Index Numbers

① Index numbers are Ratios or Avg of ratios of prices, Quantities, values where 2 or more time periods are involved, one of which is used as standard point for comparison, known as Baseperio

② price relatives

year	price of petrol per litre (₹)	price Relative (Index number)
2011 (Base yea	50	100
2012	55	$(55/50) \times 100 = 110$
2013	58	$(58/50) \times 100 = 116$
14	56	$(56/50) \times 100 = 112$
15	59	$(59/50) \times 100 = 118$
16	63	$(63/50) \times 100 = 126$
17	78	$(78/50) \times 100 = 156$
18	81	$(81/50) \times 100 = 162$
19	86	$(86/50) \times 100 = 172$
20	78	$(78/50) \times 100 = 156$
21	95	$(95/50) \times 100 = 190$

price relative $= \left(\frac{P_n}{P_o}\right) \times 100$

Quantity Relative $= \left(\frac{Q_n}{Q_o}\right) \times 100$

Value Relative $= \left(\frac{P_n \cdot Q_n}{P_o \cdot Q_o}\right) \times 100$

③

Year	price of A	consumption of commodity A	value	Price Relative	Quantity Relative	Value Relative
2015 (B.Y.)	523	83	43,409	100	100	100
2016	679	89	60,431	129.83	107.23	139.213
2017	878	98	86,044	167.88	118.07	198.217
2018	573	115	65,895	109.56	138.55	151.8003
2019	1093	123	139,939	208.99	148	1928309.703
2020	1046	166	1,73,636	200	200	400

Index number for the Base year = 100

price relatives are calculated separately for each commodity, which makes analysis lengthy & complicated

quantity relatives, value relatives

∴ we will study simple aggregative index numbers

study simple aggregative

Data about prices

commodities	2001 (B Year)	2011	2021
A	50	60	110
B	80	95	195
C	130	195	245
D	870	1010	1390
E	1	2	5
F	920	1120	1420
Total	2,051	2,482	3,315
simple agg. price I.N.	100	121.014	161.6285

simple aggregative price index number $= \left(\frac{\Sigma P_n}{\Sigma P_0} \times 100\right)$ EPH

simple Aggregative quantity index Number $= \left(\frac{\Sigma Q_n}{\Sigma Q_0} \times 100\right)$ Ego

Simple Aggregative value indese number $= \left(\frac{\Sigma P_n \cdot Q_n}{\Sigma P_0 \cdot Q_0} \times 100\right)$ Po go

(4)

commodities	price in April – 2024 (Base month)	price in May – 2024	poise in June – 24	price in July – 24
Potato Perky	80	100	130	200
Note-Books (per dozen)	400	600	1,000	1,300
Milk (per litre)	70	200	300	390
Gold (per 10gms)	55,000	50,000	48,000	45,000
Total	55,550	50,900	49,430	46,890
simple aggregative price index no.	100	$\frac{50900}{55550} \times 100$ sss = 91.63	$\frac{49430}{55550} \times 100$ 394 0 = 88.9828	$\frac{46890}{55550} \times 100$ 1005884 = 84.4104

(5)

commodities	Price in April – 2024 (Base month)	price in May – 2024	poise in June-24	price in July-24
Potato (per quintal)	8000	10,000	13,000	20,000
Note-Books (Per 100 dozens)	40,000	60,000	100,000	130,000
Milk (Per 1000 litres)	7900	299000	390,000	3,90
Gold (per gm)	5500	5000	4800	4500
Total	23500	2175000	4,17800	5,44,500
simple aggregative price index no.	100	222.6721	338.30	440.891

- unit test is said to be satisfied if Index number does not change even though we change unit of measurement in which prices, quantites are quoted.
- As per unit test : formula of construction of index no. should be independent of unit of measurement.
- Simple aggregative index numbers do not satisfy unit test of indese numbers.
- 2 limitations of simple aggregative index number
  1. It gives equal importance to prices, quantities of all commodities
  2. It does not satisfy unit test.

