or $$\Delta Y = K.\Delta I$$

$$\Delta I = \frac{\Delta Y}{K}$$

$$= \frac{500}{2.5}$$

Thus, new investment of Rs.200 crores will be generated.

16. Calculate aps, if apc is 0.80

Solution: We know that apc + aps = 1

Therefore,   aps = 1 – apc

$$= 1 – 0.80 = 0.20$$

17. Calculate K, if mpc is 0.75

Solution: We know that,

$$K = \frac{1}{1 - mpc} = \frac{1}{1 - 0.75} = 4$$

Therefore, K = 4.

18. Calculate mpc, if value of K is 3.

Solution: $$K = \frac{1}{1 - mpc}$$

$$3 = \frac{1}{1 - mpc}$$

$$3(1 - mpc) = 1$$

$$3 - 3mpc = 1$$

$$-3mpc = 1 - 3$$

$$-3mpc = -2$$

$\therefore$ $$mpc = \frac{2}{3} = 0.67$$

19. If mps = 0.4, ΔI = Rs. 100 crores; find the values of (i) ΔI (ii) ΔC and (iii) ΔS

Solution: We know that,

(i) $$K = \frac{1}{mps}$$

and $$\Delta Y = K.\Delta I$$

$\therefore$ $$\Delta Y = \frac{1}{mps} \times \Delta I$$

Ref – Intro to Economics, By *Dutta*, New Age Pub

$$= \frac{1}{0.4} \times 100 = 250$$

(ii) $\Delta C = \Delta Y \times mpc$ $(\because mps = 1 - mps = 0.6)$

$$= 250 \times 0.6 = 150$$

(iii) $\Delta S = \Delta Y \times mps$

$$= 250 \times 0.4 = 100$$

20. *Firm A sold goods to firm B worth Rs. 100, firm B sold the same with some modifications to firm C for Rs. 160, firm C sold those goods for final consumption to firm D for Rs. 200. Calculate the value added by each firm.*

Solution: We know that,

Value added = value of output – intermediate consumption.

Firm	Value of output	cost	Value added
A	100	0	100 – 0 = 100
B	160	100	100 – 100 = 60
C	200	160	200 – 160 = 40
			Total value added = 200

To check: Total value of output – total cost = total/gross value added. Thus,

(100 + 160 + 200) – (0 + 100 + 160) = 200

21. *A sells to B for Rs. 50 and to C for Rs. 30; B sells to private consumption for Rs. 40 and exports for Rs. 30; C sells to public consumption for Rs. 25 and accumulates unsold stocks worth Rs. 25. Find value added by industry of origin and also of different components of final expenditure on national product.*

Solution:

Firm	Value of output		Cost	Value added
A	Goods sold to B = 50			
	Goods sold to C =		0	80 – 0 = 80
B	Sold Pr. C	= 40		
	Goods exported	$= \dfrac{30}{70}$	50	70 – 50 = 20
C	Sold Pu. C	= 25		
	Unsold stock	$= \dfrac{25}{50}$	30	50 – 30 = 20
				Total value added = 120

Components of final expenditure:

1. Expenditure on private consumption: 40
2. Expenditure on public consumption: 25
3. Exports: 30
4. Unsold stock of goods: <u>25</u>

                                  100

22. *From the data given below, find out the following:*

(a) *value of output at market prices,*

(b) *Gross value added at market prices,*

(c) *Net value added at market prices,*

(d) *Net value added at factor cost.*

Heads	Amount
1. Opening stock	200
2. Closing stock	400
3. Purchase of raw material	700
4. Sales	1600
5. Corporation tax	100
6. Undistributed profits	50
7. Dividend	50
8. Rent	150
9. Interest	100
10. Depreciation	200
11. Indirect tax	150
12. Subsidies	50
13. Wages and salaries	350

Solution:

(a) Value of output at market prices:

Payments	Rs.	Receipts	Rs.
Purchase of raw material	700	Sales	1600
Corporation tax	100	Change in stocks	200
Undistributed profits	50		
Dividends	50		
Rent	150		
Depreciation	200		

Contd....

