

**4****PREMIUM AND BONUS****4.0 INTRODUCTION**

A insurance policy needs to be bought. This comes at a price which is known as premium. Premium is the consideration for covering of the risk of the insured. The insured agrees to pay premium for a particular period based on the sum insured chosen and in return the insurer agrees to pay the sum insured along with bonus accrued under the policy either on death of the policyholder or on maturity of the policy.

Premium needs to be paid in advance and regularly to keep the policy in force. The Insurers share their profit with the insured by giving bonus under the policies. The amount of bonus is given along with the final maturity amount.

**4.1 OBJECTIVE**

After going through this lesson you will be able to

- Learn the meaning of consideration
- Recall the methods of computation of premium
- Understand the meaning of bonus

**4.2 INSURANCE PREMIUM**

Premium is the consideration money that a policyholder has to pay in lieu of the benefit that the insurer promises to confer on the happening of the scheduled eventuality. Insurance is a contract and the policyholder /insured and the insurer are the two parties to the contract. Both parties have rights and obligations. Premium forms the obligation on the part of the insured.



## Notes

#### 4.1.1 Modes of payment of premium

The premium can be paid at one time, when it is called a single premium. It can also be paid in instalments i.e. yearly, half-yearly, quarterly or monthly. Single premiums are rare except in pension plans. Tabular premiums are given in yearly mode. Half-yearly, quarterly and monthly mode instalment is obtained by dividing the tabular premium by 2 or 4 or 12. However before going for this division, one has to allow for certain rebates which are allowed at different rates for different modes under different plans. Insurers allow some rebate on the premium for yearly and half-yearly mode. However this rebate varies from plan to plan.

The instalment premium for quarterly mode is exactly one fourth of the tabular premium. However for monthly mode, an extra addition of 5% to the tabular premium is made before dividing the tabular premium by 12. Premium can also be paid through salary savings scheme which is in fact a monthly mode but for this, no extra is charged.

Premium is always payable in advance. The rebate for yearly and half-yearly mode is given because the insurer earns interest on the advance payment and also because the administrative expenses are reduced because of lesser frequency of issuing renewal premium notices and receipts and maintaining the record.

Similarly rebate is also permitted for large sum assured and these rebates differ from plan to plan.

#### 4.1.2 Important elements in computation of Premium

There are three important elements in the computation of premium. They are (1) mortality, (2) expenses of management, (3) expected yield on its investment.

##### 1. Mortality

The mortality tables are prepared by the insurers on the basis of their experience over a number of years. Though the rate of mortality increases with the increase in age, all insurers charge a level premium which remains constant over the entire duration of the policy term. It is the actuarial science which provides the method to assess such increasing risk and convert it into a level premium.

This prediction or estimation of mortality is true for a very large group of insured people and not for any individual insured. Thus the small premium charged from the total group is used to pay a big sum assured to the unfortunate few who die early. It is also called pooling of resources. Insurance is also known to be a co-operative action.

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## **2. Expenses of management**

Any insurer has to incur expenses for conducting the insurance business. These expenses are not of constant nature. They keep on increasing due to inflationary market conditions. Huge expenses are incurred for procurement of new business, for payment of commission to the agent and other incidental expenses like preparation of policy document etc.

Expense is also incurred for servicing of the policies, e.g. collection of renewal premium, valuation to determine bonus payable, payment of Survival Benefit and Death claim and Maturity Benefit etc.

## **3. Expected yield on investment :**

As the above two elements go to increase the premium rate, the expected yield on investment of the collected endowment component of premium goes to reduce the premium rate. However, as the future yield cannot be determined exactly, it is necessary for a prudent insurer to keep a reserve to take care of unexpected fall in the rate of yield.

### **4.1.3 Risk, Net/Pure Premium**

#### **4.1.4 Risk Premium**

The pure premium needed to cover the expected risks but with no allowance for expenses, commission or contingencies is to be made. Thus the cost to meet the risk of death for one year at a particular age is known as risk premium. The risk premium is based on the probabilities of death at various ages.

