1. A whole life insurance policy is issued to (70) and pays a death benefit of 78,000 at the end of
the year of death. The policy has level annual premiums for as long as the insured is alive.

You are given:
   i. Mortality follows the Illustrative Life Table
   ii. $i = 0.06$
   iii. The policy pays commissions of 50% for the first year and 5% thereafter.
   iv. The per policy expenses is 200.
   v. The maintenance expense for the policy is 40 at the beginning of every year
      including the first year.

   a. (5 points) Calculate the net benefit reserve at the end of 10 years.

   b. (9 points) The gross premium for this policy is 5600. Calculate the gross premium reserve at
      the end of 10 years.


c. (2 points) Calculate the expense premium and the expense reserve at the end of 10 years.

d. (4 points) Explain why the expense reserve is negative.
1. A 30 year endowment policy of 30,000 on (70) has a death benefit payable at the end of the year. The policy has level annual premiums for the life of the insured.

You are given that mortality follows the Illustrative Life Table with interest at 6%.

   a. (3 points) Calculate the first year net premium under Full Preliminary Term.

   b. (6 points) Calculate the net premium under Full Preliminary Term for renewal years (years 2 and later).
c. (1 point) Calculate the Full Preliminary Term Reserve at the end of 1 year.

d. (6 points) Calculate the Full Preliminary Term Reserve at the end of 15 years.

e. (4 Points) Explain the purpose of modified reserve methods such as Full Preliminary Term.