

Chapter 11 Answers to Application Questions

1. Richard has average annual earnings of \$60,000. One-third of his earnings, or \$20,000, is used for taxes, insurance premiums, and the costs of self-maintenance. His family receives the remaining \$40,000. The present value of \$1 payable for 20 years at a discount rate of 6 percent is \$11.47. Richard has a human life value of \$458,800 ($\$40,000 \times \11.47).

2. (a) (1) If the discount rate is increased, the human life value is reduced. A smaller amount of money is needed because of a higher interest rate.

(2) If the amount of average annual income going to the family is increased, the human life value is increased. More money is needed to provide a higher amount of income to the family.

(3) If the period over which income is paid to the family is reduced, the human life value is also reduced. Less money is needed to provide the desired family income.

(b) The human life value has several defects. First, other sources of income to survivors, such as Social Security, are ignored. Second, earnings and expenses are assumed to remain constant over time, and employee benefits are ignored. Third, the amount of money allocated to the family can change quickly because of a birth, death, or divorce. Also, the discount rate used is critical because the human life value can be substantially increased by assuming a lower rate. Finally, the effects of inflation on earnings and expenses are ignored.

3. (a) Kelly needs \$583,000 of new life insurance, excluding Social Security. She has the following cash needs:

Funeral costs and uninsured medical bills	\$ 10,000
Pay off mortgage	150,000
Pay off car loan and credit card debts	15,000
College education fund for son	<u>150,000</u>
Total cash needs	\$325,000

Kelly also has the following income needs:

Monthly income support of \$2000 for 17 years for her son	<u>\$408,000</u>
Total needs	\$733,000

Less existing resources (checking account,
IRA, 401K plan, individual
and group life insurance)

-150,000
\$583,000

new life insurance needed,
excluding Social Security

(b) Kelly needs \$419,800 of new life insurance if Social Security benefits are considered. Cash needs remain the same. If Social Security benefits of \$800 monthly are considered, only \$1200 monthly for 17 years, or \$244,800, is needed.

Cash needs	\$325,000
Income needs (incl Social Security)	<u>\$244,800</u>
Total needs	\$569,800
Less existing resources	<u>-150,000</u>
New life insurance needed	\$419,800

4. Janet needs an additional \$15,000 of life insurance to pay off the mortgage, credit cards, and car loan debts. She also needs \$400,000 of new life insurance to attain her income objective of \$2000 monthly for her family.

The capital retention approach requires three steps. First, prepare a personal balance sheet.

Assets

House	\$250,000
Checking account	1,000
Individual life insurance	100,000
Total	\$351,000

Liabilities

Mortgage payoff	\$100,000
Credit cards and car loan	16,000
Total	\$116,000

Second, determine the amount of income producing capital.

Total assets	\$351,000
Less:	
Mortgage payoff	\$100,000
Credit cards and car loan	\$16,000
Non income-producing capital (value of home)	<u>\$250,000</u>
Total	-\$15,000

Janet has no income-producing capital. In fact, she will need an additional \$15,000 of life insurance just to pay off her debts.

Finally, determine the amount of additional capital needed.

Income objective for family	\$ 30,000 yearly
Capital now available for income	0
Social Security survivor benefits	\$10,000
Income shortage	\$ 20,000
Total new capital required to meet income objective (\$20,000/.05)	\$400,000

5. Megan purchased a universal life insurance policy.

6. Todd is considering the purchase of a variable universal life insurance policy.

7. (a) The face amount of insurance under a variable life insurance policy will increase if the investment results are favorable. Variable universal life insurance and indexed universal life insurance are also acceptable answers.

(b) Decreasing term insurance equal to the individual's human life value can be used to insure the individual at the lowest possible annual premium.

(c) A variable universal life insurance policy allows the policyholder to determine how the premiums will be invested.

(d) A universal life policy allows cash withdrawals, such as a down payment on a home or payment of college tuition.

(e) A preferred risk policy is sold to individuals with favorable mortality experience. Premiums are relatively lower under a preferred risk policy.

(f) Under a modified life insurance policy, premiums are lower for the first three to five years and higher thereafter.

(g) A second-to-die policy is designed to pay estate taxes when a surviving spouse dies.

8. (a) Decreasing term insurance can be used to pay off the remaining mortgage balance; it can also be used to provide monthly income payments to his family. However, because term insurance has no cash values, decreasing term cannot be used to accumulate a retirement fund or to pay college expenses of the children.

(b) Ordinary life insurance can be used to pay off the mortgage, to accumulate a retirement fund, and to pay monthly income payments to the family. The cash values could be borrowed to pay college expenses when the children reach college age. The policy could also be surrendered for its cash value to pay college expenses.

(c) Universal life insurance can be used to pay off the mortgage, to accumulate a sizable retirement fund, and to pay monthly income to the family. In addition, universal life insurance allows cash withdrawals that could be used to pay college expenses.

(d) Variable universal life insurance can be used to pay off the mortgage, to accumulate a sizable retirement fund, and to pay monthly income to the family. A variable universal life insurance policy also allows the withdrawal of funds that could be used to pay college expenses.