#### **4.1.5 Net Premium or Pure Premium**

A net premium is the premium calculated on the basis of the valuation assumptions to provide the contractual benefits at outset. Its calculation only allows explicitly for interest and mortality. Thus the net premium covers the risk factor as well as interest earned on investment of fund by the insurers. Net premium is always less than the risk premium.



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#### 4.1.6. Loading

As explained before the administrative expenses of the insurer have to be borne out of the premium received from the insured. The amount added to the pure premium to cover the administrative expenses is known as loading. When these expenses are added to the net/pure premium it becomes the **gross premium/office premium** which is actually charged from the customer.

#### 4.1.7 Level Premium

Premium keeps on increasing as the age increases and this is the natural premium paying system but it is impractical because the insurer cannot ask the insured to pay extra premium every year and moreover in the latter years the cost of insurance would become unaffordable resulting in lapse of policies. In view of this insurers charge a level premium and the cost is distributed evenly over the period during which premiums are paid. The premium remains the same, and is more than the actual cost of protection in the earlier years of the policy and less than the actual cost in the latter years. The excess paid in the early years builds up the reserve.

#### 4.1.8 Actuarial Valuation

As discussed before premium is calculated based on some assumptions. The experience in future may not be exactly as assessed. So the process of checking the validity of assumptions from time to time is known as actuarial valuation. The main objects of conducting the valuations being:-

Future projections to be made on the basis of past experience

- Determine the long term consequences.
- The analysis should always be as thorough as the information allows and not based on superficial appearances.
- Using Mathematical modeling for handling the interactions of probability and investment return.
- "Further experience should be fed back to aid the subsequent development of the model and the assumptions.
- In India the Insurance Act requires actuarial valuations to be done every year.

### 4.1.9 Calculation of Age

The rate table as published by Insurers gives the rate of premium per thousand sum assured, for different ages nearer birthday. The tabular premium is also different for different premium payment terms. In case of whole life policies, as the premium has to be paid for the whole life, the premium is mentioned only for various ages nearer birthday.

Age nearer birthday means that if the actual age is upto 21 years 5 months 29 days the age for the purpose of calculation of premium is to be treated as 21 years only. However if the age is 21 years 6 months or more it is to be taken as 22 years. In other words if the age is 21 years 11 months and 29 days the age is taken as 22 years.

The method for calculation of age is explained by an example:

	<b>Day</b>	<b>Month</b>	<b>Year</b>
<b>Date of calculation</b>	21.	08.	2000
<b>Date of birth</b>	02.	01.	1964
	19.	07.	36

Age is 36 years 7 months and 19 days. Therefore the age last birthday is 36, the age nearer birthday is 37 and the age next birthday is also 37.

*Another example:*

	<b>Day</b>	<b>Month</b>	<b>Year</b>
<b>Date of calculation</b>	02.	03.	2000
<b>Date of birth</b>	19	09	1964
	13	05	35

Age is 35 years 5 months and 13 days. Therefore the age last birthday is 35, the age nearer birthday is 35 and the age next birthday is 36.

### 4.1.10 Calculation of premium

Calculation of premium is done after the underwriting decision has been taken. The underwriting decision is taken after an evaluation of the longevity taking into consideration all such factors which are supposed to influence the proposer's life span. It can be a decision where the risk is taken at ordinary



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rates. In other words only the premium rates as they appear in the rate table are applicable, after allowing for rebates on account of mode of payment and large sum assured.

This can be explained with an example:

Age nearer birthday	-	30 years
Plan of assurance	-	Endowment with profit
Term of assurance	-	20 years
Sum assured	-	Rs. 5,000
Mode of payment of premium	-	Half-yearly.

