saving technical progress have on the supply curve? a. Upward movement b. Downward movement c. Forward shift d. Backward shift	1
2.	Payment for raw material is a. Fixed cost and implicit cost b. Fixed cost and explicit cost c. Both variable and implicit cost d. Both variable and explicit cost	1
3.	What is the relationship between price and MC under monopolistic competitive market? a. Price is below MC b. Price is above MC c. Price is equal to MC d. None of the above	1
4.	What is the shape of TR curve in monopoly? a. Straight line parallel to x axis b. Straight line parallel to Y axis c. Straight line upward sloping from the origin d. Inverse U shaped curve	1
5.	What will you say about MPP of a factor when TPP is rising at an increasing rate? a. MPP increases b. MPP decreases c. MPP remains constant d. MPP is zero	1
6.	If two supply curves intersect what is the elasticity of both the curves at the point of intersection a. Flatter curve has greater elasticity b. Steeper curve has greater elasticity c. Both have the same elasticity d. Elasticity is zero for both the curves	1
8.	MC can be measured both as the difference between TC_n and TC_{n-1} as well as the difference between TVC_n and $TVC_{n-1,}$ How?	3
9.	State any three causes of a leftward shift of supply curve?	3
10.	What is the relation between AR and MR under imperfect competition?	3
11.	How does the rise in price of inputs affect the supply curve?	3
12.	A Firm supplied 500 units of a commodity at price Rs 5 per unit. The price elasticity of supply is 2. At what price will the firm supply 700 units.	3
13.	What do you mean by diminishing returns to factor? Give reasons for the same.	

<table>
<tr><td>14.</td><td>Calculate MC and AC at each level of output from the following:
<table>
<tr><td>Output(units)</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>TC</td><td>90</td><td>135</td><td>174</td><td>216</td><td>264</td></tr>
</table></td><td>3</td></tr>
<tr><td>15.</td><td>Discuss the relationship between TFC, TVC and TC.</td><td>3</td></tr>
<tr><td>16.</td><td>Identify the profit maximizing level of output by marginal revenue -marginal cost approach and also give reason to your answer.
<table>
<tr><td>Total Revenue (in Rs.)</td><td>8</td><td>14</td><td>18</td><td>20</td><td>20</td></tr>
<tr><td>Price (Rs per unit)</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td></tr>
<tr><td>Average total cost (Rs)</td><td>5</td><td>4.75</td><td>4</td><td>3.75</td><td>3.8</td></tr>
</table></td><td>4</td></tr>
<tr><td>17.</td><td>Differentiate between Fixed Costs and Variable Costs.</td><td>4</td></tr>
<tr><td>18.</td><td>Draw straight line supply curves with zero elasticity,
Elasticity =1 and elasticity <1.</td><td>4</td></tr>
<tr><td>19.</td><td>What is the relationship between APP and MPP?</td><td>4</td></tr>
<tr><td>20.</td><td>With increase in output, the ATC and AVC curves come close to each other? Why? Can they meet? Give reasons.</td><td>4</td></tr>
<tr><td>21.</td><td>Following information is given about a firm :-
<table>
<tr><td>Output</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>TC</td><td>400</td><td>550</td><td>660</td><td>790</td><td>940</td><td>1150</td><td>1460</td></tr>
</table>
Find
a. average fixed cost of producing 4 units
b. average variable cost of producing 5 units
c. least average cost level of output
d. marginal cost of producing 3rd unit
e. total variable cost of producing 6 units</td><td></td></tr>
<tr><td>22.</td><td>Giving reasons, state whether the following statements are true or false:
a. Average total cost is greater than average variable cost at each level of output.
b. When marginal revenue is zero, total revenue will be constant.
c. The minimum of average cost and marginal cost comes at the same level of output.</td><td>6</td></tr>
</table>

23. Complete the following table if AFC is Rs 60:- 6

Output	1	2	3	4	5	6	7	8
TC	90	105	115	120	135	160	200	260
TVC								
TFC								
AVC								
AFC								
ATC								
MC								

22. What are the determinants of supply? 6

23. Identity the different output levels which makes the different phases/ stages of the operation of the law of variable proportions from the following data 6

Variable factors	0	1	2	3	4	5
TP(units)	0	8	20	28	28	26

UNIT6 – FORMS OF MARKET & PRICE DETERMINATION

Points to remember:

Perfect Competition – meaning, features and implications.

Market *Equilibrium* under perfect competition

Determination of equilibrium price - Excess demand and excess supply – graph and numerical example

Changes in equilibrium due to shifts in demand and supply- Simultaneous shifts leading to either to change or no change in equilibrium price.

Non Competitive Market – Monopoly, Monopolistic Competition, Oligopoly – meaning, features and implications.

Differences between

- Perfect competion and Monopoly
- Monopoly and Monopolistic

5.	What do you mean by market equilibrium?	1
6.	What is price line under perfect competition?	1
7.	What are selling cost?	1
8.	How is equilibrium price determined under perfect competition? Explain with the help of a diagram	4
9.	Explain the implications of : Homogenous product under perfect competition. Normal Profits under perfect competition.	4
10	How is the supply curve of a firm determined under perfect competition?	4
11	Under perfect competition the firm is a price taker and the industry is the price maker. Explain?	4
12	Examine impact of increase In supply on market price of a commodity	4
13	What is the impact on market price and quantity if increase in demand is greater than decrease in supply	6

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DPS SHARJAH

PERIODIC TEST 1(2022-2023) SET 1

Subject: Economics | **Max. Marks: 35**

Grade: 11 | **Time: 80 minutes**

Name: | **Section:** | **Roll No:**

General Instructions:

- ***This question paper consists of 2 printed pages.***
- ***All answers to be written in the answer sheet provided.***

	SECTION A: STATISTICS				
1.	Which of the following statements represent statistics?				1
	a.	Sales for the month of January are 50000 units	**b.**	Monthly salary paid to Rajesh is Rs. 20000	
	c.	Today's maximum temperature is 30 degrees Celsius	**d.**	Fluctuations in potatoes price in a week	
2.	_____means the aggregate of items to be studied in statistical enquiry.				1
	a.	Population	**b.**	Sample	
	c.	Survey	**d.**	All of these	
3.	What points should the investigator bear in mind while using secondary data?				3
4.	"All statistics is data, but all data is not statistics." Justify this statement in light of the features of statistics in the plural sense				4
5.	*a)* What are the main sources of error while collecting data *b)* Compare and contrast the census and sampling methods of data collection				3 , 3
	SECTION B: MICROECONOMICS				
6.	Positive Economics involves statements that are_____ (select the correct answer)				1
	a.	verifiable	b.	unverifiable	
	c.	Always true	d.	Are based on value judgements	
7.	Due to the pandemic, there has been a slowdown and many firms have shut down or scaled back operations. Which of the following illustrates the effect on the PPC of India?				1
	a.	Leftward shift of PPC	b.	Movement from a point within the PPC to a point on PPC	
	c.	Movement from a point on the PPC to a point within the PPC	d.	No effect on the PPC	
8.	If Rani is offered Pizza free of cost, how much Pizza will she consume?				1

9.	Explain the economic problem of "What to Produce and How much". Support your answer with suitable examples	3
10.	Giving reasons, comment on the shape of the Production possibility curve, based on the following schedule: Good X (units) | 0 | 1 | 2 | 3 Good Y (units) | 30 | 27 | 21 | 12	4
11.	Explain the concept of Consumer Equilibrium under cardinal approach in case of one good. Use Diagram	4
12.	a) State the Law of Diminishing Marginal Utility b) Rita consumes Tacos and Cookies. If the price of both Tacos and Cookies is Rs 10 each, and the MU from consuming Tacos is 5 while MU of consuming Cookies is 2, is Rita in equilibrium? Justify Rita's consumer behaviour	2, 4

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DPS SHARJAH

PERIODIC TEST 1(2022-2023) SET 1

Subject: Economics	*Max. Marks: 35*
Grade: 11	*Time: 80 minutes*

Name:	**Section:**	**Roll No:**

General Instructions:

- ***This question paper consists of 2 printed pages.***
- ***All answers to be written in the answer sheet provided.***

SECTION A: STATISTICS

13.	d)	1
14.	_a)	1
15.	*Ans: Ability of collecting organization, Obj and scope of secondary data shd be the same as that of the study undertaken, method of collection, time and condition of collection, definition of the unit, accuracy (any 3 explained)*	3
16.	*Ans: aggregate of facts, numerically expressed, multiplicity of causes, etc – any 3 with explanation*	4
17.	*Ans: a) error related to measurement of objects, errors due to wrong response, errors due to lack of response, error due to miscalculation, etc (any 3)* *b) Comparison based on coverage, suitability, accuracy, cost, time, nature of item, verification (any 3 with explanation)*	3, 3
	SECTION B: MICROECONOMICS	
18.	a)	1
19.	c)	1
20.	*Answer: Till her saturation point / till her TU is max/ MU=0*	1
21.	• *Resources are limited but wants are unlimited and economy cannot produce everything in whatever quantity we wish to. The economy has to **decide what** goods and services are to be produced. (1 mark)* • *For instance **which of the consumer goods** like sugar, cloth, wheat, ghee, etc. are to be produced and which of the capital goods like machines, tractors etc,. are to be produced. (1 mark)* • *Similarly choice has also to be made **between the production of war time** goods like rifles, guns, tanks and peace time goods like bread and butter (1 mark)*	3
22.	Ans MRT – [-, 3, 6, 9] – 1 mark Shape of PPC – (a) Downward sloping because of scarcity of resources. Its not possible to increase production of one good without reducing production of the other – 1 mark (b) –PPC is concave to the origin. This is because of increasing MOC/ MRT. MRT is slope of PPC. MRT = Delta Y/Delta X. Increasing MOC implies that to produce each additional unit of good-X, more and more units of good-Y will have to be sacrificed than before. This is because resources ***are not equally efficient in production of both goods***.(2 marks – ½ mark to be deducted if reason is not given)	4

23.	Definition - In case of a single good, a consumer will buy that qty of the good where his worth of satisfaction from the last unit of the good is equal to the worth of sacrifice made on that unit of the good. – 1 mk Eqm condition : $MU_X/MU_M = Px$ – 1 mark *Diagram 1 mark* *Explanation of two diseqm cases – Case 1:* $MU_X/MU_M > Px$ (1 mark) & Case 2: $MU_X/MU_M < Px$ (1 mark)	4
24.	Ans: his law states that when a consumer goes on consuming more and more of Good X, his TU increases, reaches max,and then falls. His MU goes on diminishing, becomes zero and then becomes negative. (2 marks) a) Rita will be in eqm when $MU_T/ P_T = MU_C/P_C$ (1 mark). In this case, 10/ 5 <10/2 or $MU_T/ P_T < MU_C/P_C$ (1 mark) so Rita is not in eqm. In this case, Rita will increase consumption of Cookies and reduce consumption of Tacos (leading to increase in MUT and decrease in Muc because of Law of DMU). This will continue till equilibrium is reached (2 marks)	2, 4

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DPS SHARJAH

PERIODIC TEST -2(2022-23)

Subject: ECONOMICS **Grade: XI**	*Max. Marks:35* *Time: 80 Minutes*

Name:	**Section:**	**Roll No:**

General Instructions:

- *All the questions in both the sections are compulsory. Marks for questions are indicated against each question.*

- *This paper contains **5 very short-answer questions carrying 1 mark each**. They are required to be answered in one word or one sentence each.*
- *This paper contains **2 short-answer questions carrying 3 marks each.** Answers to them should not normally exceed 60-80 words each.*
- *This paper contains **3 short-answer questions carrying 4 marks each.** Answers to them should not normally exceed 80-100 words each.*
- *This paper contains **2 long answer questions carrying 6 marks each**. Answers to them should not normally exceed 100-150 words each.*
- *Answer should be brief and to the point and the above word limit be adhered to as far as possible.*

