

Model Test Paper – I

Section – A

1. Define normative economics.
2. A consumer consumes two good consumer is said to be in equilibrium when.
 - (a) Marginal utility of two goods is equal.
 - (b) Total utility of two goods is equal.
 - (c) Per rupee marginal utility of two good is equal.
 - (d) Number of two goods is equal.
3. Demand curve shifts right ward in case of
 - (a) Decrease in the price of the commodity.
 - (b) Decrease in the price of the substitute goods.
 - (c) Decrease in the price of the complimentary goods.
 - (d) Increase in the income inequality.
4. The most preferred bundle by a consumer having monotonic preferences is
 - (a) 6 units of x good and 5 units of y good.
 - (b) 5 units of x good and 5 units of y good.
 - (c) 5 units of x good 6 units of y good.
 - (d) 6 units of x good and 6 units of y good.
5. Government launched MGNAREGA scheme for employment in rural areas. What will be its effect on production possibility curve (PPC)
6. Price elasticity of supply a commodity is 1.5. 10 percent increase in price, raises its supply by 30 units. Calculate its supply at the original price.

or

Explain how does “increase in the price of inputs” affects supply of a commodity?

7. Differentiate between budget set and budget line.
8. What does the law of variable proportions show? Why it does not apply in long run?
9. Distinguish between perfect competition and monopolistic competition (any four)

or

Explain the implication of non-price competition in an oligopoly market.

10. A consumer consumes two goods X and Y and he is in equilibrium condition. What will be behavior of the rational, consumer if price of good Y decrease. Explain with indifference curve analysis method.

or

Differentiate between 'expansion in demand' and increase in demand. Give example from your daily life.

11. (a) Explain the relationship between marginal cost (MC) and average cost (AC)
(b) When price of good remain same at all level of output then what is the shape of total revenue (TR) curve?
12. How are equilibrium price and equilibrium quantity of a commodity gets affected when price of substitute good changes?

Section – B

13. Which measure of central tendency is not fit for algebraic treatment?
14. What is frequency array?
15. Consumer price index (CPI) is not used in
(a) Wages decision
(b) price policy
(c) taxation policy
(d) production policy
16. Write the formula to calculate the inter quartile range.
17. What is loss of information in classified data?
18. Consumer price of agriculture labours (CPIAL) is 215 in current year. Price of metro train fare has increased by 50% this month. Explain its effect on CPIAL with reasons.

or

In a data set of 100 families 5 families have extremely low income. Which measure of dispersion will you to use in this data set Give reasons.

19. Calculate mean from the following data

Items:	more than 0	more than 10	more than 20	more than 30	more than 40
frequency:	28	24	14	4	0

20. Percentage marks obtained by 100 students of a class are given below calculate the first and third quartiles.

Marks	30–35	35–40	40–45	45 – 50	50 – 55	55– 60	60 – 65
No. of students	14	16	18	23	18	8	3

21. Calculate weighted aggregative price index with Paasche's method from the following data.

items	base year price	current year price	Base year quantity	current year quantity
A	20	24	10	12
B	15	21	15	16
C	30	33	8	10
D	5	7	20	22
E	12	18	30	40

or

Nidhi Gupta is earning Rs 80,000 salary in year 2018, when CPI is 850. Her father was earning Rs 11,000 in base year 2002. Who was better off in maintaining standard of living?

22. Use Histogram to represent the following data and locate the mode.

Marks	more than 0	More than 10	More than 20	More than 30	More than 40	More than 50
No- of students	40	38	30	20	6	0

23. Calculate mean deviation and coefficient of mean deviation from the following data with median

Age (years)	20-30	30-40	40-50	50-60	60-70
No. of persons	8	12	20	16	4

24. Calculate Karl Pearson's coefficient of correlation from the following data:

X	30	40	60	70	100
Y	90	110	140	150	160

or

Calculate Spearman's rank coefficient of correlation from the following data.

X	60	50	45	55	65
Y	85	60	55	65	75

Answers Part - A

1. It deals with what ought to be or how the economic problems should be solved.
2. (c)
3. (c)
4. (d)
5. Reducing unemployment has no effect on the production potential of the economy. It is because production potential is determined assuming full employment. It simply helps in reacting potential.