Tabular premium per thousand sum assured as given in the manual for agents is Rs.53.19 for age 30 and Term 20 years. Rebates allowed are 1.5% for half-yearly mode and there is no rebate for sum assured below Rs 25000/=

Tabular premium	Rs.53.19
Rebate for Half-yearly mode	<u>Rs.0.79</u>
	Rs.52.40
Adjustment for S.A. 5000	Nil
Balance	Rs.52.40
Yearly premium for SA Rs.5000	(Rs.52.40x5)=Rs.262.00
Half-yearly premium	= Rs.262/2 = Rs. 131.00

If the mode of payment in the above example would have been yearly, we would have reduced Rs.53.19 by 3% i.e. Rs.1.60. Had the mode been quarterly, we would not need any adjustment. Similarly if the mode of payment would have been monthly, we would have increased the tabular premium of Rs.53.19 by 5%.

Similarly if the sum assured would have been Rs. 25000, we would reduce Rs.52.40 by Rs.1/- before multiplying it with the sum assured, i.e. Rs. 25 only and not Rs. 25,000 as the tabular premium is for a sum assured of Rs. 1,000. Similarly if the sum assured would be Rs. 50,000 or more, we would reduce Rs. 52.40 by Rs.2/- before multiplying it by the sum assured, as explained above.

The underwriting decision is always not as simple as is shown in the above example. The underwriting decision may impose many riders, because of which the premium gets increased. These riders may be

- (1) due to the extra benefits wanted by the proposer e.g. accident benefit, premium waiver benefit etc.
- (2) due to extra risk perceived by the underwriter on the basis of health, occupation or even for reasons of sex.

Let us explain the effect of these riders on the premium by an illustration -

Plan of assurance -	Endowment assurance with profit
Term of assurance	20 years
Mode	Half-yearly
Age nearer birthday	45 years
Sum assured -	Rs. 20,000
Double Accident benefit -	Yes @ Rs 1/= per 1,000

**Calculation** : - Tabular premium for age 45,

Term 20 yrs is	Rs.52.19
Adjustment for Hly. Mode @ 1.5%	<u>0.78</u>
Balance	Rs. 51.41
Less adjustment for S.A. Rs. 20,000/-	<u>Nil</u>
	Rs. 51.41
Annual premium for Rs. 20,000 SA i.e. ( Rs. 51.41 x 20)	
	Rs. 1028.20
Add extra for Double accident benefit	
which is Rs.1/- per thousand for Rs. 20,000	Rs. <u>20.00</u>
Annual premium for Rs. 20,000	
with DAB	Rs. 1,048.20
Half-yearly instalment premium	Rs. 524.10
Rounded upto the nearest rupee	Rs. 524.00

The rates of extra premium for the extra benefits like double accident benefit or premium waiver benefit are given in the manual or prospectus issued by the insurer. The extra for premium waiver benefit depends upon the age of the proposer and is to be waived in case of the death of the proposer either due to disease or accident. This is normally applied to an insurance proposal on the life of a child. Extra premium on account of health and occupation is decided by the underwriter and is mentioned in the underwriting decision.



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These extra premiums are charged in order to take care of the extra mortality expected in this group of life on account of substandard health or hazardous occupation. Imposing a lien - constant or decreasing for a limited period of one year or six month is another way to deal with the perceived problem of extra mortality. During the lien period, the liability of the insurer is reduced.

In case of joint life plan, there are two lives with two different ages. In order to calculate premium, we need a mean age. There is a table provided in the manual to find the mean age, depending upon the difference in the two ages.

Sex extra is generally levied for those ladies who have not yet undergone a full time delivery and who are not expected to go to a qualified doctor at the time of delivery. Once this extra is paid, this risk of child birth is accepted. However such extra is not levied where the lady in question is educated and belongs to a well to do family and is therefore expected to have the delivery with the help of a qualified lady doctor.

Persons who are physically handicapped, such as blind by one eye, disabled due to polio etc. are denied the benefit of double accident benefit even if it is asked for.

However over the years, insurers have softened their stand, while considering proposals on the life of such physically and socially disadvantaged persons. This may not be an acceptable position strictly on medico actuarial considerations, but social considerations also have their impact. Since the sum assured in such cases is very small, these small deviations from strict actuarial consideration are acceptable.