Net indirect taxes	100		
Wages and salaries	350		
Interest	100		
	1800		1800

(b) Gross value added at market prices = value of output – intermediate consumption

$$= 1800 - 700 = 1100$$

(c) Net value added at market prices = gross value added at market prices – depreciation

$$= 1100 - 200 = 900$$

(d) Net value added at factor cost = net value added at market prices – net indirect taxes (indirect taxes - subsidies)

$$= 900 - (150\text{-}50) = 800$$

23. *Find out domestic product at market price from the following data:*

Heads	Amount
(i) Consumption of fixed capital	50
(ii) Net indirect taxes	30
(iii) Value of output	750
(iv) Value of intermediate consumption	300

Solution: NDP_{mp} = value of output – depreciation – value of intermediate consumption

$$= 750 - 50 - 300 = 400.$$

24. *Calculate operating surplus :*

Heads	Amount
(i) Compensation of employees:	300
(ii) Indirect taxes	200
(iii) Consumption of fixed capital	100
(iv) Subsidies	50
(v) Gross domestic product at market price	600

(Figures are in crores)

Solution: Operating surplus = Gross domestic product at market price – compensation of employees – consumption of fixed capital – indirect taxes + subsidies

$$= 600 - 300 - 100 - 200 + 50 = 50 \text{ crores}$$

25. *Calculate operating surplus:*

Heads	Amount
(i) Wages and salaries:	3000
(ii) Consumption of fixed capital	400
(iii) Subsidies	100
(iv) Gross value added at market prices	7000

(Figures are in crores)

Solution: OS = (v) − (iii) − (ii) − (i) + (iv)

= 7000 − 400 − 700 − 3000 + 100

= 3000 crores.

26. *Calculate compensation of employees:*

(a) Commission paid to staff (12); (b) Traveling allowance paid (18); (c) Employer's contribution to social security (15); (d) Wages and salaries (155); (e) Interest free loan to staffs (20)

(Figures are in thousands)

Solution: Compensation of Employees

= (a) + (c) + (d)

= 12 + 15 + 155

= 182 thousand.

27. *Calculate compensation of employees:*

(a) Bonus paid to staff (35); (b) Free medical facilities (60); (c) Employer's contribution to social security (40); (d) Wages and salaries (350); (e) Employees' contribution to provident fund (30)

(Figures are in thousands)

Solution: Compensation of Employees = (d) + (c) + (b) + (a)

= 350 + 40 + 60 + 35

= 485 thousand.

28. *From the information below, find out the value of net national product.*

Heads	Amounts in Rs. crores
1. Gross national product at market prices	81388
2. Depreciation	3205

Solution:

NNP = GNP − Depreciation

NNP = 81388 − 3205 = Rs. 781833 crores.

29. *From the information below, calculate- (i) NDP$_{mp}$ and (ii) NDP$_{fc}$.*

Heads	Amount in Rs. crores
1. Gross national product at market prices	97503
2. Depreciation	5699
3. Net factor income from abroad	–201
4. Net indirect taxes	10576

Solution: (*i*) NDP_{mp} = GNP_{mp} – Net income from abroad – consumption of fixed capital

NDP_{mp} = 97503 – (-201) – 5699 = Rs. 92005 crores.

(*ii*) NDP_{fc} = NDP_{mp} – Net indirect taxes

= 92005 – 10576 = Rs. 81429 crores

30. *Calculate (i) GDPmp; (ii) Personal income; (iii) personal disposable income*

Heads	Amount in Rs. crores
1. National income	64500
2. Net indirect taxes	5500
3. Corporate taxes	1200
4. Part of N.I accuring to government	1550
5. Net factor income from abroad	–150
6. Depreciation	7250
7. Interest on national debt	450
8. Undistributed Corporate profits	2500
9. Personal taxes	1650
10. Net current transfers from abroad	–200
11. Transfer payment	1600

Solution: GDP_{mp} = N.I. + Net indirect taxes + depreciation – net factor income from abroad

= 64500 + 5500 +7250 – (–150)

= Rs. 77400 crores.

Personal income = NI – corporate taxes – part of national income arising to government sector + interest on national debt – undistributed profit + current transfers from abroad + transfer payments by govt.

= 64500 – 1200 – 1550 + 450 – 2500 + (–200) + 1600

= Rs. 61100 crores.