Consider the following short run keynesian model of a closed economy:

\[ D = C + I + G \]
\[ Y_D = Y - T \]
\[ C = \bar{C} + cY_D \]
\[ I = \bar{I} \]
\[ G = \bar{G} \]
\[ T = \bar{T} \]

\( D \) denotes real aggregate demand, \( Y \) denotes real aggregate output and income, \( Y_D \) denotes real aggregate disposable income, \( C \) denotes real aggregate private consumption expenditure, \( I \) denotes real aggregate gross investment expenditure, \( G \) denotes real aggregate government purchases and \( T \) denotes real aggregate taxes, net of government transfers. A bar above a letter denotes the autonomous (exogenous) component of the corresponding variable, assumed positive and \( c \) denotes the marginal propensity to consume, assumed positive and less than unity.

Assuming that prices are fixed in the short run, continuous equilibrium in the output market implies that output adjusts to ensure that,

\[ Y = D \]
A. Discuss the structure of the model distinguishing between *endogenous* and *exogenous* variables, *identities*, *behavioral equations* and *equilibrium conditions*.

B. Using simple algebra, derive equilibrium output as a function of the autonomous (exogenous) components of spending and the marginal propensity to consume. Explain your findings.

C. Derive equilibrium output using a simple diagram of the keynesian cross. Explain your findings.

D. Describe the properties of short run macroeconomic equilibrium in words.

E. Assume that government purchases rise by $1bn. What will be the effects on equilibrium output? Assume that taxes net of transfers are reduced by $1bn. What will be the effects on equilibrium output? What will be the effects on equilibrium output of a simultaneous increase in government purchases and taxes (net of transfers) by $1bn.

F. Depict the effects of an increase in government purchases diagrammatically, distinguishing between, 1. a balanced budget increase and, 2. an increase financed by government borrowing.

G. Assume that autonomous private consumption is equal to $17bn, autonomous investment is equal to $15bn, autonomous government purchases are equal to $20bn, and that there is a balanced government budget. What is the value of equilibrium output if the marginal propensity to consume is equal to 0.6; What is the value of equilibrium consumption? What will be the effects on equilibrium output and consumption of a drop in autonomous investment by 20%. How can the government react to this drop in autonomous investment in order to avoid a recession?