1.	Which of the following statement is correct				1
	a.	There is difference between supply and stock	**b.**	Supply does not depend on government's tax policy	
	c.	Stock refers to the quantity which comes to market for sale.	**d.**	Stock and supply are always equal.	
2.	Trendz produces both Jeans and Shirts. How will an increase in the price of Jeans affect the supply curve of Shirts?				1
3.	Individual supply curves are steeper as compared to market supply curve. Comment				1
4.	If the quantity supplied does not change at all as price changes, what will be the elasticity of supply?				1
5.	When 15% increase in price of the commodity causes 10% increase in the quantity supplied, then elasticity of supply is				1
	a.	Es=0	**b.**	Es=1	
	c.	Es>1	**d.**	Es<1	
6.	A fruit seller sells 56 kg per day when the price of apple is ₹ 7 per kg. When price rises to ₹ 8 per kg, how much quantity of the apples will the seller sell when the elasticity of supply is unitary in this case.				3
7.	Define price elasticity of supply and draw a supply curve for each of the following situations of elasticity of supply. a) Es>1 b) Es=0				3
8.	How do changes in prices of inputs influence the supply of a product? Explain,				4
9.	Distinguish between individual supply curve and the market supply curve.				4
10.	Examine *any* of the four factors affecting price elasticity of supply				4
11.	i) The following headline appeared in the economic times. "*Import duty on crude oil &refined edible oil up by 5%".* Examine the impact of this statement on the supply of crude oil and refined edible oil in the domestic market. Use diagram. ii) Explain the law of supply with the help of a supply schedule and diagram				3 3

12.	Explain the distinction between “movement along the supply curve” and “shift of supply cure”. Use diagrams.	3 , 3

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DPS SHARJAH

PERIODIC TEST -2(2022-23)

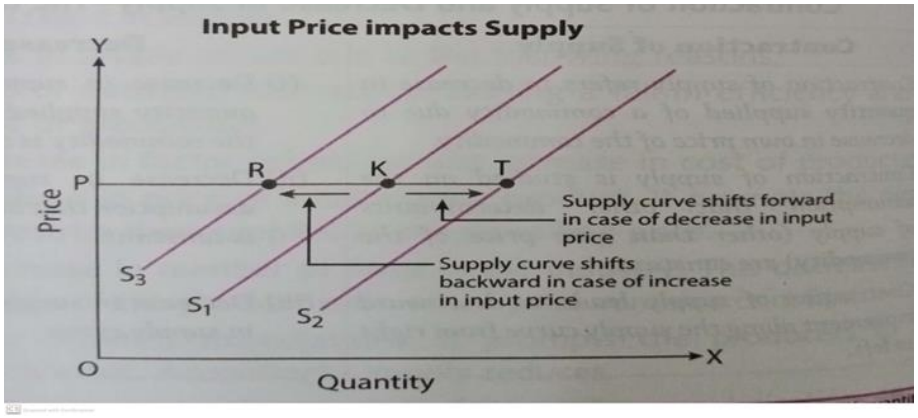
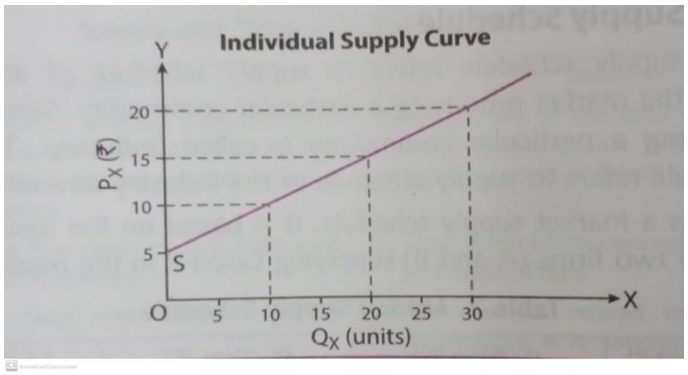
Subject: ECONOMICS
Grade: XI

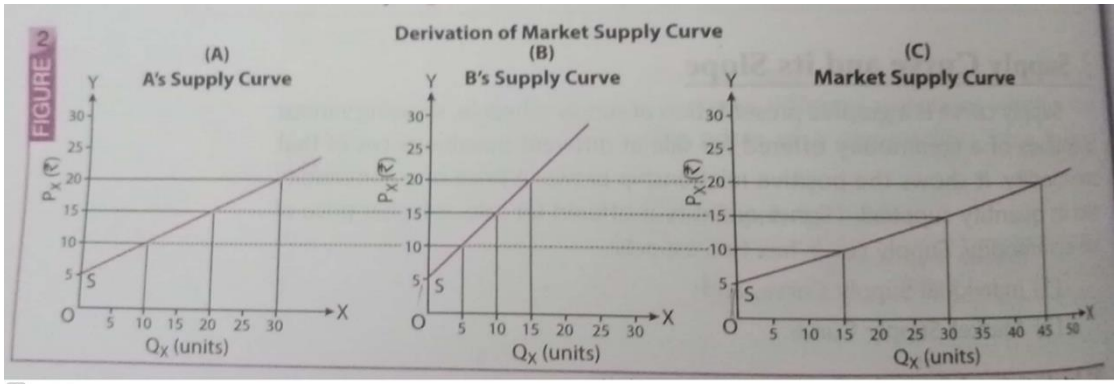
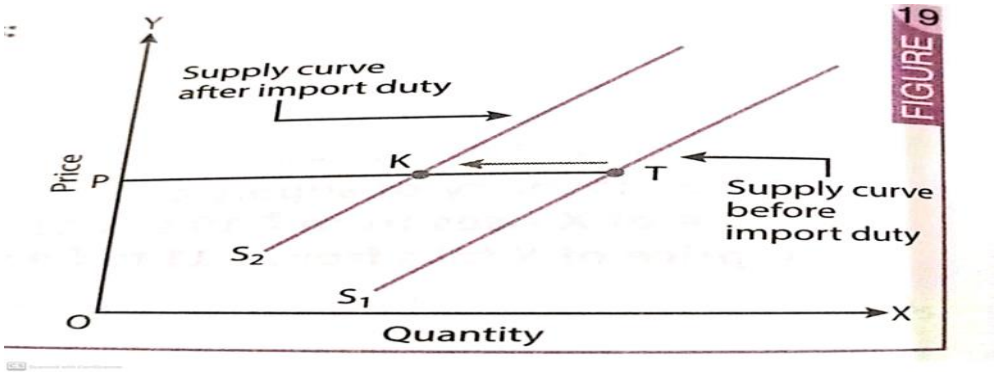
Max. Marks:35

Time: 80 Minutes

Answer key

1.	Which of the following statement is correct				1
	a.	There is difference between supply and stock	**b.**	Supply does not depend on government’s tax policy	
	c.	Stock refers to the quantity which comes to market for sale.	**d.**	Stock and supply are always equal.	
2.	An increase in the price of Jeans will make the production of Jeans more attractive. As a result, Trendz will shift its resources from Shirts to Jeans. It will shift the supply curve of shirts towards left.				1
3.	True It happens because with a change in price, the proportionate change in market supply is more than the proportionate change in individual supplies.				1
4.	Perfectly inelastic supply				1
5.	When 15% increase in price of the commodity causes 10% increase in the quantity supplied, then elasticity of supply is:				1
	a.	Es=0	**b.**	Es=1	
	c.	Es>1	**d.**	Es<1	
6.	Ans: 64				3
7.	Price elasticity of supply measures the degree of extension and contraction of supply in response to a change in own price of the commodity. 1 a) Diagram 1 b) Diagram 1				

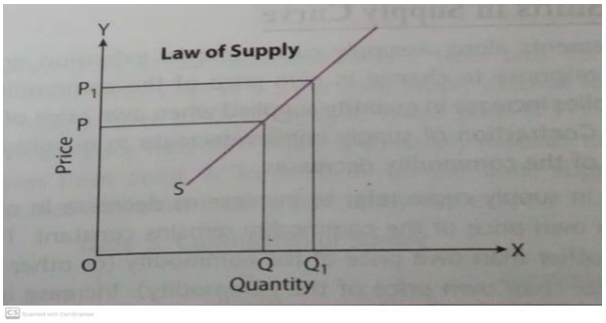
8.	In the case of an increase in input price, the cost of production tends to rise. Accordingly, producers will supply less of the commodity at its existing price. This implies a backward shift in supply curve or decrease in supply. 1 On the other hand, if input price falls, the cost of production will decline. Accordingly, producers will supply more of the commodity at its existing price. This implies a forward ward shift in supply curve or increase in supply. 1  Decrease in input price causes a forward shift in supply curve from S1S1 to S2S2. Increase in input price causes a backward shift in supply curve from S1S1 to S3S3 2	
9.	Individual supply curve is a graphic presentation supply schedule of an individual firm in the market. **Price** | **Qty supplied** 5 | 0 10 | 10 15 | 20 20 | 30  \ Supply curve(S) slopes upward, it shows that more of a commodity is supplied at a higher price Market supply curve is a graphic presentation of market supply schedule.	

	Market supply curve is a horizontal summation of the individual supply curves of the various firms producing a particular commodity in the market.  It shows various quantities of a commodity that all the firms in the market are ready to sell at different possible prices of that commodity. 4	
10.	Factors affecting elasticity of supply 1) Nature of inputs used 2) Natural constraints 3) Risk taking 4) Nature of the commodity 5) Cost production etc (Explanation of any four) 4	
11.	i) When import duty on crude and refined edible oil is up by 5% (other things remaining constant), it causes a rise in the cost of imports. Accordingly, producers will supply less of crude oil and refined edible oil at the existing price, or they will sell the same quantity only at a higher price. This implies a backward shift in supply curve or decrease in supply. 3  ii)	

The law of supply states that other things remaining constant, quantity supplied of a commodity increases with increase in price and decreases with a fall in its price.

In other words, there is a positive relationship between the price and quantity supplied.

Px (Rs)	Sx(Units)
10	100
20	200
30	300



Supply curve (SS) slopes upward and shows increase in quantity supplied in response to increase in price of the commodity. 1+1+1=3

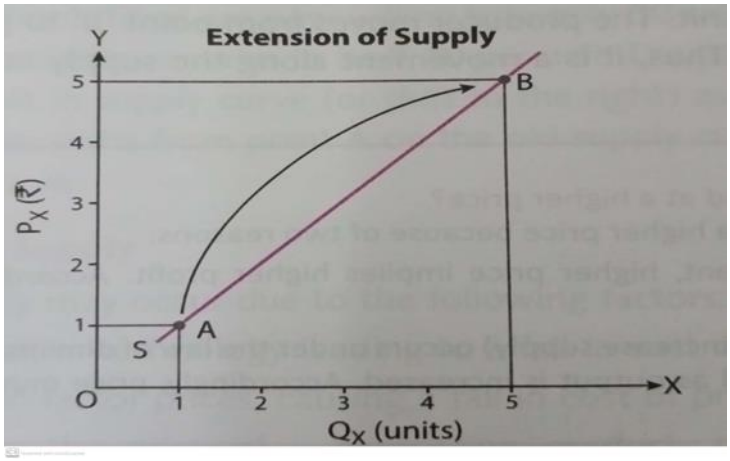
12. 3, 3

Movement along a supply curve refers to extension or contraction of supply in response to a change in own price of the commodity, other determinants of supply remaining constant. Increase in quantity supplied of a commodity due to rise in its price is called extension of supply and decrease in quantity supplied due to fall in its price is called contraction of supply.

