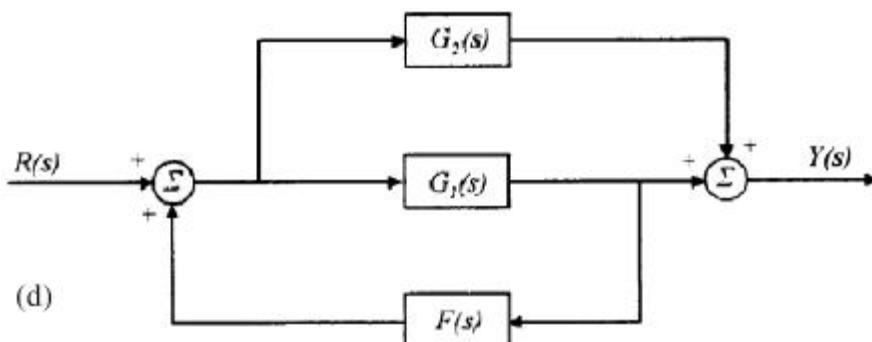
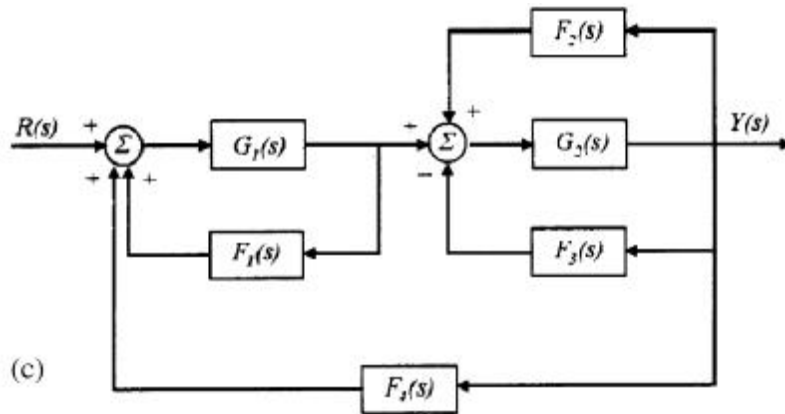
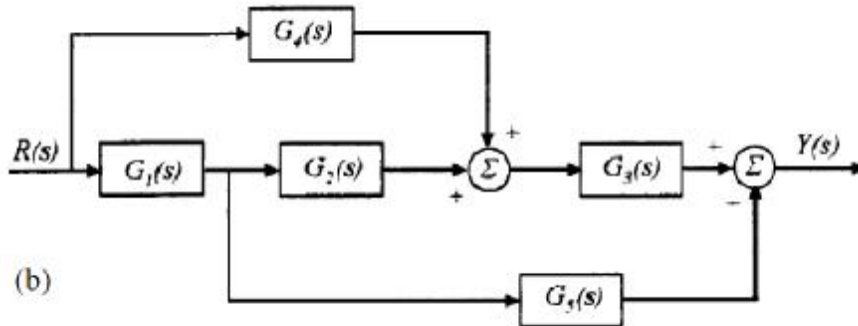
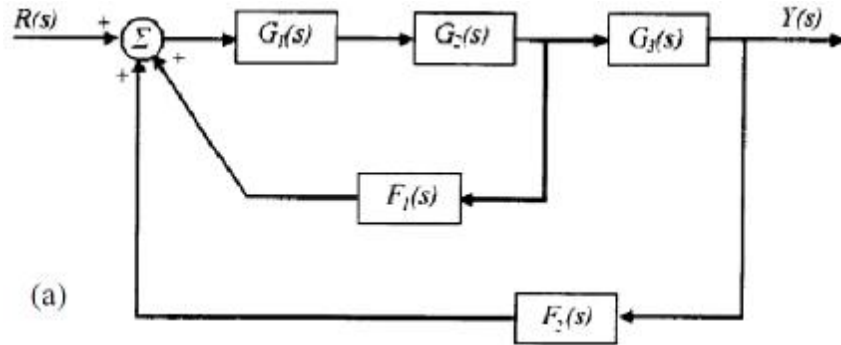
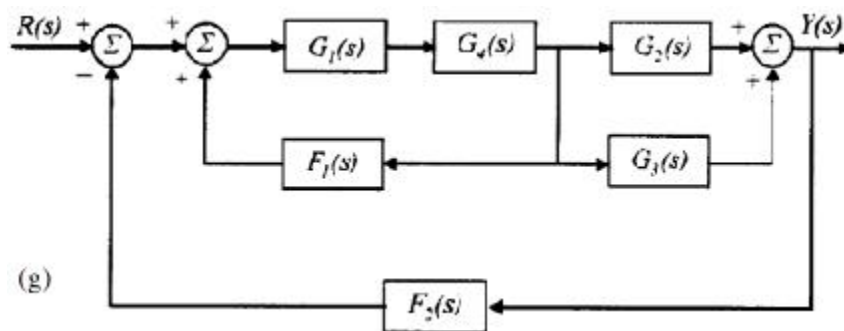
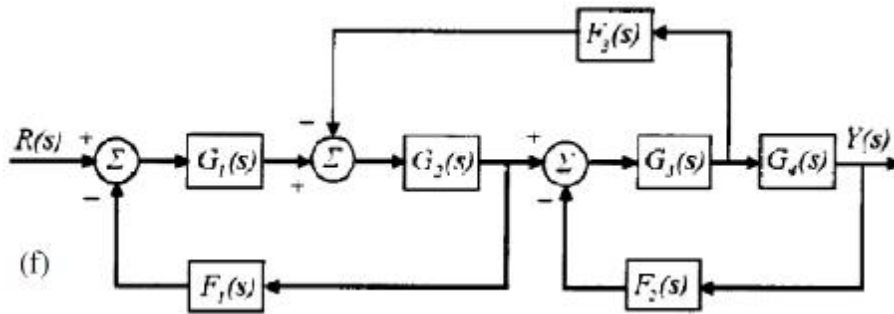
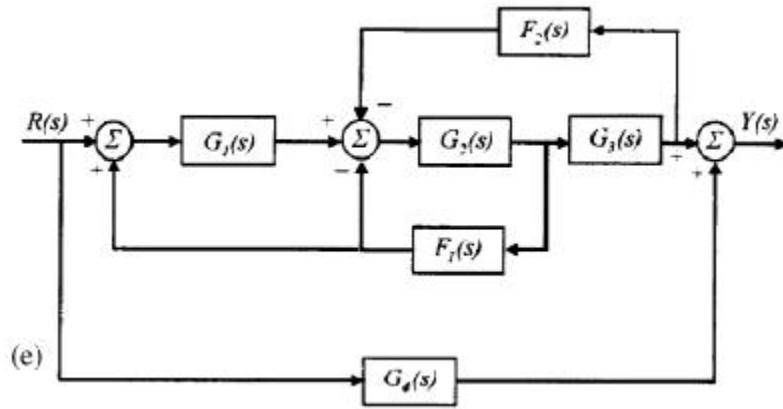




