Units 1–3

Master Formula & Rules Sheet

STUDENT NAME: _____ DATE: _____ GOAL: **Score 5 · sidtutor.com**

1. Scarcity, Trade & Opportunity Cost

Output Rule ("OOO"): Opp. Cost A = (Output B) / (Output A)

Input Rule ("IOU"): Opp. Cost A = (Input A) / (Input B)

Terms of Trade: Seller's Cost < Price < Buyer's Cost

Accounting Profit: Total Revenue – Explicit Costs

Economic Profit: Total Revenue – (Explicit + Implicit Costs)

2. GDP Calculations & Deflator

Expenditures Approach: GDP = C + I + G + (X – M)

Income Approach: GDP = Wages + Rent + Interest + Profit

Real GDP: (Nominal GDP / GDP Deflator) × 100

GDP Deflator: (Nominal GDP / Real GDP) × 100

Excluded from GDP: Used goods, intermediate goods, transfer payments, non-market work.

3. Inflation & Price Indices

Consumer Price Index (CPI):

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CPI = (Cost of Market Basket in Current Year / Cost in Base Year) × 100
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Inflation Rate: $[(CPI_{Year\,2} - CPI_{Year\,1}) / CPI_{Year\,1}] \times 100$

Real Wage: (Nominal Wage / CPI) × 100

4. Unemployment & Labor Force

Labor Force (LF): Employed + Unemployed (actively seeking)

Unemployment Rate (UR): (Unemployed / Labor Force) × 100

LF Participation Rate: (Labor Force / Adult Population) × 100

Natural Rate of UR (NRU): Frictional + Structural (0% Cyclical)

5. Multipliers & Fiscal Policy Multiplier Formulas

Marginal Propensities:

- MPC = ΔC / ΔDI
- MPS = ΔS / ΔDI
- **MPC + MPS = 1**

Spending Multiplier (k_s):

$k_s = 1 / (1 - MPC) =$ **1 / MPS**

- ΔGDP = ΔSpending × k_s

Tax Multiplier (k_t):

$k_t = -MPC / MPS$

- **Balanced Budget Mult = 1**

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6. Financial Sector, Banking & Monetary Policy Multipliers

Simple Money Multiplier: $M_m = 1 / \text{Reserve Requirement (RR)}$

Max Money Supply Expansion: $\Delta MS = \text{Excess Reserves} \times M_m$

Quantity Theory of Money: $M \times V = P \times Y$ (Money × Velocity = Price × Real GDP)

Fisher Equation: Real Interest Rate = Nominal Rate – Expected Inflation

Nominal Interest Rate: Real Interest Rate + Expected Inflation

Bond Price vs Interest Rate: Inverse Relationship (P_{bond} ↑ ⇔ Yield/Rate ↓)

7. The Federal Reserve's Policy Tools

POLICY TOOL	EXPANSIONARY (↑AD)	CONTRACTIONARY (↓AD)
Administered Rates (IORB)	Lower IORB Rate	Raise IORB Rate
Discount Rate	Lower Discount Rate	Raise Discount Rate
Open Market Operations	**BUY** Treasury Bonds	**SELL** Treasury Bonds
Reserve Requirement	Decrease Ratio	Increase Ratio

8. The Phillips Curve & Economic Growth

Short-Run Phillips Curve (SRPC): Inverse relationship between inflation rate and unemployment rate.

Shifting SRPC: Shifts *opposite* to SRAS shifts (SRAS ↑ ⇒ SRPC ↓; Negative Supply Shock ⇒ Stagflation ⇒ SRPC ↑).

Long-Run Phillips Curve (LRPC): Vertical line at the Natural Rate of Unemployment (NRU).

9. Foreign Exchange (FOREX) & Balance of Payments

Balance of Payments Accounts:

- **Current Account (CA):** Net exports, net investment income, foreign aid transfers.
- **Financial (Capital) Account (CFA):** Purchase/sale of foreign assets (stocks, bonds, real estate).
- **Fundamental Identity:** CA + CFA = 0

FOREX Shifters ("TRIPS"):

- **T:** Taste & preference for foreign goods.
- **R:** Real interest rates (↑Real Interest ⇒ Capital Inflows ⇒ Currency Appreciates).
- **I:** National income levels.
- **P:** Relative price levels / inflation.
- **S:** Currency market speculation.