1) ***Extension of supply:***

Extension of supply occurs when quantity supplied of a commodity increases due to an increase in own price of the commodity

Px (Rs)	Qx (Units)	Description
1	1	Rise in own price of the commodity
5	5	Extension of supply



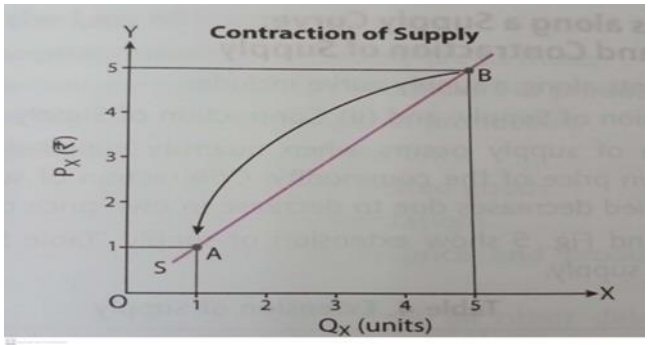
Extension of supply is shown by a movement from point A to B on the supply curve. More is supplied in response to the increase in own price of the commodity.

Movement from the lower point to the higher point on the same supply curve is called extension of supply.

2) <u>Contraction of supply.</u>

Contraction of supply occurs when quantity supplied of a commodity decreases due to decrease in own price of the commodity.

Px (Rs)	Qx(Units)	Description
5	5	Fall in own price of the commodity
1	1	Contraction of supply



Contraction of supply is shown by a movement from point B to A on the supply curve. Less is supplied in response to a decrease in the price of the commodity.

Movement from a higher point to a lower point on the same supply curve is called contraction of supply. 3

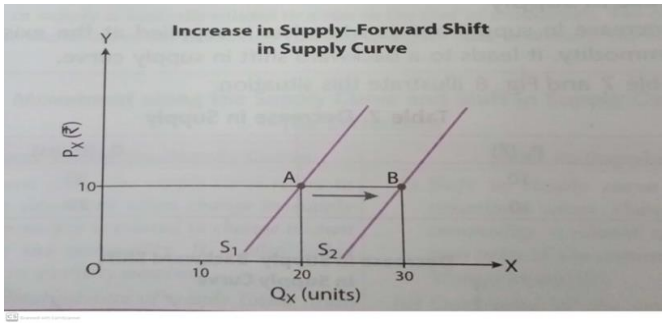
Shift in supply refers to a situation of increase or decrease in quantity supplied of a commodity even when own price of the commodity remains constant.it is caused by factors, other than own price of the commodity.

Increase in supply(Forward shift in supply curve)

Increase in supply occurs when more is supplied at the existing price, while decrease in supply occurs when less is supplied at the existing price.

Increase in supply is indicated by a forward shift in supply curve and decrease in supply is indicated by a backward shift in supply curve.

Px (Rs)	Qx(Units)
10	20
10	30

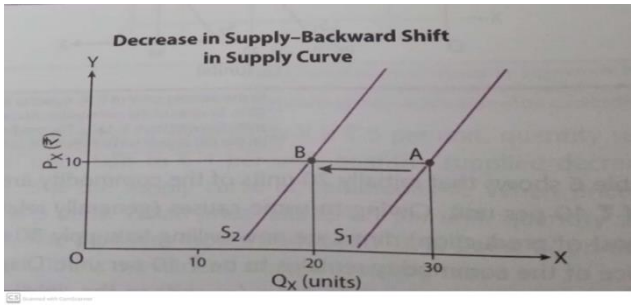


At the existing price of Rs 10, the quantity supplied increases from 20 to 30 units of the commodity. Accordingly, the supply curve **shifts forward from S1 to S2. The producer shifts from point A on the old supply curve to point B on the new supply curve**.

Decrease in supply (Backward shift of supply curve)

Decrease in supply occurs when less is supplied at the existing price of the commodity. It leads to a backward shift in supply curve.

Px(Rs)	Qx(Units)
10	30
10	20



At the existing price of Rs 10, the quantity supplied decreases from 30 to 20 units of the commodity. Accordingly, the supply curve **shifts backward from S1 to S2. The producer shifts from point A on the old supply curve to point B on the new supply curve**.

3

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DPS SHARJAH

PERIODIC TEST -3 (2022-23)

Subject: ECONOMICS
Grade: XI

Max. Marks:35

Time: 80 Minutes

General Instructions:

- *All the questions in both the sections are compulsory. Marks for questions are indicated against each question.*
- *This paper contains **5 very short-answer questions carrying 1 mark each**. They are required to be answered in one word or one sentence each.*
- *This paper contains **2 short-answer questions carrying 3 marks each.** Answers to them should not normally exceed 60-80 words each.*
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- *This paper contains **2 long answer questions carrying 6 marks each**. Answers to them should not normally exceed 100-150 words each.*

Answer should be brief and to the point and the above word limit be adhered to as far as possible.

PART A: Statistics

1.	Ogives can be helpful in locating graphically the				1
	a.	Mode	**b.**	Mean	
	c.	Median	**d.**	Correlation	
2.	State two features of Bar diagrams				1
3.	Present the following information in a suitable table and fill in the missing data: • In 2020, out of a total of 3000 workers, 2100 workers were members of a trade union. The number of women employed was 750, of which 250 did not belong to any trade union.				3
4.	The data shows expenses incurred by consumer on various items during a year. Present the data with the help of Pie Diagram				4

Item	**Expenses (‘000)**
Petrol	60

		Electricity	20		
		Education	80		
		Food items	40		

5. Answer both part (a) and (b) — 2,4

a) Why are histograms called two dimensional diagrams? What is the difference between a histogram and a polygon?

b) Construct a histogram from the following data:

Marks	0-10	10-20	20-30	30-40	40-60	60-90
No of students	6	10	26	22	10	9

PART B: Microeconomics

6. Payment for raw material is: — 1

	a.	Both Fixed cost and implicit cost	**b.**	Both Fixed cost and explicit cost
	c.	Both variable cost and implicit cost	**d.**	Both variable and explicit cost

7. Read the following statements Assertion (A) and Reason(R). Choose the correct alternative given below. — 1

Assertion (A): Variable factors can be changed in the short run.

Reason (R): Variable factors are not required in case of zero output.

Alternatives:

a) Both Assertion (A) and Reason (R) are true and R is the correct explanation of A.

b) Both Assertion (A) and Reason (R) are true but R is not the correct explanation of A.

c) Assertion (A) is true but Reason(R) is false.

d) Assertion (A) is false but Reason(R) is true

8. The average cost is ₹ 20 and it is minimum when 4 units are produced. The marginal cost of producing 4 units is. — 1

	a.	₹20	**b.**	₹25
	c.	₹80	**d.**	₹5

9. Give reasons whether the following are true or false: — 3

(i) Average product will increase only when marginal product increases.

(ii) Average product cuts marginal product at its highest point

10. Complete the following table: — 4

Output (units)	**Average Variable Cost (AVC)**	**Total Cost (TC)**	**Marginal Cost (MC)**
1	…...	60	20
2	18	…...	…...
3	…...	…...	18
4	20	120	…...
5	22	…...	…...

11.	Answer the following: i) Give two examples of Fixed cost ii) With the help of a diagram, explain the relationship between Total Variable Cost (TVC) curve and Marginal Cost (MC) curve	1,3
12.	Explain the Law of Variable Proportion with the help of schedule and diagram.	6

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PERIODIC TEST -3 (2022-23)

Subject: ECONOMICS
Grade: XI

Max. Marks:35

Time: 80 Minutes

PART A: Statistics

1.	Ogives can be helpful in locating graphically the				1
	a.	Mode	**b.**	Mean	
	c.	Median	**d.**	Correlation	
2.	State two features of Bar diagrams *Ans: Breadth remain the same, bars are equidistant from each other, common base line, bars my be vertical or horizontal (any 2- ½ mark each)*				1
3.	Present the following information in a suitable table and fill in the missing data: • In 2020, out of a total of 3000 workers, 2100 workers were members of a trade union. The number of women employed was 750, of which 250 did not belong to any trade union. *Ans:* *½ mark format*				3

	2020		
	Trade Union	**Non Trade Union**	**Total**

Male	1600	650	2250	
Female	500	250	750	
Total	2100	900	3000	

½ mark for finding missing values

4. The data shows expenses incurred by consumer on various items during a year. Present the data with the help of Pie Diagram — 4

Item	**Expenses ('000)**
Petrol	60
Electricity	20
Education	80
Food items	40

Ans:

Item	**Expenses ('000)**	Percent	Degree/ Angle
Petrol	60	30	108
Electricity	20	10	36
Education	80	40	144
Food items	40	20	72
	200	100	360

Table: 2 marks; Pie – 2 marks

5. Answer both part (a) and (b) — 2, 4

a) Why are histograms called two dimensional diagrams? What is the difference between a histogram and a polygon?

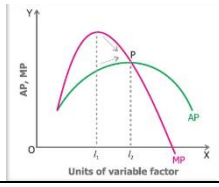
b) Construct a histogram from the following data:

Marks	0-10	10-20	20-30	30-40	40-60	60-90
No of students	6	10	26	22	10	9

Ans:

a) Because both length and breadth matter. Histogram becomes a frequency polygon if we draw a line joining the midpoints of the tops of all rectangles.

Marks	0-10	10-20	20-30	30-40	40-60	60-90
No of students	6	10	26	22	10	9
Adj factor	1	1	1	1	2	3
Frequency	6	10	26	22	5	3

	Table – 2 marks, diagram 2 marks				
	PART B: Microeconomics				
6.	Payment for raw material is:				1
	a.	Both Fixed cost and implicit cost	**b.**	Both Fixed cost and explicit cost	
	c.	Both variable cost and implicit cost	**d.**	Both variable and explicit cost	
7.	Read the following statements.: Assertion (A) and Reason(R). Choose the correct alternative given below. Assertion (A): Variable factors can be changed in the short run. Reason (R). Variable factors are not required in case of zero output. *Options:* a) Both Assertion (A) and Reason (R) are true and R is the correct explanation of A. b) Both Assertion (A) and Reason (R) are true but R is not the correct explanation of A. c) Assertion (A) is true but Reason(R) is false. d) Assertion (A) is false but Reason(R) is true				1
8.	The average cost is ₹ 20 and it is minimum when 4 units are produced. The marginal cost of producing 4 units is.				1
	a.	₹20	**b.**	₹25	
	c.	₹80	**d.**	₹5	
9.	Give reasons whether the following are true or false: (iii) Average product will increase only when marginal product increases. (iv) Average product cuts marginal product at its highest point *(i) False- AP can rise even when MP falls between L1 and L2 – 1mark* *(ii) MP cuts AP at its highest point from above (pt P) – 1 mark* *(Diagram – 1 mark);* 				3
10.	Complete the following table:				4

Output (units)	Average Variable Cost (AVC)	Total Cost (TC)	Marginal Cost (MC)
1	…...	60	20
2	18	…...	…...
3	…...	…...	18
4	20	120	…...
5	22	…...	…...

