M.M. : 80

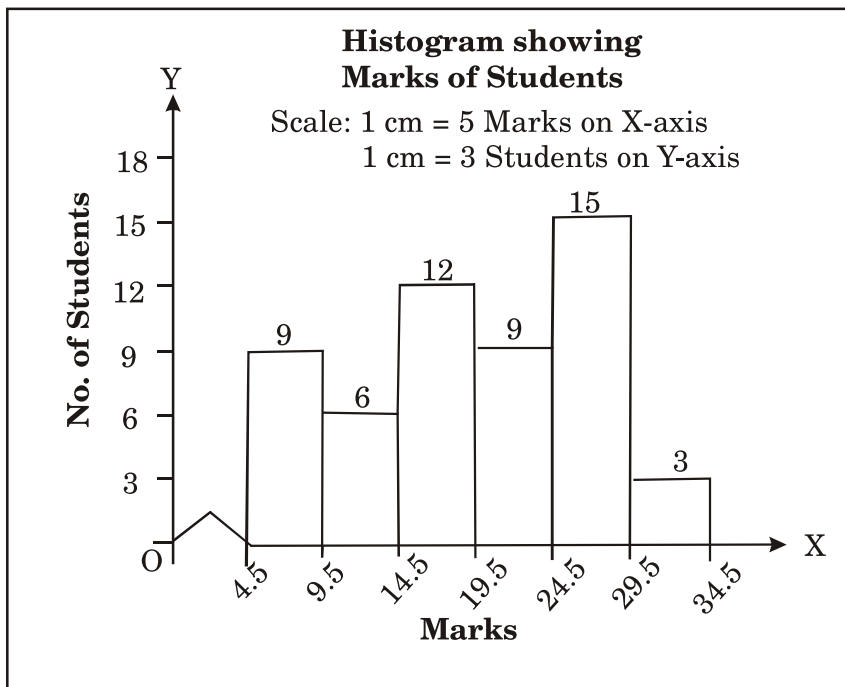# CLASS-XI (ANNUAL EXAM) (2023-24)
ECONOMICS (030)
Marking Scheme/Hints to Solution

Note : Any other relevant answer, not given herein but given by the candidate be suitably rewarded.

S. No.	Value Points/Key Points	Marks Allotted to each value point/key point	Total Marks
	Section-A (Statistics)		
1.	D. $-1 \leq r \leq 1$	1	1
2.	C. Assertion (A) is True but Reason (R) is false.	1	1
3.	C. Both the statements 1 & 2 are true.	1	1
4.	B. 98	1	1
5.	A. 35	1	1
6.	A. Multiple Bar Diagram	1	1
7.	C. Assertion (A) is True but Reason (R) is false.	1	1
8.	A. Census of India	1	1
9.	A. A-(i)	1	1
10.	B. Population	1	1

Marks	No. of students
4.5-9.5	9
9.5-14.5	6
14.5-19.5	12
19.5-24.5	9
24.5-29.5	15
29.5-34.5	3

11.

3

1

Histogram showing Marks of Students

Scale: 1 cm = 5 Marks on X-axis
1 cm = 3 Students on Y-axis

2

12.   (i)   Published sources of data are Government reports, documents, newspapers, websites etc.   (any two)

1

3

(ii)   Yes, when data was collected and processed for the first time, it was 'first hand data.' But today when the later sources use this data collected and processed by some other agency, it becomes secondary data.

2

OR

Census Method	Sample Method	
1. Extensive survey	Selected or limited survey.	
2. More expensive and time consuming.	Less expensive and saves time.	1×3
3. More reliable and accurate.	Less reliable and accurate.	

