Q6. Consider an economy described by the following functions: C = 20 + 0.80Y, I = 30, G = 50, TR = 100 (a) Find the equilibrium level of income and the autonomous expenditure multiplier in the model. (b) If government expenditure increases by 30, what is the impact on equilibrium income? (c) If a lump-sum tax of 30 is added to pay for the increase in government purchases, how will equilibrium income change?

Ans: (a) $C = 20 + 0.80\ Y \quad [\overline{C} = 20]$

I = 30

c = 0.80

G = 50

T = 100

Equilibrium level of income

$$Y = \frac{1}{1-c}\left[\overline{C} + cT + I + G\right]$$

$$= \frac{1}{1-0.80}\left[20 + 0.80 \times 100 + 30 + 50\right]$$

$$= \frac{1}{0.20} \times 180$$

$$= \frac{180}{20} \times 100$$

$$= 900$$

$$\text{Expenditure multiplier} = \frac{1}{1-c}$$

$$= \frac{1}{1-0.80} = \frac{1}{0.20}$$

$$= \frac{100}{20} = 5$$

(b) Increase in government expenditure

ΔG =30

New equilibrium expenditure

$$=\frac{1}{1-c}\left[\overline{C}+cT+I+G+\Delta G\right]$$

$$=\frac{1}{1-0.80}\left[20+0.80\times100+30+50+30\right]$$

$$=\frac{1}{1-0.80}\ [20+80+30+50+30]$$

$$=\frac{1}{0.20}\times210$$

$$=\frac{210}{20}\times100$$

=1050

Equilibrium level of income increases by 150 (1050 – 900)

(c) Tax multiplier $= \frac{-c}{1-c}$

$$\frac{\Delta Y}{\Delta T} = \frac{-c}{1-c}$$

So,

$$\Delta Y = \frac{-c}{1-c} \times \Delta T$$

$$= \frac{-0.80}{1-0.80} \times 30$$

$$= \frac{-0.80}{0.20} \times 30$$

$= -120$

New Equilibrium level of income = $Y + \Delta Y$

= 900 + (-120)

= Rs 780

********** END **********