**4.1.11 Computation of extra premium**

Mortality as explained above relates to the death rate of a very large group of people of different ages over a long period of time. These people are usually selected people, who are also called standard lives. A separate mortality study is done for people who are rated substandard. In other words these rated people suffer from some disease or other physical deformity because of which the expected mortality rate for these people would be higher than what is expected of standard lives.

This special study by actuarial method thus leads to an estimation of extra premium which shall adequately take care of the extra mortality in this substandard group. In view of

such study, extra premium is imposed on people suffering from diabetes or blood pressure etc. It is true that in view of the progress made in the medical science, these diseases are gradually not considered as dreadful as they used to be. Most insurers, therefore, keep on updating their experience relating to mortality of different groups and revise the rates of extra premium also.

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#### **4.1.12 Rider premiums**

There are also extra premiums, for conferring extra benefits, to the insured. For example, a prospect wants to get double the sum assured, in case of a death due to accident. This benefit is allowed by charging an extra premium.

The insurers usually charge extra premium for riders attached to the policy. One can opt to take death benefit five or even ten times of the basic sum assured and may pay for such extra term rider benefit.

Suppose a Life Insurance Company is providing the following riders

- Term Cover
- Accident Death Benefit

The extra premium for Term cover rider is Rs.400 and the Accident benefit is Rs.300. The premium under the policy is Rs. Rs. 2,050. So the premium payable by the insured will be Rs. Rs. 2,050 + Rs. 300 + Rs. 400 = Rs. 2,750.

Thus the rider premiums are payable separately under the policy.

#### **4.3 PREMIUM CALCULATION FOR ULIP POLICIES**

In case of ULIP policies the premium is generally fixed in the multiples of say Rs.500 or Rs.1,000 with some minimum amount say Rs. 5,000 or Rs. 10,000. In case of ULIP policies premium may be paid as a single premium or as regular premium over a period of years.

The premium that insurers collect is subject to the deduction of following charges:-

- 1. Mortality Charges** - This is the charge for insuring the life of policyholder. The charge depends upon the sum assured you have chosen.



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- 2. Fund Management Charges** – This is a fee charged for managing your investments
- 3. Administration Charges** - This is the charge for handling paper work and other miscellaneous back office expenses.
- 4. Switching Charges** – Charges for switching fund option.
- 5. Riders Charges** - These are additional benefits which one can opt for, for a charge. Riders are not free. The charges increase based on the riders chosen.
- 6. Surrender Charges** - This is the charge to surrender and close the policy prior to its maturity.
- 7. Premium Allocation Charge : This is the charge deducted from each and every premium paid towards agent commission and other marketing and initial expenses.**

The charges are generally higher in the first year and get reduced over the term of the policy.

Now suppose a insurance company fixes Rs.10,000 as premium for a policy. From this premium deduction and allocation of units may be as follows:-

**Sum Assured** : Rs.50,000 – Regular Premium Policy for 5 years

<b>Premium:</b>	Rs. 10,000
Charges Deducted :	
Mortality charges	Rs.180
Fund Management Charges:	Rs.750
Administration Charges:	Rs.1000
Riders Charges:	Rs. 500
Premium Allocation Charges:	Rs.2000
Total Charges	Rs.4430

Now the company deducts the charges of Rs. 4430 from the premium of Rs. 10,000 which comes to Rs.5570. The balance amount is used to purchase units of the fund which the policyholder chooses. Now say the policyholder wants to invest in growth Fund whose NAV is Rs.18.21 on a particular date.

The company will allocate 305.87 units to the policyholder (5570/18.21). This unit value will fluctuate and will depend on the performance of the stock market.

Usually since the payout for agents commission is higher in first year the allocation in units is less. It gradually increases. Say in next year the premium allocation charges are only Rs.250 then total cost comes to Rs.2680. The remaining Rs.7320 will be used to purchase the units for the policyholder.