⑥ To overcome 2nd limitation of simple aggregative index numbers : simple avg of Relatives index numbers are introduced

④

commodities	price in April	price relatives	price in May	price relati	price in June	price relati	price in July	price Rel.
Potato Perky (per kg)	80	100	100	125	130	162.50	200	250
Note Books (per dozen)	400	100	600	150	1,000	250	1,300	325
Milk (per litre)	70	100	200	285.71	300	428.57	390	557.14
Gold (per 10 gms)	55,000	100	50,000	90.91	48,000	87.27	45000	81.82
		400		651.62		928.34		1213.96
simple avg of Relatives		100		162.905		232.335		303.99

commodities	price in April	price Relatives	price in May	price relati	price in June	price relati	price in July	price Rel.
Potato Perky (per kg)	8000	100	10,000	125	13,000	162.50	20,000	250
Note Books (per dozen)	40,000	100	60,000	150	100,000	250	130,000	325
Milk (per litre)	70,000	100	2,00,000	285.71	3,00,000	428.57	3,90,000	557.14
Gold (per 10 gms)	5,500	100	5,000	90.91	4800	87.27	4500	81.82
		400		651.62		928.34		1213.96
simple avg of Relatives		100		162.905		232.335		303.99

simple avg of Relatives index numbers satisfy unit test. But it gives equal importance

to prices & quantities of all commodities.

To Remove/overcome this limitation, we will study Weighted aggregative index numbers.

study Weighted aggregative

(7)

Price Relative = $\frac{P_n}{P_o} \times 100$	simple aggregative price index no. = $\frac{\Sigma P_n}{\Sigma P_o} \times 100$
Quantity Relative = $\frac{Q_n}{Q_o} \times 100$	simple aggregative qty index no. = $\frac{\Sigma Q_n}{\Sigma Q_o} \times 100$
value Relative = $\frac{P_n \cdot Q_n}{P_o \cdot Q_o} \times 100$	simple aggregative value index no. = $\frac{\Sigma P_n \cdot Q_n}{\Sigma P_o \cdot Q_o} \times 100$

price Relative

any index no

way

simple aggregative index numbers do not satisfy unit test

To overcome this limitation : simple avg of relatives can be used

	2011 (B.Y.)		2012		2013	
	Q	Qty Relatives	Q	Qty Relatives	Q	Qty Relatives
A	50	100	80	160	100	200
B	60	100	100	166.67	120	200
C	80	100	130	162.50	140	175
D	90	100	140	155.55	180	200
E	100	100	180	180	200	200
		500		824.72		975
simple avg of relatives		100		164.944		195

This method gives equal importance to prices and quantities of all commodities.

⑧ To overcome this limitation we can use : weighted aggregative index numbers

when we find price : Quantity should be used as weight

when we find quantity : price should be used as weight

⑨ Weighted aggregative Index numbers :

	Weighted aggregative price index numbers	Weighted aggregative quantity index numbers
Lasperey's	$\frac{\sum P_n \cdot Q_0}{\sum P_0 \cdot Q_0} \times 100$	$\frac{\sum Q_n \cdot P_0}{\sum Q_0 \cdot P_0} \times 100$
Paasche's	$\frac{\sum P_n \cdot Q_n}{\sum P_0 \cdot Q_n} \times 100$	$\frac{\sum Q_n \cdot P_n}{\sum Q_0 \cdot P_n} \times 100$
Marshall Edgeworth's	$\frac{\sum P_n \cdot (Q_0 + Q_n)}{\sum P_0 \cdot (Q_0 + Q_n)} \times 100$	$\frac{\sum Q_n \cdot (P_0 + P_n)}{\sum Q_0 \cdot (P_0 + P_n)} \times 100$
Fisher's	$\sqrt{\frac{\sum P_n Q_0}{\sum P_0 Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n}} \times 100$	$\sqrt{\frac{\sum Q_n P_0}{\sum Q_0 P_0} \times \frac{\sum Q_n P_n}{\sum Q_0 P_n}} \times 100$
Dorbish Bowely's	$\frac{\frac{\sum P_n Q_0}{\sum P_0 Q_0} + \frac{\sum P_n Q_n}{\sum P_0 Q_n}}{2} \times 100$	$\frac{\frac{\sum Q_n P_0}{\sum Q_0 P_0} + \frac{\sum Q_n P_n}{\sum Q_0 P_n}}{2} \times 100$

- Fisher's index is G.M. of Lasp & Paasche's index.
- Dorbish Bowely's index is A.M. of Lasp & Paasche's index.