Ans:

Output (units)	Average Variable Cost (AVC)	Total Cost (TC)	Marginal Cost (MC)	TVC	TFC

1	20	60	20	20	40
2	18	76	16	36	40
3	18	94	18	54	40
4	20	120	26	80	40
5	22	150	30	110	40

11. Answer the following:

iii) Give two examples of Fixed cost — 1,

iv) With the help of a diagram, explain the relationship between Total Variable Cost (TVC) curve and Marginal Cost (MC) curve — 3

Ans: (i)Rent, interest on loan taken or any other valid examples

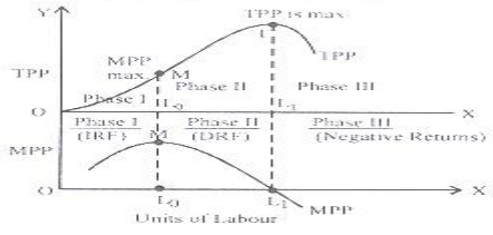
(ii) Diagram (1mark). Relationship:

- *MC is slope of TVC*
- *When MC is rising, TVC increases at an increasing rate.*
- *When MC is falling, TVC increases at a diminishing rate.*
- *When MC is constant, TVC increases at a constant rate.*

12. Explain the Law of Variable Proportion with the help of schedule and diagram. — 6

Defn: LVP states that if we go on using more and more units of a variable factor with fixed factor TPP increases at an increasing rate in the beginning then increases at a diminishing rate after a level of output and ultimately it falls. In accordance with the law MPP increases in the beginning, then it starts falling but remains positive and it continues to fall and becomes negative. The following schedule and diagram illustrates the law:-

Units of Land (Acres)	Units of Labour	TPP_L	MPP_L	Phases
1	1	3	3	TPP rises at an increasing rate, i.e., MPP rises.
1	2	7	4	
1	3	12	5	
1	4	16	4	TPP rises at diminishing rate, i.e., MPP falls both remains positive.
1	5	19	3	
1	6	21	2	
1	7	22	1	
1	8	22	0	
1	9	21	−1	TPP falls, i.e., MPP becomes negative
1	10	19	−2	



The schedule and diagram show that there are three phases of the law of variable proportions. In the phase I, TPP increases at an increasing rate and MPP rises. In phase II, TPP increases at decreasing rate and MPP falls but remains positive. In phase III, TPP starts falling and MPP becomes negative. Phase I is upto point M and phase II is from point M to point T. Phase III is after T.

(1 for defn+1 for diag,1 for schedule+ 3 for expl(½ for phase + ½ for reason))

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DELHI PRIVATE SCHOOL L.L.C.

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(Approved & Recognized By Ministry of Education - United Arab Emirates)

DPS SHARJAH

FIRST TERM QUESTION PAPER (2022-23)

Subject: ECONOMICS **Grade: XI**	*Max. Marks:80* *Time: 3 hours*

Name:	**Section:**	**Roll No:**

General Instructions:

- *All the questions in both the sections are compulsory. Marks for questions are indicated against each question.*
- *Question number 1 – 10 and 18 – 27 are very short-answer questions carrying 1 mark each. They are required to be answered in one word or one sentence each.*
- *Question number 11 - 12 and 28 - 29 are short-answer questions caring 3 marks each. Answers to them should not normally exceed 60-80 words each.*
- *Question number 13 - 15 and 30 - 32 are also short-answer questions carrying 4 marks each. Answers to them should not normally exceed 80-100 words each.*
- *Question number 16 - 17 and 33 - 34 are long answer questions carrying 6 marks each. Answers to them should not normally exceed 100-150 words each.*
- *Answer should be brief and to the point and the above word limit be adhered to as far as possible.*

	SECTION - A (Statistics for Economics)				
1.	A survey in which information is collected from every unit of the population is known as				(1)
	a.	Sample survey	**b.**	Census survey	
	c.	Pilot survey	**d.**	None of these.	
	OR Define the term enumerator				(1)
2.	For the mid values given: 25, 34, 43, 53, 61, 70 The first class of the distribution is				(1)
	a.	25-34	**b.**	24.5-34.5	
	c.	20-30	**d.**	20.5-29.5	
3.	A series in which every class interval excludes items corresponding to its upper limit is called				(1)
	a.	Exclusive series	**b.**	Inclusive series	

	c.	Cumulative Frequency	**d.**	Open ended series	
4.	What are the class limits?				(1)
5.	The following data relate to the marks of a group of students How many students get marks more than 30?				(1)
	a.	65	**b.**	50	
	c.	35	**d.**	43	
6.	Arithmetic mean of these items: 10, 15, X, 20, 30 is 20. Find out the missing item.				(1)
	a.	10	**b.**	15	
	c.	5	**d.**	25	
7.	Athematic means gives more stress on items of higher value as compared to items of smaller values. Do you agree.				(1)
8.	In case of even number of observations, which of the following is median?				(1)
	a.	Either of the middle-most values.	**b.**	The simple average of the middle values.	
	c.	The weighted average of the two middle values.	**d.**	Difference of the middle values	
9.	In a frequency distribution of a series, the value of mode is				(1)
	a.	Smallest observation	**b.**	Largest observation	
	c.	Observation with maximum frequency	**d.**	Maximum frequency of an observation	
10.	For open- end classification, which of the following is the best measure of central tendency.				(1)
	a.	Arithmetic Mean	**b.**	Median	
	c.	Mode	**d.**	All of these.	
11.	"Statistical methods are most dangerous tools in the hands of an inexpert". Discuss.				(3)
12.	"Arithmetic mean is affected by very large and very small values but median and mode are not affected by them". Explain. Or Explain any three essentials of a good average				(3)
13.	Answer both a) and b) a) Give any two differences between primary and the secondary data. b) Differentiate between and questionnaire and a schedule				(2,2)

Marks	Number of students
Below 10	15
Below 20	38
Below 30	65
Below 40	84
Below 50	100

14. The marks obtained by 25 students in a class are as follows. (1+3)

22	28	30	32	35
40	41	43	44	45
48	49	52	53	54
56	58	60	62	65
69	37	45	56	68

i) What is meant by a continuous series or frequency distribution?

ii) Prepare an exclusive frequency distribution series of data given above, having a class interval of 10

OR

Ans both parts (a) & (b) (2+2)

a) Distinguish between discrete and continuous variable. Explain with an example

b) Explain any two characteristics of classification

15. Find out median of the following distribution. (4)

Wage rate	5-15	15-25	25-35	35-45	45-55	55-65
No. of workers	4	6	10	5	3	2

16. Following information pertains to the daily income of 150 families. Calculate arithmetic mean by using the step -deviation method. (6)

Income (in Rs)	More than 75	More than 85	More than 95	More than 105	More than 115	More than 125	More than 135	More than 145
No. of families	150	140	115	95	70	60	40	25

17. (2+2+2)

i) Explain one merit and demerit of median

ii) Weight of eight students in kg is noted as

71,72,64,68,70,76,73,75

Find the median weight.

iii) The mode and mean are ***26.6*** and ***28.1***respectivley in an asymmetrical distribution. Find out the value of median.

OR

a) Find out mode of the following distribution.

Marks	0-5	5-10	10-15	15-20	20-25	25-30

	No: of students	1	2	10	4	9	2	

b) State **any** four merits of mode as a measure of central tendency. (4+2)

	SECTION-B (Introductory microeconomics)				
18.	Define microeconomics				(1)
19.	When an economy is operating on the PPC, it indicates:				(1)
	a.	Potential output > actual output	**b.**	Potential output = actual output	
	c.	Potential output < actual output	**d.**	None of these.	
20.	What is meant by economic problem? Or Mention the two characteristics of resources				(1)
21.	What is the shape of marginal utility curve?				(1)
22.	A consumer will purchase more of Good -X than Good -Y, only when				(1)
	a.	MUx/Px =MUm	**b.**	MUx/Px< MUy/Py	
	c.	MUy/Py =MUm	**d.**	MUx/Px > MUy/Py.	
23.	In an indifference map, higher indifference curve indicates				(1)
	a.	Lower level of satisfaction.	**b.**	Higher level of satisfaction.	
	c.	Same level of satisfaction.	**d.**	Either same or higher level of satisfaction.	
24.	If the quantity demanded of Good-X decreases as the household income increases, what type of good is X				(1)
25.	Specific quantity to be purchased against a specific price of the commodity is called:				(1)
	a.	Demand	**b.**	Quantity demanded.	
	c.	Movement along the demand curve.	**d.**	Shift in demand curve.	
26.	What will be the elasticity of demand when demand curve is parallel to Y-axis?				(1)
	a.	Unity	**b.**	Zero	
	c.	Less than unity	**d.**	More than unity	
27.	How is the market demand curve derived from individual demand curves?				(1)
28.	Explain the meaning of diminishing marginal rate of substitution with the help of a numerical example.				(3)
29.	A and B are substitute goods. Explain the effect of rise in price of A on the demand for B. Or What is the relationship between price elasticity of demand of a commodity and total expenditure on it. Explain.				(3)
30.	Discuss the problem of 'what to produce'. Does it arise in every economy? Explain.				(4)

31.	Are the following statements true or false? Justify using diagrams a) "Higher indifference curve shows higher levels of satisfaction". b) "Indifference curves can intersect each other". OR Define Utility. Explain the law of diminishing marginal utility with the help of a schedule.	(2,2) OR (1,3)
32.	i) What is meant by price elasticity of demand? ii) A consumer buys 80 units of a good at a price of Rs 4 per unit. When the price falls, he buys 100units. If the price elasticity of demand is **(-1)**, find out the new price.	(1+3)
33.	Explain consumer's equilibrium with the help of Indifference Curve analysis. Use diagram.	(6)
34.	Answer both a) and b) a) Examine the effect of an increase in the income of a consumer on the demand of a commodity. Use diagram b) Why is more of a good is purchased when its price falls. **Or** Answer both i) and ii) i) Distinguish between extension of demand and increase in demand. ii) There are train and bus services between New Delhi and Jaipur. Suppose that the train fare between the two cities comes down. How will this effect demand curve for bus travel between the two cities?	(4+2)

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- *Answer should be brief and to the point and the above word limit be adhered to as far as possible.*

SECTION - A (Statistics for Economics)

1. A survey in which information is collected from every unit of the population is known as (1)

a.	Sample survey	**b.**	Census survey	
c.	Pilot survey	**d.**	None of these.	

OR

Enumerator is a person who actually collects the desired statistical information or statistical data. Often the enumerators are trained personnel hired by the investigator for field work. (1)

2. For the mid values given: (1)
25, 34, 43, 53, 61, 70
The first class of the distribution is

a.	25-34	**b.**	24.5-34.5	
c.	20-30	**d.**	20.5-29.5	

3. A series in which every class interval excludes items corresponding to its upper limit is called (1)

a.	Exclusive series	**b.**	Inclusive series	
c.	Both a) and b)	**d.**	None of these.	