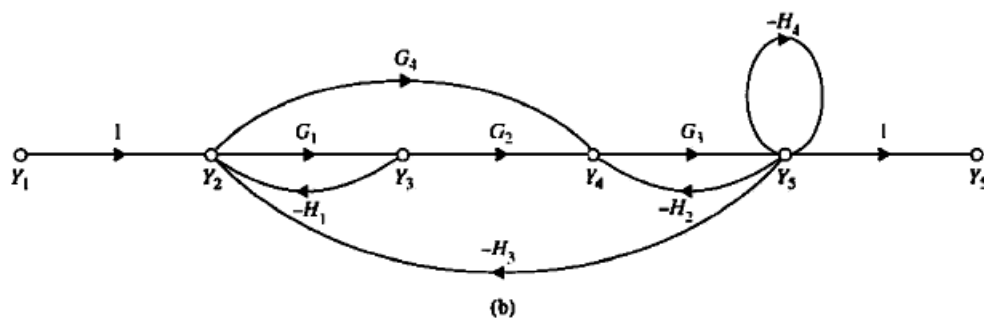
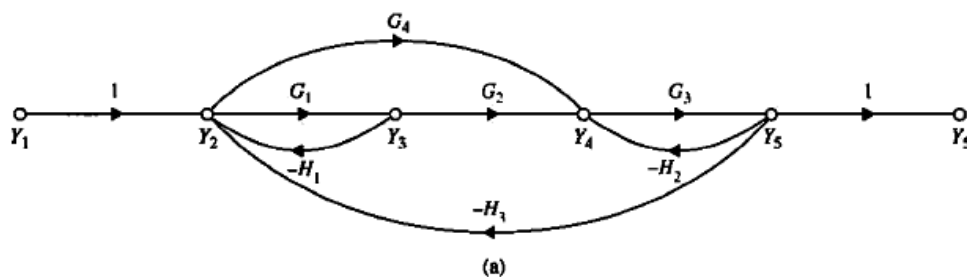
**Sheet (4)**