100

commodities	2011 (B. Year)		2021					
	P_o	Q_o	P_n	Q_n	$P_o Q_o$	$P_o Q_n$	$P_n Q_o$	$P_n Q_n$
A	12	120	13	150				
B	18	135	20	100				
C	16	200	20	180				
D	25	58	30	70				
E	19	28	25	40				
					9052	8990	10,700	10,650

Find all weighted aggregative price, Quantity indices

Weighted aggregative price Indese numbers

(a) Lasp. $= \frac{\sum P_n \cdot Q_o}{\sum P_o \cdot Q_o} \times 100 = \frac{9700}{9,052} \times 100 = 118.2059$

(b) paasche's $= \frac{\sum P_n \cdot Q_n}{\sum P_o \cdot Q_n} \times 100 = \frac{10,650}{8,990} \times 100 = 118.4650$

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(c) Marshall Edgeworth's $= \frac{\sum P_n (Q_o + Q_n)}{\sum P_o (Q_o + Q_n)} \times 100$

$= \left(\frac{\sum P_n Q_o + \sum P_n Q_n}{\sum P_o Q_o + \sum P_o Q_n}\right) \times 100 = \left(\frac{9700 + 10,650}{9,052 + 8,990}\right) \times 100$

$= \left(\frac{21,350}{18,042} \times 100\right) = 118.3350$

(d) Fisher's $= \sqrt{\text{Lasp. price index} \times \text{Paasche's price index}}$

$= \sqrt{118.205921343 \times 118.464961067}$

$= 118.33537$

(e) Dorbish Boweley :

Dorbish Boweley

$$= \text{Clasp} \left(\frac{\text{Lasp. price indeset} + \text{Paasche's price index}}{2} \right)$$

$$= \left(\frac{118.205921343 + 118.464961067}{2} \right)$$

$$= 118.335440705$$

(2) Weighted aggregative quantity numbers

Weighted aggregative Quantity

(a) Lasp. :

$$= \frac{\sum Q_n \cdot P_o}{\sum Q_o \cdot P_o} \times 100$$

lfj

$$= \frac{8990}{48921} \times 100 = 99.3151$$

(b) Paasche's :

$$= \frac{\text{Eon} \cdot P_n}{\text{Eg}_o \cdot P_n} \times 100$$

$$= \frac{10,650}{10,700} \times 100 = 99.5327$$

(c) Marshall Edgeworth's

$$= \frac{\text{Ian Pot Pn}}{\text{E Oo Pot Pn}} \times 100$$

$$= \frac{\text{Ian Pot} + \text{E QnPn}}{\text{T 90Po} + \text{T pop}} \times 100 = \frac{8990 + 10650}{9052 + 10700} \times 100$$

$$= \left(\frac{19640}{1492} \right) \times 100 = 99.4329688813$$

(d) Fisher's :

$$= \sqrt{\text{Lasp. qty index} \times \text{Paasche's qty index}}$$

$$= \sqrt{99.3150684 \times 99.5327102}$$

$$= 99.4238298334$$

(10) Dorbish Bowdey's

$$= \left(\frac{\text{hasp Qty index} + \text{paasche's qty index}}{2}\right)$$

$$= \left(\frac{99.3150684931 + 99.5327102803}{2}\right)$$

$$= 99.4238893865$$

(11)

			Rent – indicator of inflation
2021	100 : 20,000 P.M.		100 : 20,000 P.M.
2022	125 : 25,000 P.M.		140 : 28,000 p.m.