6.
$$E_s = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

$$1.5 = \frac{\% \text{ change in quantity supplied}}{10\%}$$

$$15\% \text{ of original supply} = 30$$

$$Q = 200$$

or

Price of inputs forms a major part of the cost of production for producing a commodity. Rise in price of inputs increase the cost of production and reduces the profit margin. It a result supply falls.

7. Budget set is the set of all possible combinations of the two goods which a consumer can afford given his income and prices in the market.

Whereas budget line is a graphical representation of all possible combinations of two goods which can be purchased with given income and prices of the goods, when consumer spend his entire income.

8. Law of variable proportions : Law of variable proportions states that as we increase quantity of only one input keeping other inputs constant total product initially increases at an increasing rate, then at decreasing rate and finally fall.

It does not operate in the long run because in the long run output can be changed by changing all factors of production.

9. Perfect competition is that market situation in which large number of buyers and large number of sellers buy & sell homogeneous product at a given price, that is determined by the industry.

Features of perfect competition :

1. Homogeneous product

2. Perfect knowledge
3. No control over price
4. Demand curve is perfectly elastic

whereas monopolistic competition is that market situation in which there are large number of sellers which sell differentiated products.

Features of monopolistic competition :

1. Differentiated product
2. Lack of perfect knowledge
3. Partial control over price
4. Demand curve downward sloping and elastic

or

In oligopoly market situation price tends to stay fixed irrespective of changes in demand and supply conditions firms use other methods like advertising better service, after sale service etc to compete with one another.

10. Condition's for consumer's equilibrium

$$(1) \text{MRS} = \frac{P_x}{P_y}$$

- (2) MRS continuously falls

When price of y good falls then condition will $\text{MRS} < \frac{P_x}{P_y}$ it means that to obtain one more unit of x the consumer is willing to sacrifice less units of y as compared to what is required in the market. It induces the consumer to buy less of x and more y.

As a result, MRS rises till it becomes equal to the ratio of prices and the equilibrium is established.

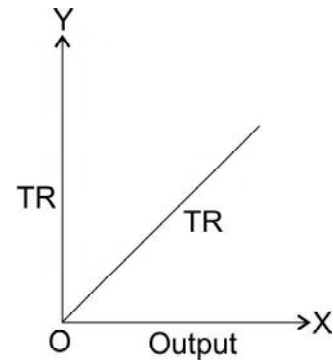
or

Expansion in demand : When the quantity demanded rises due to a decrease in the price, keeping other factors constant. For example rise in demand of mobile set when its price decreases.

Increase in demand : A rise in the demand of a commodity caused due to any factor other than the commodity caused due to any factor other than the comprise of the commodity. Example increase in demand of car, when its price is same, because of rise in income of consumer.

11. (a) Relation between MC and AC
 when $AC > MC$, AC falls
 $AC = MC$, AC constant
 $AC < MC$, AC rises

(b)	Output	price = AR	TR
	1	10	10
	2	10	20
	3	10	30
	4	10	40
	5	10	50



TR will increase constantly or we can say at constant rate.

12. When price of substitute good increases, demand for given good increases due to that excess demand is created at given price. Excess demand cause competition among buyers and consequently price rises due to that there will be expansion in supply and demand and supply are equal. So equilibrium price will rise and quantity demanded also increased.
13. Mode and median
14. Frequency array is that series in which data are presented in exact measurements of items with frequency.
15. (d) Production policy
16. $Q_3 - Q_1$
17. When data are grouped into different class intervals, all calculations are based on mid-value of class interval. There is a loss of information regarding different values of observation in a class interval.
18. There will be no effect on CPIAL when price of metro train fare increases as it is not an item of consumers basket of agriculture labour.

or

I will use Quartile dispersion in this case as it is least effected by the extreme values. Extreme values of lower side (25%) and higherside (25%) are not included in quartile deviation.

19. Class Interval	f	M	fm
0-10	4	5	20
10-20	10	15	150
20-30	10	25	250
30-40	4	35	140
	$\Sigma f = 28$		$\Sigma f_m = 560$

$$\text{Mean } \bar{X} = \frac{\Sigma f_m}{\Sigma f}$$

$$= \frac{560}{28} = 20$$

$$\bar{X} = 20$$

20.	Marks	No. of students	Cf.
	30-35	14	14
	35-40	16	30
	40-45	18	48
	45-50	23	71
	50-55	18	89
	55-60	8	97
	60-65	3	100

$$Q_1 = \text{Size of } \frac{N}{4} \text{th item} = \frac{100}{4} = 25 \text{th item}$$