4. What are the class limits? (1)

5. The following data relate to the marks of a group of students (1)

Marks	Number of students
Below 10	15
Below 20	38
Below 30	65
Below 40	84
Below 50	100

How many students get marks more than 30?

	a.	65	**b.**	50	
	c.	35	**d.**	43	
6.	Arithmetic mean of these items: 10, 15, X, 20, 30 is 20. Find out the missing item.				(1)
	a.	10	**b.**	15	
	c.	5	**d.**	25	
7.	Athematic means gives more stress on items of higher value as compared to items of smaller values. Do you agree.				(1)
8.	In case of even number of observations, which of the following is median?				(1)
	a.	Any of the middle-most value.	**b.**	The simple average of these middle values.	
	c.	The weighted average of those two middle values.	**d.**	None of these.	
9.	In a frequency distribution of many values, the mode is				(1)
	a.	Smallest value	**b.**	Largest observation	
	c.	Observation with maximum frequency.	**d.**	Maximum frequency of an observation	
10	For open- end classification, which of the following is the best measure of central tendency.				
	a.	Arithmetic mean	**b.**	Median	
	c.	Mode	**d.**	All of these	
11.	Statistics can be used only by those persons who have special knowledge of statistical methods. Those who are ignorant about these methos cannot make sensible use of statistics. It can , therefore , be said that data in the hands of an unqualified person is like a medicine in the hands of quack who may abuse it, leading to disastrous consequences.				(3)
12.	Median is the value of the middle item of a series arranged in ascending or descending order of magnitude. Mode only takes at the points around which the items tend to be most heavily concentrated. Arithmetic mean considers the value of all items (ie very large and very small) in a series. Thus, it is only arithmetic mean which is affected by extreme values in the series OR Representative, stable, clarity, algebraic treatment etc (explain any 3)				(3)
13.	a) <u>Differences between primary and secondary data</u>. a] Primary data is original because these are collected by the investigator from the source of their origin. Against this, secondary data are already in existence and therefore, not original. b] Primary data are always related to a specific objective of the investigator. On the other hand, secondary data have already been collected for some other purpose. c] Primary data are costlier in terms of time, money and efforts involved than the secondary data. On the other hand. secondary data are less expensive.				(4) 2+ 2

b) Qsaire answers recorded by respondents but schedule answer recorded by enumerator

14.

i)Continuous series or frequency distribution is that series in which items cannot be exactly measured. The items assume a range of values and are placed within the range or limits.

ii)

C-I	Tally bars	Frequency
20-29	II	2
30-39	IIII	4
40-49	~~IIII~~ III	8
50-59	~~IIII~~ I	6
60-69	~~IIII~~	5
		25

OR

a)

Discrete variables are those variables that increase in jumps or in complete numbers Continuous variables are that assume a range of values or increase not in jumps but continuously or in fractions are called continuous variables. Any valid example

In short, while the values of discrete variables are in complete numbers (1,2,3etc) values of continuous variables are in fractions or are in any range.

B) Comprehensive, clarity, etc – any two to be explained

1

(3)

2+2

15.

Wage rate	Number of works (f)	cf
5-15	4	4
15-25	6	10 -m
25-35	10	20
35-45	5	25
45-55	3	28
55-65	2	30
	N=30	

Median class =Size of $(N/2)^{th}$ item in cf

= Size of $(30/2)^{th}$ item in cf

= Size of 15^{th} item in cf

(4)

Median class =25-35 1

$Median = l_1 + (N/2 - m) \cdot \frac{c}{f}$

1

=25 +(15- 10) *10/10

= 25 + 5*10/10

= 25 +5=30 1

1+1+1+1=4

16. (6)

Mean =A+ fd'/N*C 1

Income	No. of families (f)	m	d=m-A	d' =m-A/C	fd'
75-85	10	80- A	0	0	0
85-95	25	90	10	1	25
95-105	20	100	20	2	40
105-115	25	110	30	3	75
115-125	10	120	40	4	40
125-135	20	130	50	5	100
135-145	15	140	60	6	90
145-155	25	150	70	7	175
	N=150				545

4

Mean = 80+ 545 /150*10

= 80 + 3.633*10

= 80+ 36.33 =116.33

1

1+4 +1 =6

17. (6)

<u>Merits:any one explained</u>

- Simplicity
- Free from the effect of extreme value
- Certainty
- Real value etc

<u>Demerits: any one explained</u>

- Lack of representative character

- Un realistic
- Lack of algebraic treatment

1

Ascending order: 64,68,70,71,72,73,75,76

Median = $\frac{\text{Size of } (N/2)^{th} \text{ item} + \text{Size of } (N/2+1)^{th} \text{ item}}{2}$ 1

$= \frac{\text{Size of } 4^{th} \text{ item} + \text{Size of } 5^{th} \text{ item}}{2}$

$= \frac{71+72}{2}$

$=71.5$ 1

Mode = 3 Median – 2 Mean 1

$26.6 = 3 \text{ Median} - 2*28.1$

$26.6 = 3 \text{ Median} - 56.2$

$3 \text{ Median} = 82.8$

Median = 82.8/3 =27.6 1

1+1+1 +1+1+1 =6

OR

Marks	No. of students
0-5	1
5-10	2 f0
10-15	10 f1
15-20	4 f2
20-25	9
25-30	2
	N=28

$$\text{Mode} = l_1 + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times c\right)$$

= 10 +(10-2)/ 2*10-2-4*5

=10 +8/14*5

=10+40/14

=10+ 2.857

=12.86

b)

	i)Simple and popular ii)Less effect of marginal value iii)Graphic determination iv)Best representation				
	SECTION-B (Introductory microeconomics)				
18	Microeconomics is that branch of economics which studies economic problems (economic issues) at the level of an individual like a consumer, or a producer.				(1)
19.	When an economy is operating on the PPC, it indicates:				(1)
	a.	Potential output > actual output	**b.**	Potential output = actual output	
	c.	Potential output < actual output	**d.**	None of these.	
20.	Economic problem is a problem related to the allocation of resources (or problem of choice) arising due to limited means in relation to unlimited wants. Or a) Resources are scarce in relation to the goods we wish to produce for the satisfaction of human wants b) Resources have alternative uses				(1)
21.	Marginal utility curve slopes downward from left to right.				(1)
22.	A consumer will purchase more of Good -X than Good -Y, only when				(1)
	a.	MUx/Px =MUm	**b.**	MUx/Px< MUy/Py	
	c.	MUy/Py =MUm	**d.**	MUx/Px > MUy/Py.	
23.	In an indifference map, higher indifference curve indicates				(1)
	a.	Lower level of satisfaction.	**b.**	Higher level of satisfaction.	
	c.	Same level of satisfaction.	**d.**	Either same or higher level of satisfaction.	
24.	Inferior good.				(1)
25.	Specific quantity to be purchased against a specific price of the commodity is called:				(1)
	a.	Demand	**b.**	Quantity demanded.	
	c.	Movement along the demand curve.	**d.**	Shift in demand curve.	
26.	What will be the elasticity of demand when demand curve is parallel to Y-axis?				(1)
	a.	Unity	**b.**	Zero	
	c.	Less than unity	**d.**	More than unity	
27.	Market demand curve is the horizontal summation of the individual demand curves.				(1)
28.	Marginal rate of substitution refers to the rate at which the consumer is willing to sacrifice good -Y for a unit more of good -X MRSxy =ΔY/ ΔX 1				(3)

Combinations	Good -X	Good -Y	MRS xy
A	1	8	---
B	2	4	4
C	3	2	2

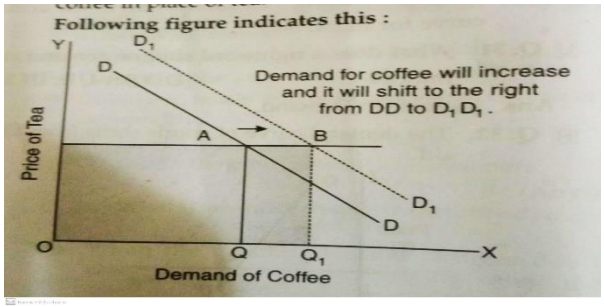
	D	4	1	1	

For each additional unit of X, the consumer is willing to sacrifice less of Y. This is the diminishing marginal rate of substitution. 2

1+2=3

29. In case of substitute goods, increase in the price of one good cause an increase in the demand of its substitute goods. (3)

For eg; Tea and Coffee are substitute goods. When the price of tea increases, it will lead to increase in the demand of coffee, as the consumers will now start consuming more coffee in place of tea.



3

OR

If rise or fall in price of a commodity makes no change in its total expenditure, then elasticity of demand is unitary.

If with fall in price of a commodity, total expenditure increases and with rise in its price, total expenditure decreases, then demand for that is greater than unitary elastic.

If with fall in price of a commodity, total expenditure decreases and with rise in its price total expenditure increases, then demand for that commodity is less than unitary elastic. In this case, total expenditure goes in the same direction as the price does. 3

30. What to produce means which goods and services are to be produced and in what quantity. The problem arises because wants are unlimited while resources are limited and have alternative uses. Therefore, there is no option but to make a choice as to what to produce and how much. 3 (4)

Every economy faces the problem of what to produce. Because resources are scarce, we cannot produce everything in whatever quantity we wish to. 1

3+1=4

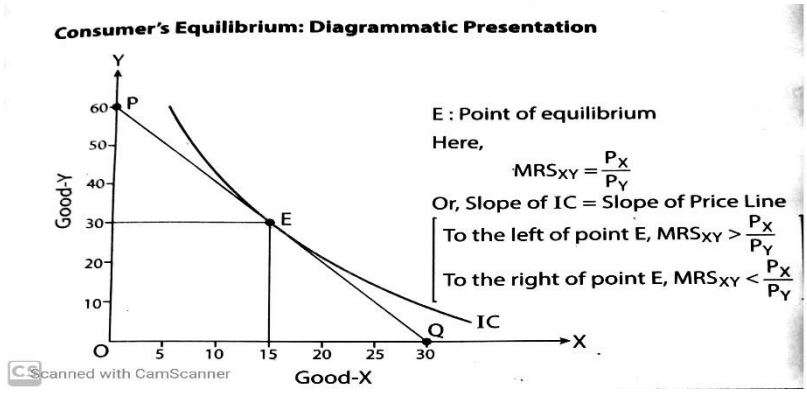
31. True (4)

An indifference curve to the right shows higher utility because in indifference map, a higher indifference curve represents those combinations which yield higher level of satisfaction than

	the combination on the lower indifference curve. This implies higher level of utility in accordance with the monotonic preference of the consumer. (1+1) B).False. Explain (1 mark) Diag (1 mark) OR Utility refers to the want satisfying capacity of a commodity. 1 Law of diminishing marginal utility states that as more and more units of a commodity are consumed, marginal utility derived from every additional unit must decline. 1 The above schedule shows that, MU declines when the consumption of the commodity increases. 2 1+1+2=4	

Units consumed	TU	MU
1	10	10
2	18	8
3	24	6
4	28	4

32.	i) What is meant by price elasticity of demand? ii) A consumer buys 80 units of a good at a price of Rs 4 per unit. When the price falls, he buys 100units. If the price elasticity of demand is **(-1)**, find out the new price. Ans Price elasticity of demand is a measurement of the degree of change in demand in response to a change in own price of the commodity. 1 Ed =ΔQ/Q*P/ ΔP 1 Ed =-1 P=4 P1=X ΔP =X-4 -1= 20/80*4/X-4 1 -1=1/X-4 X=3 1 1+1 +1 +1=4	(1 +3)
33	Consumer's equilibrium refers to optimum choice of the consumer. It is reached when he maximizes his satisfaction. 1 In terms of indifference cure analysis, the consumer reaches his optimum choice when two conditions are satisfied. 1)MRSxy = Px/Py Slope of IC= Slope of price line.	(6)

	So that, In a state of equilibrium, IC and price line are tangent to each other. 2) IC is convex at the point of equilibrium. 1+1 =2  2 E is the point of equilibrium. It is here only that MRSxy =Px/Py or Slope of IC= Slope of the price line or IC and price line are tangent to each other. The equilibrium is struck at point E where MRSxy =Px/Py . The rate at which the consumer is willing to substitute X for Y (given his tastes and preferences) coincides with the rate at which the market allows the consumer to substitute X for Y(given his income and prices of X and Y). 1 1+2+2+1 =6	
34.	Normal good - Explanation (1 mark) Diag (1 mark) Inferior good - Explanation (1 mark) Diag (1 mark) ii)There is inverse relationship between price of a commodity and its quantity demanded. This may be explained in terms of the following factors (Any 2) <u>1)Law of diminishing marginal utility:</u> According to this law, as consumption of commodity increases, the utility from each successive unit goes on diminishing to a consumer. Accordingly, for every additional unit to be purchased, the consumer is willing to pay less and less price. Thus, more is purchased only when price of the commodity falls. <u>2) Income effect</u>: Income effect refers to change in quantity demanded when real income of the buyer changes owing to change in price of the commodity. With a fall in price, real income increases. Accordingly, demand for the commodity expands <u>3) Substitution effect</u>: Substitution effect refers to substitution of one commodity for the other when it becomes relatively cheaper. Tea and Coffee are substitutes. With the fall in the price of tea, it is substituted in the place of coffee. It is expansion of demand due to <u>substitution effect</u>. <u>4) Size of consumer group.</u> When price of a commodity falls, many more buyers can afford to buy it. Accordingly, demand expands.	(4 +2)

5) Different uses: A good may have different uses. Eg: Milk. If price of milk reduces it will be put to different uses. Accordingly, demand for milk expands

1 +1=2

OR

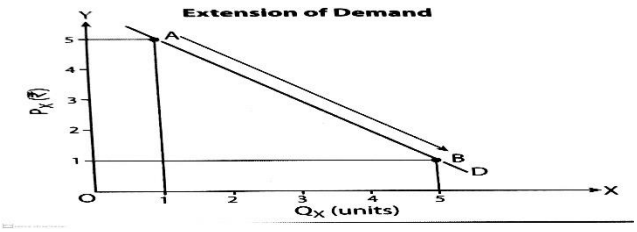
Demand curve for bus travel will shift towards left. It happens because price for substitute (train fare) has decreased and it will make the bus travel relatively costly. 1+1=2

ii)Extension and contraction of demand occur due to change in own price of the commodity. It is expressed through movement along the demand curve.