→ Real salary per month = $\left(\frac{\text{Nominal salary}}{\text{cost inflation index}}\right) \times 100 = \left(\frac{\text{salary in money terms}}{\text{cost inflation index}}\right)$

reasons || Ininaese 1111

$$= \frac{25,000}{140} \times 100 = 17,857$$

(12) Real wages $= \left(\frac{\text{Nominal wages}}{\text{wholesale price index}}\right)$

Real income $= \left(\frac{\text{Nominal Income (i.e. income in money terms)}}{\text{wholesale price index}}\right)$

(13)

Year	price of A	price relatives (chain relatives)	Link Relatives
2021 (BY)	60	100	100
22	70	116.666666	116.666666
23	59	98.333333	84.28571428
24	75	125	127.1186441
25	81	135	108
26	78	130	96.296296

① Link relative of current year $= \frac{\text{CR of current year}}{\text{CR of previous year}} \times 100$

② CR of current year $= \left(\frac{\text{LR of current year} \times \text{CR of previous year}}{100} \right)$

In chain Relatives : comparison is always with Base Year

In Link Relatives : comparison is always with previous year

(14)

Years	Link Relatives	chain Relatives	Link relatives
2011 (B.Y.)	100	100	100
2012	110	110	110
13	105	115.50	105
14	80	92.40	80
15	95	87.78	95
16	130	114.114	130
17	160	182.5824	160
18	60	109.54944	60
19	135	147.891744	135
20	125	184.86468	125

(15)

① Fisher's ideal price Index

$$= \sqrt{\frac{\sum P_n \cdot Q_0}{\sum P_0 \cdot Q_0} \times \frac{\sum P_n \cdot Q_n}{\sum P_0 \cdot Q_n}} \times 100$$

Fisher's ideal price index is GM of Lasp price index & Paasche's price index

② Fisher's ideal quantity Index

$$= \sqrt{\frac{\sum Q_n \cdot P_0}{\sum Q_0 \cdot P_0} \times \frac{\sum Q_n \cdot P_n}{\sum Q_0 \cdot P_n}} \times 100$$

Fisher's ideal quantity index is GM of Lasp. Quantity index & Paasche's Quantity index.

③ Dorbish Bowley's price Index

$$= \left[\frac{\frac{\sum P_n \cdot Q_0}{\sum P_0 \cdot Q_0} + \frac{\sum P_n \cdot Q_n}{\sum P_0 \cdot Q_n}}{2}\right] \times 100$$

Dorbish Bowley's price index is AM of Lasp price index & Paasche's price index

④ Dorbish Bowley's Quantity Index

$$= \left[\frac{\frac{\sum Q_n \cdot P_0}{\sum Q_0 \cdot P_0} + \frac{\sum Q_n \cdot P_n}{\sum Q_0 \cdot P_n}}{2}\right] \times 100$$

Dorbish Bowley's quantity index is AM of Lasp. Quantity index & Paasche's Quantity index.

160 $\sum P_0 Q_0 = 8361$

$\sum P_0 Q_n = 9386$

$\sum P_n Q_0 = 10833$

$\sum P_n Q_n = 12681$

Find

Lasp price Index $= \frac{\sum P_n Q_0}{\sum P_0 Q_0} \times 100 = \frac{10833}{8361} \times 100 = 129.56584$

pop

Paasche's Quantity index $= \frac{\sum Q_n \cdot P_n}{\sum Q_0 \cdot P_n} \times 100 = \frac{12,681}{10,833} \times 100 = 117.0590$

Marshall Edgeworth's Quantity index $= \frac{\sum Q_n P_0 + \sum Q_n P_n}{\sum Q_0 P_0 + \sum Q_0 P_n} \times 100$

$= \left(\frac{9386 + 12681}{8361 + 10833}\right) \times 100$

$= \frac{22067}{4491} \times 100 = 114.9682$

Fisher's Ideal price Index $= \sqrt{\frac{\sum P_n \cdot Q_0}{\sum P_0 \cdot Q_0} \times \frac{\sum P_n \cdot Q_n}{\sum P_0 \cdot Q_n}} \times 100$