$$Q_1 = L + \frac{\frac{N}{4} - C.f.}{f} \times i \quad (\text{Lies in 35-40})$$

$$= 35 + \frac{25 - 14}{16} \times 5$$

$$= 35 + \frac{55}{16} = 35 + 3.43 = 38.43$$

$$Q_3 = \text{Size of } 3\left(\frac{N}{4}\right)^{\text{th}} \text{ Item} = 75 \text{th item}$$

$$Q_3 = L + \frac{\left(\frac{N}{4}\right) - C.f.}{f} \times i$$

$$Q_3 = 50 + \frac{75 - 71}{18} \times 5 = 50 + \frac{20}{18} = 51.11$$

$$Q_1 = 38.43 \text{ and } Q_3 = 51.11$$

21.	Item	p_0	p_1	q_0	q_1	p_1q_1	p_0q_1
	A	20	24	10	12	288	240
	B	15	21	15	16	336	240
	C	30	33	8	10	330	300
	D	5	7	20	22	154	110
	E	12	18	30	40	720	480
						1828	1370

$$\text{Paasche's Price Index } p_{01} = \frac{\sum p_1 q_1}{\sum p_0 q_1} \times 100 = \frac{1828}{1370} \times 100 = 133.43$$

or

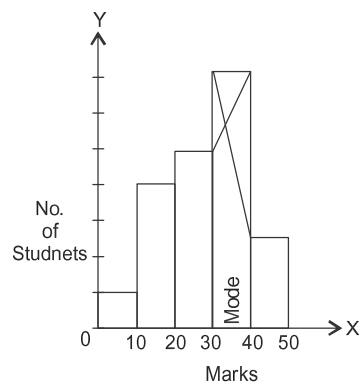
$$\text{Real value of Nidhi Gupta's} = \frac{80000}{1370} \times 100 = 9411.76$$

Her father's earning in Base Year = 11,000

Her father was earning more in real value so

He was better off in maintaining standard of living.

22.	Marks	No. of students
	0-10	2
	10-20	8
	20-30	10
	30-40	14
	40-50	6



23.	Age	No. of persons	C.F.	X-M	dM	f dM
	20-30	8	8	25	20	160
	30-40	12	20	35	10	120
	40-50	20	40	45	0	0
	50-60	16	56	55	10	160
	60-70	4	60	65	20	80
						520

$$M = \text{Size of } \frac{N}{2} \text{ item} = \frac{60}{2} = 30^{\text{th}} \text{ item}$$

Median is in 40-50 class interval

$$M = L_1 + \frac{\frac{N}{2} - C.f}{f} \times i = 40 + \frac{30 - 20}{20} \times 10 = 40 + \frac{100}{20} = 45$$

Mean deviation from median

$$MDm = \frac{\sum f |dM|}{\sum f} = \frac{520}{60} = 8.67$$

$$\text{Coefficient of mean deviation} = \frac{MDm}{M} = \frac{8.67}{45} = 0.19$$

24.	X	$x = X - \bar{X}$	x^2	Y	$y = Y - \bar{Y}$	y^2	xy
	30	-30	900	90	-40	1600	1200
	40	-20	400	110	-20	400	400
	60	0	0	140	10	100	0
	70	10	100	150	20	400	200
	100	40	1600	160	30	900	1200
	$\Sigma X = 300$	$\Sigma x = 0$	3000	$\Sigma Y = 650$		3400	3000

$$\bar{X} = \frac{\Sigma X}{N} = \frac{300}{5} = 60$$

$$\bar{Y} = \frac{\Sigma Y}{N} = \frac{650}{5} = 130$$

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}} = \frac{3000}{\sqrt{3000 \times 3400}} = \frac{3000}{\sqrt{10200000}} = \frac{3000}{3193.7}$$

$$r = 0.93$$

Coefficient of correlation highly positive correlation

Or

X	R_1	Y	R_2	$R_1 - R_2$	D	D^2
60	4	85	5	-1	1	1
50	2	60	2	0	0	0
45	1	55	1	0	0	0
55	3	65	3	0	0	0
65	5	75	4	1	1	1

$$\Sigma D^2 = 2$$

$$r_k = 1 - \frac{6 \Sigma D^2}{N^3 - N} = 1 - \frac{6 \times 2}{5^3 - 5} = 1 - \frac{12}{120} = 1 - 0.01$$