Extension of demand:

Other things being equal, when with a fall in price, quantity demanded of a commodity rises, it is called extension of demand.

Price (Rs)	Quantity (Units)	Description
5	1	Fall in Price
1	5	Rise in quantity demanded

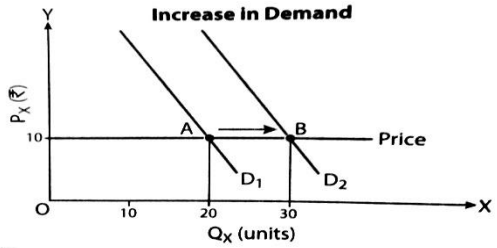


Extension of demand is indicated by a movement along the same demand curve, as from point A to B on the demand curve DD 2

Increase in demand:

When more of a commodity is purchased at its existing price, it is a situation of increase in demand.

Price of X(Rs)	Quantity demanded of X (Units)
10	20
10	30

	 Increase in demand refers to increase in quantity demanded of a commodity at its existing price. Diagrammatically, it means a forward shift in demand curve s as from D1 to D2. It is also called forward shift in demand curve. 2 2+2=4	

مـدرسـة دلهـي الخـاصـة ذ.م.م.

DELHI PRIVATE SCHOOL L.L.C.

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(Approved & Recognized By Ministry of Education - United Arab Emirates)

EEE CONSORTIUM FINAL EXAM
QUESTION PAPER (2022-23)

Subject: ECONOMICS	**Max. Marks:80**
Grade: XI	**Time: 3 hours**

Name:	**Section:**	**Roll No:**

General Instructions:

- *All the questions in both the sections are compulsory. Marks for questions are indicated against each question.*
- *Question number 1 – 10 and 18 – 27 are very short-answer questions carrying 1 mark each. They are required to be answered in one word or one sentence each.*
- *Question number 11 - 12 and 28 - 29 are short-answer questions caring 3 marks each. Answers to them should not normally exceed 60-80 words each.*
- *Question number 13 - 15 and 30 - 32 are also short-answer questions carrying 4 marks each. Answers to them should not normally exceed 80-100 words each.*
- *Question number 16 - 17 and 33 - 34 are long answer questions carrying 6 marks each. Answers to them should not normally exceed 100-150 words each.*
- *Answer should be brief and to the point and the above word limit be adhered to as far as possible.*

PART A : STATISTICS

1. Primary data is preferred over secondary data when — 1

   a. Time available is short **b.** Accuracy is important

   c. Sufficient finance is not available **d.** Much accuracy is not required

2. Given the following series, find the number of observations between 250 and 300 — 1

Class	Cumulative frequency
More than 200	56
More than 250	38
More than 300	15
More than 350	0

   a. 8 **b.** 15

   c. 23 **d.** 38

3. Suppose mean of a series of 6 items is 36. Five values 22, 8, 52, 33 and 65. Find the missing value — 1

4. Does Correlation imply causation? Give reason for your answer. — 1

   OR

   Correlation coefficient lies between:

   a. -1 and +1 **b.** -1 and 0

   c. 0 and 1 **d.** 0 and infinity

5. Choose the **correct** option:

   Statements that apply to weighted price index numbers are:-

   i. Every commodity is given equal importance
   ii. It assigns suitable weights to various commodities
   iii. In most cases quantities are used as weights
   iv. Laspeyres and Paasches method is used in the calculation of weighted index numbers — 1

   a. i, ii, and iii **b.** ii, iii, and iv

   c. i, ii and iv **d.** i,, iii and iv

6. Given below is the age of a few students. Find out their median age:

   20, 16, 19, 14, 10, 22, 11, 9 — 1

7	Read the following statements - Assertion (A) and Reason (R). Choose one of the correct alternatives given below: **Assertion (A):** The sum of deviations of the observations from their arithmetic mean is always zero. **Reason (R):** It happens because arithmetic mean is a point of balance i.e. sum of positive deviations from mean is equal to sum of the negative deviations. **Alternatives:**				1
	a.	Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).	**b.**	Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).	
	c.	Assertion (A) is true but Reason (R) is false.	**d.**	Assertion (A) is false but Reason (R) is true	
8	In a Negative Correlation between X and Y,as X increases, Y will _____				1
9	State any one characteristic that a statistician should look for while deciding upon a base year? Do you think the COVID years of 2020-21 would make good base year for 2023-24 economic analysis? Why or why not?				1
10	The mode and median of a series are 35 and 30 respectively. Calculate the value of mean				1
11	*"Statistics, especially other people's statistics are full of pitfalls for the users."* Enumerate any three precautions the investigator should keep in mind while assessing the suitability of secondary data?				3

<table>
<tr><td>12</td><td>Calculate the arithmetic mean of the following series using step deviation method:
<table><tr><td>Marks</td><td>Less than 20</td><td>Less than 30</td><td>Less than 40</td><td>Less than 50</td><td>Less than 60</td></tr><tr><td>Cumulative frequency</td><td>4</td><td>10</td><td>18</td><td>25</td><td>30</td></tr></table>
OR

What is Line of Best Fit in a scatter diagram? Given the following data, draw a scatter diagram and determine the form of association between X and Y
<table><tr><td>X</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>Y</td><td>11</td><td>12</td><td>15</td><td>20</td><td>24</td><td>18</td><td>26</td><td>29</td></tr></table></td><td>3</td></tr>
<tr><td>13</td><td>The following data related to construction of a shop in Mumbai. Present the following information in the form of a pie diagram
<table><tr><td>Items</td><td>Labour</td><td>Bricks</td><td>Iron</td><td>Cement</td><td>Timber</td><td>Miscellaneous</td></tr><tr><td>Expenditure (in Rs thousand)</td><td>120</td><td>80</td><td>70</td><td>100</td><td>60</td><td>70</td></tr></table>
OR

The following table shows the wage distribution of workers in a factory. Prepare a frequency polygon using a histogram
<table><tr><td>Daily wages</td><td>10-20</td><td>20-30</td><td>30-50</td><td>50-90</td><td>90-110</td><td>110-120</td></tr><tr><td>No of workers</td><td>8</td><td>14</td><td>16</td><td>32</td><td>7</td><td>13</td></tr></table></td><td>4</td></tr>
<tr><td>14</td><td>a) Give one demerit of median
b) Calculate Modal marks of students from the following series
<table><tr><td>Marks</td><td>40-49</td><td>50-59</td><td>60-69</td><td>70-79</td><td>80-89</td><td>90-99</td></tr><tr><td>No of students</td><td>12</td><td>30</td><td>24</td><td>20</td><td>12</td><td>2</td></tr></table></td><td>4</td></tr>
<tr><td>15</td><td>Ten competitors in a debate competition were ranked by two judges as follows. Find their rank correlation and give its interpretation
<table><tr><td>X</td><td>15</td><td>24</td><td>19</td><td>23</td><td>19</td><td>16</td><td>13</td><td>20</td><td>22</td><td>21</td></tr><tr><td>Y</td><td>9</td><td>20</td><td>22</td><td>14</td><td>22</td><td>18</td><td>17</td><td>25</td><td>12</td><td>19</td></tr></table></td><td>4</td></tr>
</table>

16 a) State any two merits of Graphical presentation of data 1
b) Draw 'less than and more than' ogive curve from the following data and Locate the median graphically. + 5

Marks	10-20	20-30	30-40	40-50	50-60	60-70
No of students	20	6	14	20	28	12

17 a) State three principal limitation of index numbers 3
b) Given the following data, find the index number of 2015 with 2010 as the base using the (i) Laspeyre's method (ii) Paasche's method + 3

Commodity	**2010**		**2015**	
	Price	**Quantity**	**Price**	**Quantity**
A	2	10	4	5
B	5	12	6	10
C	4	20	5	5
D	2	15	3	10

OR

a) Find the coefficient of correlation between marks obtained in English and French

Marks in English	**Marks in French**
26	20
32	22
33	24
34	28
30	26

b) Give any 3 merits of Mode

PART B: MICROECONOMICS

18 How many units of Pizza will Raj consume if he is at a party and Pizza is free? 1

a.	Till his Total utility from Pizza is zero	**b.**	Till Marginal Utility from Pizza is maximum	
c.	Till Marginal Utility from consuming Pizza is zero	**d.**	He will eat infinite amount of Pizza	

<table>
<tr><td>19</td><td colspan="4">From the set of statements given in Column | and Column Il, choose the correct pair of statements:
<table><tr><th></th><th>Column I</th><th></th><th>Column II</th></tr><tr><td>i</td><td>Demand</td><td>a</td><td>Specific quantity to be purchased against a specific price of the commodity</td></tr><tr><td>ii</td><td>Market demand curve</td><td>b</td><td>Vertical summation of the individual demand curves</td></tr><tr><td>iii</td><td>Normal goods</td><td>c</td><td>Income effect is negative</td></tr><tr><td>iv</td><td>Increase in demand</td><td>d</td><td>More of a commodity is purchased at its existing price</td></tr></table></td><td>1</td></tr>
<tr><td></td><td>a.</td><td>(i)-a</td><td>b.</td><td>(ii)-b</td><td></td></tr>
<tr><td></td><td>c.</td><td>(iii)-c</td><td>d.</td><td>(iv)-d</td><td></td></tr>
<tr><td>20</td><td colspan="4">Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below:
Assertion (A): Higher IC represents higher satisfaction due to monotonic preferences.
Reason (R): A consumer always prefers less units of a good over more units.