$= \sqrt{\frac{10833}{8361} \times \frac{12681}{9386}} \times 100$

$= 132 \cdot 3067$

Dorbish Bowley's Quantity index $= \left[\frac{\frac{\sum Q_n \cdot P_0}{\sum Q_0 \cdot P_0} + \frac{\sum Q_n \cdot P_n}{\sum Q_0 \cdot P_n}}{2}\right] \times 100$

$= \left[\frac{\frac{9386}{8361} + \frac{12681}{10833}}{2}\right] \times 100 = 114.6591$

(17) Base Year should be Recent, Normal Year

preferably a Normal year (i.e. a year in which major economic fluctuations have not taken place)

preferable It should be a recent year.

(18) Shifting the Base Year

Shifting

Years	Index Numbers B.Y. = 1941	Index Numbers If B.Y. is 1981	Index Numbers If B.Y. is 2001
1941	100	33.22259	12.8041
1951	123	40.86638	15.7490
1961	231	76.7442	29.5775
1971	256	85.0498	32.7785
1981	301	100	38.5403
1991	458	152.1595	58.6428
2001	781	259.4684	100
2011	889	295.3488	113.8284
2027	1086	360.7973	139.0525

(19) Tests of adequacy

There are Tests of adequacy in case of index Numbers

- unit test
- Time Reversal test
- Factor Reversal Test
- circular Test

(20) Unit Test

- Even though we change the unit of measurement in which prices quantities are quoted If in these Number doesn't change then unit test is said to be satisfied.
- Formula of construction of index Number should be independent of unit of measurement in which prices & quantities are quoted : As per unit test
- Simple aggregative index numbers do not satisfy unit test.
- Except simple aggregative index numbers all other index numbers satisfy unit test.

(21) Time reversal test

I_{ab} : Index no. of Year 'b' on base year 'a'

P_{03} : Price finder No. of Year's '3' on base year '0'

Q_{is} : Quantity index no. of year 's' on base year '1'

I_{ba} : Index no. of Year 'a' on base year 'b'

If $P_{01} \times P_{10} = 1.00$

then Time reversal test is said to be satisfied.

(22) (i)

$$\sqrt{\frac{\sum P_n Q_0}{\sum P_0 Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n}} \times \sqrt{\frac{\sum P_0 Q_n}{\sum P_n Q_n} \times \frac{\sum P_0 Q_0}{\sum P_n Q_0}}$$

Fisher's ideal index

Spot

Eff

Index

Eff

$$= \sqrt{\frac{\sum P_n Q_0}{\sum P_0 Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n} \times \frac{\sum P_0 Q_n}{\sum P_n Q_n} \times \frac{\sum P_0 Q_0}{\sum P_n Q_0}}$$

$$= 1 \cdot 00$$

(ii)

$$\sqrt{\frac{\sum Q_n P_0}{\sum Q_0 P_0} \times \frac{\sum Q_n P_n}{\sum Q_0 P_n} \times \frac{\sum Q_n P_n}{\sum Q_n P_0} \times \frac{\sum Q_n P_0}{\sum Q_n P_0}}$$

Eat. Index Quantity Index

$$= 1 \cdot 00$$

- Fisher's ideal indices satisfy time reversal Test
- Marshall Edgeworth's indices also satisfy time reversal Tes
- Laspeyre's, Paasche's indices do not satisfy time reversal test.

(23)

If $P_{01} \times Q_{01} =$ value index Number

then Factor Reversal Test is said to be satisfied

(24)

Fisher ideal price index × Fisher ideal quantity index

$$= \sqrt{\frac{\sum P_n Q_0}{\sum P_0 Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n}} \times \sqrt{\frac{\sum Q_n P_0}{\sum Q_0 P_0} \times \frac{\sum Q_n P_n}{\sum Q_0 P_n}}$$

IPod

EPnon / EPoon

EQuPo / EQoPo

EQnPn / EQoPn

$$= \sqrt{\frac{\sum P_n Q_0}{\sum P_0 Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n} \times \frac{\sum P_n Q_n}{\sum P_n Q_0} \times \frac{\sum P_n Q_n}{\sum P_0 Q_n}} = \frac{\sum P_n Q_n}{\sum P_0 Q_0}$$

EPH / 2 90

EPnon / Epp

EXPO / 2 pop

In Pn / gap

Etf

= value index Number.