13. Mean 4

Marks (X)	F	m	fm
0-10	8	5	40
10-30	12	20	240
30-40	30	35	1050
40-70	6	55	330
70-80	4	75	300
	Σf = 60		Σfm = 1960

1

$$\text{Mean} = \frac{\sum fm}{\sum f} = \frac{1960}{60} = 32.67 \text{ marks}$$

½+½

Median

X	f	cf
0-10	8	8
10-30	12	20
30-40	30	50
40-70	6	56
70-80	4	60

M = The size of $(N/2)^{th}$ item

= $(60/2)^{th}$ item

= 30th item

= Median lies between (30-40)

$$M = L_1 + \frac{N/2 - cf}{f} \times i$$

$$= 30 + \frac{30 - 20}{30} \times 10$$

= 33.33 marks

14. Index number is a statistical device for measuring change in the magnitude of a group of related variable.

Properties of the base period :

1. It should be a normal one : i.e. free from all sorts of abnormalities and fluctuations.

2. The difference between base and current year should not be too long : as it is used for decision making and economic policies which are often a matter of short period.

3. Fixed or chain base : it depends on the purpose of construction of Index number.

OR

Commodities	P0	P1
Milk (1 litre)	36	40
Banana (1 dozen)	30	30
Butter (1 kg)	240	300
Bread (400 gm)	18	28
	$\Sigma P0 = 324$	$\Sigma P1 = 398$

$P01 = \Sigma P1/\Sigma P0 \times 100$ | 1 |

$= 398 / 324 \times 100$ | | 1

$= 122.83$

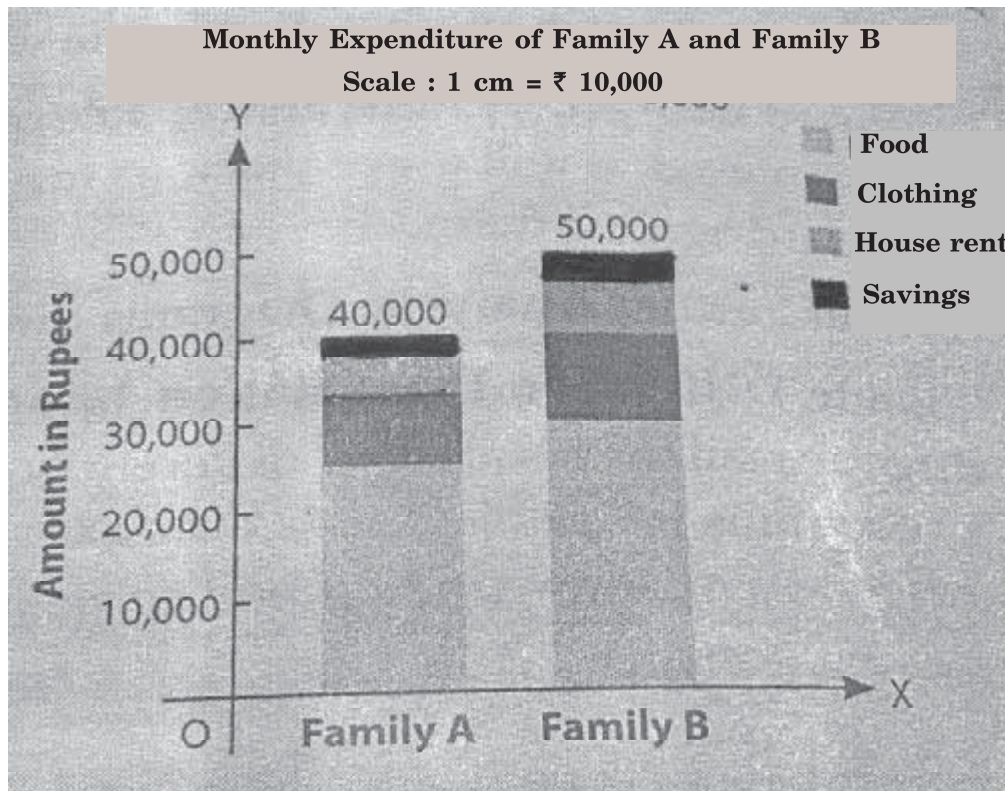It shows there is net increase of 22.83% in prices in year 2022-23 as compared to 2021-22. | 1