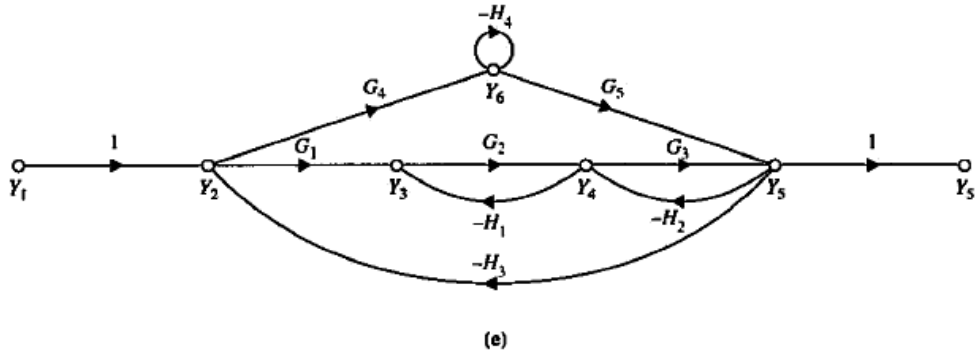
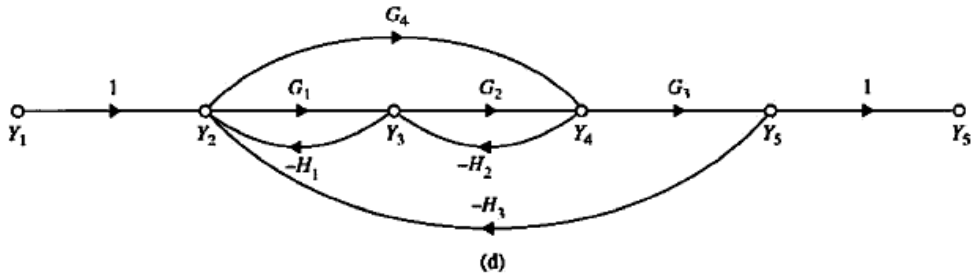
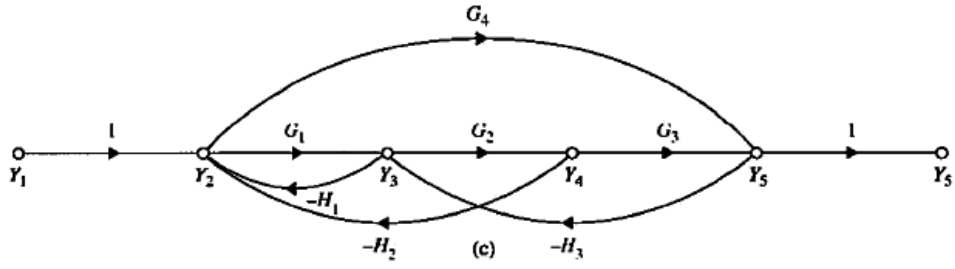
1- Draw the signal flow graphs of the following control systems and the Closed loop transfer function  $Y(s) / R(s)$  using Mason's rule.



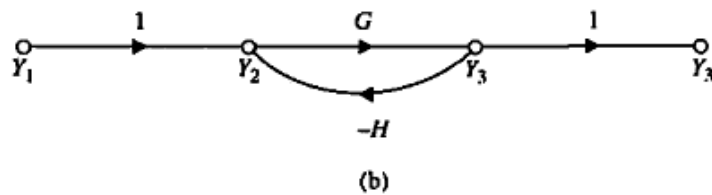
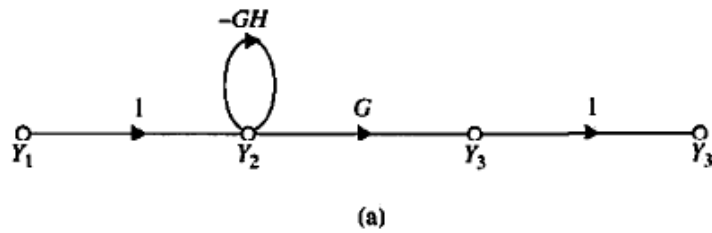


2- Apply the gain formula to the following signal flow graphs and find the over all transfer functions.





3- Show that the two systems shown in Figures (a) and (b) are equivalent.



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