- Fisher's ideal indices satisfy Factor reversal test
- Lasp, Paasche's, Marshall Edgeworth's indices do not satisfy Factor reversal test

(25) **Circular Test**

If $I_{ab} \times I_{bc} = I_{ac}$

then circular Test is said to be satisfied

Years	Price
2001 (a)	55
2011 (b)	86
2021 (c)	98

price Relative of 2011 (Pats) If B.Y is 2001 $= \frac{86}{55} = 1.56363636$

price Relative of 2021 (Pbc) If B.Y. is 2011 $= \frac{98}{89} = 1.13953488$

price Relative of 2021 (Pac) If B.Y. is 2001 $= \frac{98}{55} = 1.78181818$

Here $1.56363636 \times 1.13953488 = 1.78181818$

$\therefore P_{ab} \times P_{bc} = P_{ac}$ is satisfied.

i. circular Test is satisfied

- only simple indices can satisfy circular Test
- No weighted agg. method can satisfy circular test.
- Lasp, Paasche's, MEW's, Fisher's, DB's indices do not satisfy circular test

(26) All index numbers are unit free

(a) True (b) False

- Ratios are unit free.
- Relative measures of disp are unitfree.
- bye, bsey, & are unit free.

(27) If $I_{ab} \times I_{bc} = I_{ac}$ then which of the following test is satisfied?

(a) Time reversal test (b) Factor reversal test

(c) Both a & b (d) circular test

(28) Time reversal test is satisfied by

(a) Lasp. index (b) Paasche's index

(c) Fisher's index (d) none of these

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(29) circular Test is satisfied by

(a) Lasp. index (b) Fisher's index

(c) New index (d) None of these

(30) Index numbers are useful for the students of CA to learn techniques of measuring growth/rise or decline of various economic, Business, Financial factors/variables

(31) There are 2 types of index Numbers

- simple index Numbers
- composite index numbers

All index numbers are unit-free.

(32) Issues involved while construction of index numbers :

1. Selection of data
2. Base period
3. Selection of weight
4. use of averages
5. choice of variables
6. Selection of formula

(33) 330 Limitations of index numbers

1. index numbers are constructed from data brought by sampling method
2. They depict only the trend and not real picture
3. There can be many methods for construction of indese numbers, which can create confusion

(34)

Years	LR	CR
2011	100	100
12	110	110
13	85	93.50
14	135	126.225
15	141	177.97725
16	120	213.5727
17	60	128.14362
18	85	108.922077
19	130	141.5987
20	150	212.39805
21	101	214.5220
22	80	171.6176

Years	CR	LR
2011	100	100
12	123	123
13	85	69.1057
14	75	88.235
15	89	118.666
16	111	124.719120
17	123	110.8108
18	150	121.9512
19	156	104
20	165	105.769
21	170	103.0303
22	175	102.9412

(1) CR for current year

$$\left(\frac{\text{LR for the current year} \times \text{CR of previous year}}{100}\right)$$

(2) LR current year

$$= \frac{\text{CR of current Year}}{\text{CR of previous year}} \times 100$$

(35) A series of numerical figures which show relative position are called as Relatives

(36) Index Number for the base year is always 100

(37) which of the following is more suitable / used while constructing index numbers

(a) AM (b) GM (c) HM (d) Mode

(38) Index numbers show Relative changes rather than absolute changes.

(39) Circular Test is extention to time reversal test.