<u>Alternatives:</u></td><td>1</td></tr>
<tr><td></td><td>a.</td><td>Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).</td><td>b.</td><td>Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).</td><td></td></tr>
<tr><td></td><td>c.</td><td>Assertion (A) is true but Reason (R) is false.</td><td>d.</td><td>Assertion (A) is false but Reason (R) is true</td><td></td></tr>
<tr><td>21</td><td colspan="4">A long-run demand curve, as compared to a short-run demand curve for the same commodity, is generally:</td><td>1</td></tr>
<tr><td></td><td>a.</td><td>more elastic</td><td>b.</td><td>less elastic</td><td></td></tr>
<tr><td></td><td>c.</td><td>of the same elasticity</td><td>d.</td><td>steeper if the curves are plotted against the same horizontal scale.</td><td></td></tr>
<tr><td>22</td><td colspan="4">“The rate at which the consumer can substitute one commodity for the other, without changing the level of satisfaction, is known as _____(fill in the blank: marginal rate of substitution/ marginal utility)

OR
A consumer, Mr.Karun is in state of equilibrium consuming two goods X and Y, with given prices Px and Py . How will he react if (Mux/Px)>(MUX/Px)?</td><td>1</td></tr>
<tr><td>23</td><td colspan="4">Define Production Function</td><td>1</td></tr>
<tr><td>24</td><td colspan="4">Non-availability of close substitutes makes the demand:</td><td>1</td></tr>
</table>

<table>
<tr><td></td><td>a.</td><td>less elastic</td><td>b.</td><td>more elastic</td><td></td></tr>
<tr><td></td><td>c.</td><td>parallel to X-axis</td><td>d.</td><td>parallel to Y-axis</td><td></td></tr>
<tr><td>25</td><td colspan="4">An individual starts a retail business by taking a loan from the bank. He shop premises are owned by him. What are his explicit and implicit costs?</td><td>1</td></tr>
<tr><td>26</td><td colspan="4">Ceteris Paribus, if the government provides subsidies on electricity bills, what would be the likely change in the market demand curve of desert coolers? Show with the help of demand curve</td><td>1</td></tr>
<tr><td>27</td><td colspan="4">Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternatives given below:
Assertion (A):Budget Line / Price Line is a line showing different combinations of two goods which a consumer can attain when he spends his entire income on these goods, and the market price of the goods are known.
Reason (R): Slope of Budget Line / Price Line shows the rate at which market price allows the consumer to substitute Good-X for Good-Y. It is expressed as Px/Py
<u>Alternatives:-</u></td><td>1</td></tr>
<tr><td></td><td>a.</td><td>Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).</td><td>b.</td><td>Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).</td><td></td></tr>
<tr><td></td><td>c.</td><td>Assertion (A) is true but Reason (R) is false.</td><td>d.</td><td>Assertion (A) is false but Reason (R) is true</td><td></td></tr>
<tr><td>28</td><td colspan="4">Explain the Law of Diminishing Marginal Utility with the help of a diagram

OR

Commodities X and Y have equal price elasticity of demand. The demand of X rises from 400 units to 600 units due to a 25% fall in its price. Calculate the percentage fall in demand of Y if its price rises by 8%</td><td>3</td></tr>
<tr><td>29</td><td colspan="4">Differentiate between Increase in Supply and Expansion in Supply</td><td>3</td></tr>
<tr><td>30</td><td colspan="4">A country produces two goods, X & Y. Giving reasons, comment on the shape of Production Possibilities Curve based on the following schedule.
<table><tr><td>Good Y (units)</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr></table></td><td>4</td></tr>
</table>

Good X (units)	10	9	7	4	0

OR

Answer parts a) and b)

a) What is the impact of "Make in India" campaign of India by the Prime Minister on the PPC of India? Depict with the help of a diagram.

b) "The Centre has allocated Rs 73,000 crore for the rural jobs guarantee programme MGNREGA for 2022-23 in the Union Budget presented on Tuesday".. Examine the impact of this statement on the PPC

31 | Explain how a consumer decides his equilibrium consumption of goods X and Y using the Indifference Curve approach | 4

32 | Complete the following table | 4

Output	Total Cost	Average Variable Cost	Marginal Cost
0	30		
1	---------	---------	20
2	68	---------	---------
3	84	18	---------
4	---------	---------	18
5	125	19	---------

33 | Answer both a) and b) | 3 + 3

a) Identity the different output levels which makes the different phases of the Law of Variable Proportions from the following data, and explain their behaviour.

Labour (variable factor)	0	1	2	3	4	5
Total Product (units)	0	8	20	28	28	26

b) Are the following statements true or false? Justify your answer with reasons

(i) As output increases, Average Variable Cost becomes equal to Average Cost

(ii) Under perfect competition, MR is rising when Total Revenue is maximum

OR

Explain Producer's equilibrium in perfect competition using Marginal Cost-Marginal Revenue approach. Use diagram.

34	a) Explain why a firm under perfect competition earns normal profits only b) What will be the impact of an increase in the price of Pepsi on the market price of Coca Cola?	3 + 3

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DPS SHARJAH

EEE CONSORTIUM FINAL EXAM
ANSWER KEY (2022-23)

Subject: ECONOMICS	**Max. Marks:80**
Grade: XI	**Time: 3 hours**

Name:	**Section:**	**Roll No:**

General Instructions:

- *All the questions in both the sections are compulsory. Marks for questions are indicated against each question.*
- *Question number 1 – 10 and 18 – 27 are very short-answer questions carrying 1 mark each. They are required to be answered in one word or one sentence each.*
- *Question number 11 - 12 and 28 - 29 are short-answer questions caring 3 marks each. Answers to them should not normally exceed 60-80 words each.*
- *Question number 13 - 15 and 30 - 32 are also short-answer questions carrying 4 marks each. Answers to them should not normally exceed 80-100 words each.*
- *Question number 16 - 17 and 33 - 34 are long answer questions carrying 6 marks each. Answers to them should not normally exceed 100-150 words each.*
- *Answer should be brief and to the point and the above word limit be adhered to as far as possible.*

	PART A : STATISTICS				
1	Primary data is preferred over secondary data when				1
	a.	Time available is short	**b.**	Accuracy is important	
	c.	Sufficient finance is not available	**d.**	Much accuracy is not required	
2.	c) 23				1
3	Ans: **36**				1

4.	Ans: No, correlation helps us determine the degree of relationship between two or more variables. It does not tell us anything about cause and effect **OR** Ans: **a**	1
5	b)ii, iii, and iv	1
6	Ans: M=(Size of 4^{th} item+Size of 5^{th} item)/2 = 15	1
7	Ans: A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).	1
8	Ans: Decrease	1
9	Ans: Characteristic – (i) should be a normal year, (ii) where reliable data is available, or any other characteristic – ½ mark No- because covid was an abnormal year (½ mark)	1
10	Ans: $Z=3M-2\bar{x}$; 35=(3*30)-2Mean; Mean = 27.5	1
11	Ans: The investigator should take precautions before using the secondary data. In this connection, following precautions should be taken into account. **1. Suitable Purpose of Investigation:** The investigator must ensure that the data are suitable for the purpose of enquiry. **2. Inadequate Data:** Adequacy of the data is to be judged in the light of the requirements of the survey as well as the geographical area covered by the available data. **3. Definition of Units:** The investigator must ensure that the definitions of units which are used by him are the same as in the earlier investigation. **4. Degree of Accuracy:** The investigator should keep in mind the degree accuracy maintained by each investigator. **5. Time and Condition of Collection of Facts:** It should be ascertained before making use of available data to which period and conditions, the data was collected. **6. Comparison:** Investigator should keep in mind whether the secondary data' reasonable, consistent and comparable. **7. Test Checking:** The use of the secondary data must do test checking and see that totals and rates have been correctly calculated. **8. Homogeneous Conditions:** It is not safe to take published statistics at their face value without knowing their means, values and limitations. **(Any 3 points, 1 mark each)**	3
12	*Ans:*	3

Marks	*Less than 20*	*Less than 30*	*Less than 40*	*Less than 50*	*Less than 60*
Cumulative frequency	*4*	*10*	*18*	*25*	*30*
Class	*10-20*	*20-30*	*30-40*	*40-50*	*50-60*
midpts	*15*	*25*	*35*	*45*	*55*
f	*4*	*6*	*8*	*7*	*5*
d	*-20*	*-10*	*0*	*10*	*20*
d'	*-2*	*-1*	*0*	*1*	*2*
fd'	*-8*	*-6*	*0*	*7*	*10*

Mean = 36
Formula – ½ mark; Table 1.5 marks; Answer 1 mark
OR
Scatter Diagram – 1 marks
High degree of positive relationship – 1 mark
Line of best fit is the line that passes throught the scattered points such that it represents these points. Approx. half of the points should be on either side of the line

13 *Ans:* 4

Items	*Labour*	*Bricks*	*Iron*	*Cement*	*Timber*	*Miscellaneous*	
Expenditure(in Rs Cr)	*120*	*80*	*70*	*100*	*60*	*70*	*500*
In %	*24%*	*16%*	*14%*	*20%*	*12%*	*14%*	*100%*
In degrees	*86.4*	*57.6*	*50.4*	*72*	*43.2*	*50.4*	*360*

2 marks table, 2 marks Pie

OR

Daily wages	*10-20*	*20-30*	*30-50*	*50-90*	*90-110*	*110-120*	
No of workers	*8*	*14*	*16*	*32*	*7*	*13*	*90*
Adjustment factor	*1*	*1*	*2*	*4*	*2*	*1*	
Adjusted frequency	*8*	*14*	*8*	*8*	*3.5*	*13*	

Table – 1.5 marks
Histogram – 1.5 mark
Polygon – 1 mark (1/2 mark to be deducted if polygon is not closed)

14 ***Ans:*** 4

a) Uncertain; not amenable to algebraic treatment, or any other valid demerit – 1 mark

b)

Marks	***39.5-49.5***	***49.5-59.5***	***59.5-69.5***	***69.5-79.5***	***79.5-89.5***	***89.5-99.5***

No of students	*12*	*30*	*24*	*20*	*12*	*2*	*100*

Conversion – 1 mark; formula – ½ mark; Mode=57 (1.5 marks)

15 Ans: 4

X	Y	R1	R2	D=R1-R2	D2
15	9	2	1	1	1
24	20	10	7	3	9
19	22	4.5	8.5	4	16
23	14	9	3	6	36
19	22	4.5	8.5	4	16
16	18	3	5	2	4
13	17	1	4	3	9
20	25	6	10	4	16
22	12	8	2	6	36
21	19	7	6	1	1
					144

rk=0.12. There is low positive correlation

16 a) (i) Simple and understandable ; (ii) leaves a lasting impact on readers mind (iii) attractive and effective means of presenting data (iv) facilitates comparative glance at data; (v) allows the graphical location of certain averages such as median and mode; or any other valid merits (2 merits, half mark each) 1 + 5

Ans. b)

Class	More than 10	More than 20	More than 30	More than 40	More than 50	More than 60
Cumul. Freq	100	80	74	60	40	12

Class	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60	Less than 70
Cumul. Freq	20	26	40	60	88	100

More than series – 1 mark; less than series 1 mark; Plotting more than ogive – 1 mark; Less than ogive- 1 mark; Median = 45 marks 1 mark

17 Ans: 3 + 3

a) no scientific technique of according wts, personal bias, international comparison not possible, limited use, etc- any three valid limitation – one mark each

b)

Commodity	2010		2015					
	Price	Quantity	Price	Quantity	PoQo	PoQ1	P1Qo	P1Q1
A	2	10	4	5	20	10	40	20

B	5	12	6	10	60	50	72	60
C	4	20	5	5	80	20	100	25
D	2	15	3	10	30	20	45	30
					190	**100**	**257**	**135**

Laaspeyres – 135.2; Paasches - 135

OR

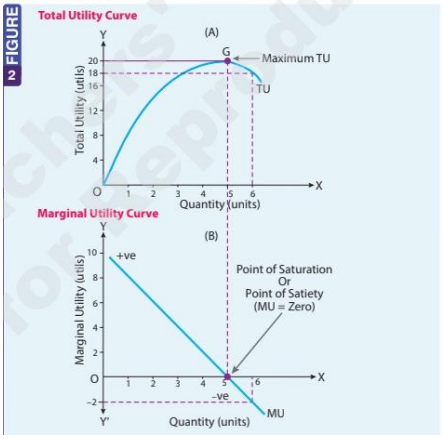
	Marks in English	**Marks in French**	**x=(X-mean)**	**y=(Y-mean)**	**x2**	**y2**	**xy**
	26	20	-5	-4	25	16	20
	32	22	1	-2	1	4	-2
	33	24	2	0	4	0	0
	34	28	3	4	9	16	12
	30	26	-1	2	1	4	-2
Sum	**155**	**120**			**40**	**40**	**28**
Mean	**31**	**24**					

r-0.7

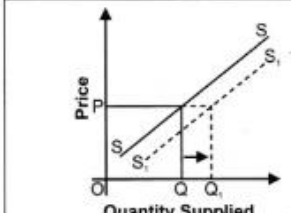
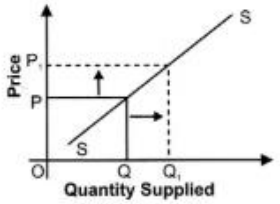
b) Practical use, unaffected by extreme values, can be graphically located, or any other valid merit- 3 marks