15. Textual presentation is useful only when the quantity of data is not too large. | 1 | 4

Monthly Expenditure of Family A and Family B
Scale : 1 cm = ₹ 10,000

3

16. (i) False, if it lies outside it, it shows there is some mistake. | 2 | 6

(ii) False, it measures the coefficient of correlation for qualitative data. | 2

(iii) True, it remains same when a constant is added or subtracted. | 2

	X	R1	Y	R2	D(R1-R2)	D^2	
17.	80	1	12	8	− 7	49	**6**
	78	2	13	7	− 5	25	
	75	3.5	14	5	− 1.5	2.25	
	75	3.5	14	5	− 1.5	2.25	
	58	8	14	5	3	9	
	67	5	16	2	3	9	
	60	6	15	3	3	9	
	59	7	17	1	6	36	**2**
						ΣD^2 = 141.50	

$$r_k = \dfrac{1 - 6\left\{\sum D^2 + 1/12\,(m^3 - m) + 1/12\,(m^3 - m)\right.}{N^3 - N}$$ **1**

$$= \dfrac{1 - 6\left[141.50 + 1/12\,(2^3 - 2) + 1/12\,(3^3 - 3)\right]}{8^3 - 8}$$ **1**

$$= - 0.714$$ **1**

It indicates there is moderate degree of negative correlation.   **1**

OR

X	dx (X − A) A = 15	$dx' = \left(\dfrac{dx}{c_1}\right)$ $c_1 = 5$	dx'^2	Y	dy (Y − A) A = 30	$dy' = \left(\dfrac{dy}{c_2}\right)$ $c_2 = 5$	dy'^2	dx'dy'
5	− 10	− 2	4	40	10	2	4	− 4
10	− 5	− 1	1	35	5	1	1	− 1
15	0	0	0	30	0	0	0	0
20	5	1	1	25	− 5	− 1	1	− 1
25	10	2	4	20	− 10	− 2	4	− 4
N=5		$\Sigma dx' = 0$	$\Sigma d'x^2$ =10			$\Sigma dy'=0$	$\Sigma dy'^2$ =10	$\Sigma dx'dy'$ = − 10

$$\text{Coefficient of Correlation } (r) = \frac{\dfrac{\sum dx'dy' - \dfrac{\sum dx' \times \sum dy'}{n}}{n}}{\sqrt{\left[\sum dx'^2 - \dfrac{(\sum dx')^2}{n}\right] \times \left[\sum dy'^2 - \dfrac{(\sum dy')^2}{n}\right]}}$$

$$= \frac{-10 - \dfrac{0}{5}}{\sqrt{10 - \dfrac{0}{5}} \times \sqrt{10 - \dfrac{0}{5}}}$$

$$= \frac{-10}{\sqrt{10} \times \sqrt{10}}$$

$$= \frac{-10}{10} = -1$$

$$r = -1$$

This is a situation of perfectly negative correlation between price and quantity demanded.

Section-B (Micro Economics)

18.	D.	Marginal Revenue	1	1
19.	C.	Both Demand and Supply	1	1
20.	A.	Variable cost	1	1
21.	C.	There is difference between supply and stock.	1	1
22.	B.	Statement 1 is false and statement 2 is true.	1	1
23.	C.	₹ 3	1	1
24.	B.	Shift to the left	1	1
25.	B.	Diminishing	1	1
26.	A.	Both Assertion (A) and Reason (R) are True and Reason (R) is the correct explanation of Assertion (A).	1	1
27.	C.	Excessive income	1	1

28. With the death of many people due to heavy rainfall and flood in Punjab and Himachal Pradesh workforce of both the states will fall. Similarly, destruction of agricultural crops will cause reduction in agricultural yield. The decrease in both the resources causes a leftward shift in PPC.

