**MATHEMATICAL AND DIAGRAM APPROACH**

**TWO- SECTOR**

**QUESTION**

Given the following information

1. Autonomous consumption = 100
2. MPC = 0.7
3. Autonomous investment = 500

Find national equilibrium using

1. AS = AD approach
2. Injection = Leakage approach

**Answer (a )**

**AGGREGATE SUPPLY = AGGREGATE DEMAND**

**Consumption Function**

**C = a+bYd**

**C = 100 + 0.7Yd**

**Yd = Disposable Income**

**In 2 sector economy, Yd = Y**

**AS = AD**

Y = C + I

Y = 100 + 0.7 Yd + 500

Y = 600 + 0.7Yd

Y = AD

Y – 0.7Y = 600

C = 100 +0.7Yd

C + II

0.3Y = 600

600

Y = 600/0.3

I = 500

**Y = 2000\***

**Answer (b)**

45◦

**Savings function**

**S = -a+(1-b)Yd**

**S = -100 + 0.3Yd**

**Injection = Leakage**

2000

National Income

I = S

500 = - 100 + 0.3Yd

S = -100 + 0.3Yd

Yd = Y

I = 500

National income

2000

-100

500

500 + 100 = 0.3Yd

600 = 0.3Yd

600/0.3 = Y

**2000 = Y\***

**THREE- SECTOR**

**AUTONOMOUS TAX**

**QUESTION**

**C = 200 + 0.75Yd**

**I = 100**

**G = 50**

**T = 100**

Find national equilibrium using

1. AS = AD approach
2. Injection = Leakage approach

**ANSWER (a)**

**Yd = Disposable Income**

**In 3 sector economy, Yd = Y - T**

AS = AD

Y = C + I + G

Y = 200 + 0.75Yd + 100 + 50

Y = AD

C + I + GI

C = 200 +0.75Yd

I = 100

National Income

200

1100

45◦

C = 125 +0.75Yd

AD (C,I,G)

Y = 200 + 0.75 (Y – T) + 150

Y = 350 + 0.75 (Y – 100)

Y = 350 + 0.75Y – 75

Y = 275 + 0.75Y

Y – 0.75Y = 275

0.25Y = 275

Y = 275/0.25

**Y = 1100\***

**ANSWER (b)**

**INJECTION = LEAKAGE**

**Savings function**

**S = -a+(1-b)Yd**

**S = -200 + 0.25Yd**

**I + G = S + T**

100 + 50 = -200 + 0.25Yd + 100

150 = -200 + 0.25 (Y – T) + 100

**Yd = Disposable Income**

**In 3 sector economy, Yd = Y - T**

150 = -200 + 100 + 0.25(Y -100)

150 = -100 + 0.25Y – 25

150 + 100 + 25 = 0.25Y

S = -200 + 0.25Yd

Yd = Y

I + G

National income

1100

-200

150

S = -225 + 0.25Y

-225

275 = 0.25Y

275/0.25 =Y

**1100 = Y\***

**THREE- SECTOR**

**INDUCED TAX**

Given the following information

C = 200 + 0.75Yd

I = 100

G = 50

T = 0.2Y

Find national equilibrium using

1. AS = AD approach
2. Injection = Leakage approach

**ANSWER (a)**

**AS = AD**

Y = AD

C + I + GI

C = 200 +0.75Yd

I = 100

National Income

200

875

45◦

C = 200 +0.6Y

AD (C,I,G)

Y = C + I + G

Y = 200 + 0.75Yd + 100 + 50

Y = 200 + 0.75 (Y – T) + 150

Y = 200 + 0.75 (Y – 0.2Y) + 150

Y = 350 + 0.75Y – 0.15Y

Y = 350 + 0.6Y

Y – 0.6Y = 350

0.4Y = 350

Y = 350/0.4

**Y = 875\***

**ANSWER (b)**

**Injection = Leakage**

I + G = S + T

100 + 50 = -200 + 0.25Yd + 0.2Y

S = -200 + 0.25Yd

Yd = Y

I + G

National income

875

-200

150

S = -200 + 0.2Y

150 = -200 + 0.25 (Y – T) + 0.2Y

150 = -200 + 0.25(Y – 0.2Y) + 0.2Y

150 = -200 + 0.25Y – 0.05Y + 0.2Y

150 = -200 + 0.4Y

150 + 200 = 0.4Y

350 = 0.4Y

350/0.4 = Y

**875 = Y\***

**FOUR-SECTOR**

Given the following information

C = 200 + 0.75Yd

I = 100

G = 50

T = 100

X = 100

M = 50

Find national equilibrium using

1. AS = AD approach
2. Injection = Leakage approach

**ANSWER (a)**

**AS = AD**

**Y = C + I + G + X – M**

AD (C,I,G,X,M)

Y = 200 + 0.75Yd + 100 + 50 + (100 – 50)

Y = 200 + 0.75 (Y – T) + 150 + 50

Y = AD

Y = 200 + 0.75 (Y – 100) + 200

C + I + G + X - MI

Y = 200 + 0.75Y – 75 + 200

C = 200 +0.75Yd

Y = 325 + 0.75Y

C = 125 +0.75Y

I = 100

Y – 0.75Y = 325

0.25Y = 325

200

125

45◦

Y = 325/0.25

125

125

1300

National Income

**Y = 1300\***

**ANSWER (b)**

**INJECTION = LEAKAGE**

**I + G + X = S + T + M**

100 + 50 + 100 = -200 + 0.25Yd + 100 + 50

Yd = Y

250 = -200 + 0.25 (Y – T) + 150

S = -200 + 0.25Yd

250 = -50 + 0.25 (Y – 100)

S = -175 + 0.25Y

250 = -50 + 0.25Y – 25

150

I + G

250 + 50 + 25 = 0.25Y

325 = 0.25Y

-200

1300

National income

325/0.25 = Y

-175

**1300 = Y\***