(40) Factor Reversal test is satisfied by

(a) Lasp. index (b) Paasche's index
(c) Fisher's index (d) None of these

(41) Fisher's ideal index do not satisfy

(a) Time Reversal test
(b) Factor Reversal test
(c) circular test
(d) unit test

(42) Lasp index do not satisfy

(a) Time Reversal test
(b) Factor Reversal test
(c) circular test
(d) All of these

(43) Paasche's index do not satisfy

(a) Time Reversal test
(b) Factor Reversal test
(c) circular test
(d) All of these

(44) $\left[\frac{\text{Sum of prices of all commodities in current year}}{\text{Sum of prices of all commodities in Base year}} \times 100\right]$

= simple aggregative price Index number

(45) $\left[\frac{\text{sum of quantities of all commodities in current year}}{\text{Sum of quantities of all commodities in Base year}} \times 100\right]$

= simple aggregative quantity Index number

(46) Index numbers are often constructed from :

(a) sample data (b) population data
(c) imaginary data (d) can't say

(47) ① I_{pg} in the Index number

of Year 9 on base Year Year_p

② I_{18} in the Index number

of Year 8 on base year 1

480 (48) When $P_0 \times Q_0$ too = value index number.

which of the following test is satisfied

(a) Time Reversal test

(b) Factor Reversal test

(c) circular test

(d) All of these

(49) Theoretically GM is best avg for construction of index number but in practice AM is used many times.

(50) There are ____ number of tests of adequacy in case of index numbers.

(a) 2 (b) 5 (c) 10 (d) 4

(51) we use price indices to

(a) Measure & compare prices

(b) Measure prices

(c) compare prices

(d) none of these

(S2) If prices of all commodities has increased to 1.25 times as compared to base year then price index number can be

(a) 225 (b) 125 (c) 1.25 (d) None of these

(S3) If prices of all commodities has increased by 125% as compared to base year then price index number can be

(a) 225 (b) 125 (c) 1.25 (d) None of these

(S4) LR for nth year can be written as:

$$= \frac{CR_n}{CR_{(n-1)}} \times 100$$

(S5) Consumer price index for the year 2008 was 313 when 2001 was the base year. Avg monthly wages of workers in 2008 are ₹ 20001. Find Real wages.

$$\Rightarrow \text{Real wages of 2008} = \frac{₹\,2000}{313} \times 100$$

$$= ₹\,638.98$$

(56) Dorbish Bowley's quantity index number =

$$= \text{hasp} \left[\frac{\text{Lasp. Quantity index} + \text{Paasche's quantity index}}{2} \right]$$

$$= \left[\frac{\frac{\sum q_n p_0}{\sum q_0 p_0} + \frac{\sum q_n p_n}{\sum q_0 p_n}}{2} \times 100 \right]$$

(57) Fisher's Ideal price Index =

$$= \sqrt{\text{Lasp. price index} \times \text{Paasche's price index}}$$

$$= \sqrt{\frac{\sum p_n q_0}{\sum p_0 q_0} \times \frac{\sum p_n q_n}{\sum p_0 q_n}} \times 100$$

(58) Marshall Edgeworth's quantity index =

$$= \left[\frac{\sum q_n (p_0 + p_n)}{\sum q_0 (p_0 + p_n)} \times 100 \right]$$

$$= \left[\frac{\sum q_n p_0 + \sum q_n p_n}{\sum q_0 p_0 + \sum q_0 p_n} \times 100 \right]$$

of

(59) purpose of index numbers decides which index numbers are to be used

(a) ~~True~~ True (b) False

(60) In weighted index numbers, weight represents

(a) Importance (b) Relative importance

(c) Depth (d) consistency

(61) (a) while finding weighted aggregative price index numbers we use Quantity as weight

(b) while finding weighted aggregative Quantity index numbers we use price as weight

(62) workers salary in 2001 : ₹ 220,000
per month 2021 : ₹ 55,000

wholesale price index in 2001 : 120
2021 : 360

Real Gain (Loss) to worker is :

$$\Rightarrow \text{Real wages} = \frac{₹\ 55{,}000}{360} \times 120$$

$$= ₹\ 18{,}333.3333333$$

Real Loss = 20,000 − 18,333.3333

$$= ₹\ 1{,}666.666666 \text{ p.m}$$