	PART B: MICRO ECONOMICS	
18	c)Till Marginal Utility from consuming Pizza is zero	1
19	(iv)-d	1
20	c) Assertion (A) is true but Reason (R) is false.	1
21	a) more elastic	1
22	Marginal Rate of Substtn **OR** He will increase consumption of X and reduce that of Y till equilibrium is reached	1
23	Production function, thus, studies the functional relationship between physical inputs and physical output of a commodity. $Q_X = f(L, K)$	1
24	a) less elastic	1
25	Interest on borrowed funds – Explicit cost; Implicit rent on self owned premises– implicit cost	1
26	Demand curve will shift to the right/ Demand would increase	1
27	b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).	1

28	Law of Diminishing Marginal Utility states that as more and more standard units of a commodity are continuously consumed, marginal utility derived from every additional unit must decline. Till first five units, TU increases at a diminishing rate and MU falls When MU=0, TU is maximum. This situation represents point of saturation/ satiety. When TU falls, MU is negative (1 mark Defn, 1 mark diagram, 1 mark explanation) **OR** Ans: ed=% change in qty dd/ % change in price (1/2 mark) For X- % change in qty dd=50%. (1/2 mark) Thus Edx=(-) 2 (1 mark) For Y (–) 2=%change in qty dd/8 (1/2 mark) Therefore % fall in qty dd=16% (1/2 mark)	3



29		3

Increase in Supply	Basis	Expansion in Supply
An increase in supply means that producers now supply more at a given price level.	**Meaning**	It states that rise in quantity supplied due to the rise in price of the commodity.
(*i*) Fall in the price of remuneration of factors of production. (*ii*) Fall in the prices of other goods (*iii*) Improvement in technology.	**Cause**	It is caused by rise in price of the commodity.
(*iv*) Change in objective of producer (increase the supply at the same rate). (*v*) Taxation policy of government falls.		
Price / **Supply** 4 / 8 4 / 10	**Schedule**	**Price** / **Supply** 1 / 8 2 / 10
	**Diagram**	

(any 3 differences – 1 mark each)

30	A country produces two goods, X & Y. Giving reasons, comment on the shape of Production Possibilities Curve based on the following schedule.	4

Good Y (units)	0	1	2	3	4
Good X (units)	10	9	7	4	0

OR

Answer parts a) and b)

c) What is the impact of "Make in India" campaign of India by the Prime Minister on the PPC of India? Depict with the help of a diagram.

d) "The Centre has allocated Rs 73,000 crore for the rural jobs guarantee programme MGNREGA for 2022-23 in the Union Budget presented on Tuesday".. Examine the impact of this statement on the PPC

Ans:

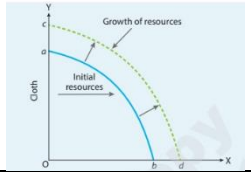
MOC – 1, 2, 3 4 (1mrk)

Properties of PPC – (i)increasing MOC/ MRT implies convexity of the PPC. Increasing MOC implies that to get an additional unit of X, the economy has to sacrifice more and more of Y. This is because resources are not equally efficient (1.5mark)

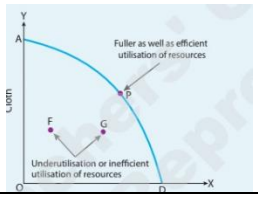
(ii)PPC is downward sloping – because of scarcity of resources , so to get more of one good, the economy has to sacrifice the other good (1.5)

OR

a)(i) PPC will shift to the right as resources have increased (1 mark) + Diagram (1mark)



(b) There will be a movement from within to on the PPC as resources will now get fully employed - from pt F/G to pt P (1 mark) + diagram (1 mark)



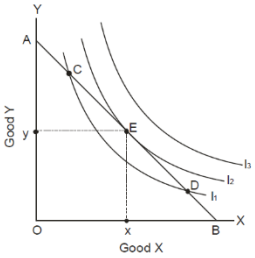
31 Defn-a consumer is at equilibrium when he consumes that combination of goods that max his satisfaction, given income and prices. 4

Eqm Condition: (i)Slope of indifference curve = Slope of budget line or MRSxy = Px/Py
(ii) Law of DMRS holds

The equilibrium purchase is Ox of X and Oy of Y on the indifference curve I2.

The consumer cannot get satisfaction level higher than I2 because his income does not permit him to move above the budget line AB. The consumer will not like to purchase any other bundle on the budget line AB, for example the bundle at C and D, because they all lie on the lower indifference curve, and give him lower satisfaction.

Therefore, the equilibrium choice is only at the tangency point E



32 4

Output	Total Cost	Average Variable Cost	Marginal Cost	TVC	TFC
0	30	----	----	0	30
1	50	20	20	20	30
2	68	19	18	38	30
3	84	18	16	54	30
4	102	18	18	72	30
5	125	19	23	95	30

(½ mark for each missing value)

33 Ans: 3 + 3

Labour (variable factor)	0	1	2	3	4
Total Product (units)	0	8	20	28	28
MP	--	8	12	8	0
	Phase 1- increasing returns			Ph 2- diminishing returns	

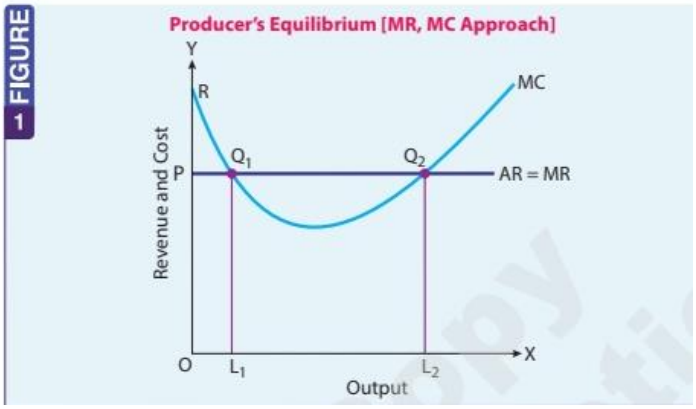
Phase 1- TP increases at an increasing rate. MP increases

Phase 2- TP increases at a diminishing rate. MP falls till it reaches zero

(1 mark MP, 1 mark Ph 1; 1 mark P2)

(b)i) – false, AVC can never be equal to AC due to presence of AFC, which exists even for very high levels of output. Therefore, while distance between AC and AVC reduces as output increases(As AFC declines), they never can be equal

(ii) False. Under perfect competition, TR rises, and MR is constant

	OR A producer is at equilibrium when he produces such units of goods that he gets maximum profit. At the equilibrium position, 1. MR = MC 2. MC is rising (MC cuts MR from below) Now, in the diagram, MC cuts MR twice: 1. When MC cuts MR from above at Q1: MC = MR condition is satisfied, however MC decreases further on increasing production after point L1, which is in violation of the second condition of Producer's Equilibrium.  o As MC is falling further and MR remains same, there is scope for the producer to gain more profits by producing more output. (as MR>MC after L1) . o When he produces more units, MC ultimately starts increasing back (due to Law of Diminishing Returns), until MC = MR. o So producer is not at equilibrium at Q1as there is still scope of earning more profits. 2. Producer is at equilibrium at Q2 when MC cuts MR from below because both conditions of producer's equilibrium are satisfied here: • MC = MR • MC becomes > MR on further production. o Now, if he produces more output, MC > MR and he would suffer loss. o As no producer would like to be at loss, he is in equilibrium when MC = MR here at Q2. **Definition – 1 mark, Condition- 1mark, Diagram-1 mark, Explanation 3 marks**	
34	a) This is owing to the fact that there is freedom of entry and exit for the firms under perfect competition. In situations of extra-normal profits, new firms will join the industry. Consequently, market supply will increase. Market price will fall. Extra-normal profits will be wiped out. In situations of extra-normal losses, some firms will leave the industry. Consequently, market supply will fall. Market price will rise. Extranormal losses will disappear. **b. Pepsi and Coke are substitutes** When price of tea increases, demand curve of coffee shifts to the right. Leads to excess demand. (½ mark) Diagram (1 mark) Chain effect: excess demand leads to stocks getting over fast, leading to increase in price. This leads to contraction of demand and expansion of supply till eqm is reached. (1 mark) New eqm price has increased and new eqm qty has increased (½ mark)	3 + 3

ANNEXURE

List of Formulae

Measures of Central Tendency

Calculation of Arithmetic Mean:	
Individual Series	
	a) Direct Method Formula :$\bar{X} = \frac{\sum X}{N}$
	b) Short Cut Method Formula : $\bar{X} = A + \frac{\sum d}{N}$
Discrete Series	a) Direct Method Formula : $\bar{X} = \frac{\sum fx}{\sum f}$
	b) Short Cut Method Formula: $\bar{X} = A + \frac{\sum fd}{\sum f}$
	c) Step Deviation Method Formula: $\bar{X} = A + \frac{\sum fd'}{\sum f} \times C$
Continuous Series	a) Direct Method Formula : $\bar{X} = \frac{\sum fm}{\sum f}$
	b) Short Cut Method Formula: $\bar{X} = A + \frac{\sum fd}{\sum f}$
	c) Step Deviation Method Formula: $\bar{X} = A + \frac{\sum fd'}{\sum f} \times C$
Calculation Of Median:	
Individual Series:	a) M = Size of $\left(\frac{N+1}{2}\right)^{th}$ item N = total number of items b) If $\left(\frac{N+1}{2}\right)$ comes in fractions the median would be average of two middle values of the series.
Discrete Series or Frequency Array	M = Size of $\left(\frac{N+1}{2}\right)^{th}$ item N = Sum of frequencies
Continuous Series:	M = Size of $\left(\frac{N}{2}\right)^{th}$ item Median class corresponds to that cumulative frequency which includes the above value, then following formula mist be applied. M = $L_1 + \frac{\frac{N}{2} - c.f.}{f} \times i$

Calculation of Mode:	
Individual Series	The value that occurs the most in the series is identified as mode.
Discrete Series	Item of Highest Frequency
Continuous Series	a) Exclusive: Series with highest frequency is the modal class. Formula applied : $Z = L_1 + \frac{f1 - f0}{2f1 - f0 - f2} \times i$

Correlation

Karl Pearson's Coefficient of Correlation Formula $r = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$
Spearman's Rank Correlation Coefficient Formula $r_k = 1 - \frac{6\sum D^2}{N^3 - N}$

Index Numbers

Calculation of Simple Index Number:

Simple Aggregative Method:	Simple Average of Price Relatives:
$P_{01} = \frac{\sum P_1}{\sum P_0} \times 100$	$P_{01} = \frac{\sum\left(\frac{P_1}{P_0} \times 100\right)}{N}$

Calculation of Weighted Index Numbers:

Weighted Aggregative Method:	Weighted Average of Price Relatives:
i) Laspeyre's Method $P_{01} = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$ ii) Paasche's Method $P_{01} = \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times 100$	$P_{01} = \frac{\sum RW}{\sum W}$