1
1
1

3

OR

Good X (units)	Good Y (units)	MRT
0	8	____
1	6	2Y:1X
2	4	2Y:1X
3	2	2Y:1X
4	0	2Y:1X

2

Since, MRT is constant throughout, PPC will be downward sloping straight line left to the right.

1

29.	Minimum support price refers to the floor price which is fixed above the equilibrium price by the Government which the producer must be paid for the produce.	2	3
	The MSP are meant to insulate the producers from price variation in the free market.	1	

30.

Price (₹)	Quantity (units)	Total expenditure (price × quantity)
6	10	60
?	12	?

(right column value for this table block: 4)

Ed = 1 (unity) i.e. expenditure will remain same. So, it is 60 here too. — 2

Price = total expenditure / Quantity — 1

= 60/12

= ₹ 5 per unit — 1

OR

%age change in quantity demanded

= ∆Q/Q × 100

= 120/600 × 100 — 1

= 20%

Price elasticity of demand =

%age change in quantity demanded/%age change in price — 1

= 20%/25% — 1

= 0.8   Ed < 1 — 1

31. (i) The minimum point of AC curve fall towards right of AVC curve because AC continues to fall due to decreasing AFC even after AVC starts rising. — 2 | 4

(ii) It happens because when AVC falls, MC is less than AVC. When AVC starts rising, MC is more than AVC.

So, it is only when AVC is constant and at its minimum point, that MC is equal to AVC. Therefore, MC curve cuts AVC curve at its minimum point.

2

32.

Price (₹)	Original demand (units)	Original supply (units)	New demand (units)	New supply (units)
2	100	20	110	22
4	80	40	88	44
6	60	60	66	66
8	40	80	44	88
10	20	100	22	110

4

3

Initially the equilibrium price is ₹ 6 per unit and equilibrium demand and supply is 60 units.

When both demand and supply increases by 10% then both equilibrium demand and supply rises from 60 to 66 units.

1

33. The producer's equilibrium conditions are : (1) MC = MR and (ii) MC > MR after equilibrium.

1

6

Suppose MC > MR : In this situation, it will be profitable for the firm to produce more or less depending upon relative changes in MC and MR till MC = MR.

2

Suppose MC < MR : It will be profitable for the producer to produce more till MC = MR.

1

MC = MR is not a sufficient condition to ensure equilibrium. Given MC = MR. Suppose the behaviour of MC and MR is such that if one more unit is produced, MC becomes less than MR.

1

Then in this case it will be profitable for the firm to produce more. Therefore, in this case though MC = MR, the producer is not in equilibrium. However, if after MC = MR output, MC becomes greater than MR, it will be most advantageous for the firm to produce only upto MC = MR.   1

OR

Variable factor (Units)	TP (Units)	AP (Units)	MP (Units)
0	0	(-)	(-)
1	(4)	(4)	4
2	10	(5)	(6)
3	(18)	6	(8)
4	24	(6)	(6)
5	(25)	5	(1)

½×12

34. (i) Budget line is a graphical representation of all possible combinations of two goods which can be purchased with given income and prices, such that the cost of each of these combinations is equal to the money income of the consumer.   1   6

Budget Line shifts to the right (i) when there is an increase in income, assuming no change in prices of the two goods;   1

(ii) When there is decrease in prices of both the goods, assuming no change in income of the consumer.   1

(ii) In case of two goods X and Y, A consumer will be at equilibrium when $MU_x / P_x = MU_Y / P_Y$.   1

When price of X falls, then rupee worth of satisfaction from X will be more than Y, i.e. $MU_x / P_x > MU_Y / P_Y$.   1

Therefore, he will buy more of X and less of Y. This will lead to fall in MU_x and rise in MU_y. The consumer will continue to buy more of X till $MU_x / P_x = MU_Y / P_Y$.   1