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**INTEXT QUESTIONS 4.1**

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**Notes**

1. Define Level Premium, Office Premium, Net Premium, Rider Premium
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**4.2 BONUS**

A bonus is usually an addition to the contractual benefits under a with-profit life assurance contract. It arises either because of explicit loading in the premiums or because a company's actual experience has been better than what it had assumed in pricing the contract.

All policies are not entitled to bonus, only with-profit-policies are entitled to bonus which is added to the sum assured every year. The rate of bonus addition depends upon the profit that the insurance company makes. For the benefit of participating in bonus the insurers resort to bonus loading which can be quite a substantial amount of the total premium.

The Insurance Act, 1938 stipulates that 90% of the surplus declared after the actuarial valuation has to be distributed amongst the with-profit policyholders.

**4.2.1. Reversionary Bonus**

Bonus added to the benefit of a with-profit policyholder throughout the life of the policy. The benefit is not guaranteed in advance, but once added to the benefit, it is guaranteed. A reversionary bonus is one which will increase benefits payable in the future. Regular bonus are normally reversionary. Insurers also sometimes declare special reversionary bonus.

**4.2.2. Interim Bonus**

Bonus is normally declared on a valuation date say for 31.3.2007 the valuation may be declared sometimes in October 2007. In case of policies which result into claim after 31.3.2007 but before the declaration of the bonus would not get the benefit of the bonus. Hence to resolve such situation companies declare interim bonus for policies which become claims during two valuation dates.



## Notes

As any premium rate decided today, remains constant for the entire duration of the policy which can be upto 50 years or more, the insurer normally takes a very conservative outlook and provides for substantial reserves to take care of any adverse deviation from the originally assumed standard.

**Terminal Bonus-** This is a one time bonus declared by some companies for policies which have run for 15 years or more. In simpler words it can be said it is a loyalty bonus.

Bonus under ULIP Policies.

In case of Unit Linked Plans the policyholders get the fund accumulated in their account. The NAV of the fund multiplied by the number of units, the policyholder has, is known as Fund Value. In ULIP policies, the policyholders are not entitled to bonus. As in endowment policies these kind of policies are not entitled to bonus. However, the company may pay the policyholder a loyalty bonus at the end of the policy.

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**INTEXT QUESTIONS 4.2**


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1. Define Interim Bonus.
  2. Define Reversionary Bonus.
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**4.3 SUMMARY**

Premium is a consideration money for the benefit of a lump sum payment by the insurer on the happening of a specified event. The amount of premium is dependent upon age of the prospect, the policy conditions, the term etc. Premium is calculated separately in each case when a proposal is submitted. For extra benefits, extra premium is charged.

The basic premium is, however, decided on the basis of three factors - mortality, expenses and yield on investment. While mortality and expenses increase the premium, investment yield reduces the premium.

All life insurance companies charge level premium i.e. the same premium through out the duration of policy. This practice leads to the generation of some surplus in the initial period of the policy. Hence a portion of this surplus can be paid to a policyholder if he wants to surrender the policy before the maturity date.

**4.4 OBJECTIVE TYPE QUESTIONS**

1. Which one of the following statement is correct?
  - a. The premium under a life insurance policy may be paid monthly
  - b. The premium under a life insurance policy may be paid annually
  - c. Both (a) and (b) statements are correct.
  - d. Both (a) and (b) statements are wrong
2. Which one of the following statement is correct?
  - a. The sum of all the premium paid will be more than the Sum Assured.
  - b. The sum of all the premium paid will be less than the Sum Assured.
  - c. Both (a) and (b) statements are wrong.
  - d. Both (a) and (b) statements are correct.
3. Which one of the following statement is correct?
  - a. The annual premium is equal to the SA divided by the term of the policy
  - b. The annual premium increases as the term of the policy increases
  - c. Both (a) and (b) statements are correct.
  - d. Both (a) and (b) statements are wrong.
4. Premium depends upon?
  - a. Age of the person to be insured.
  - b. Family history of the person to be insured.
  - c. Medical history of the person to be insured.
  - d. All of the above.
5. Which one of the following statement is correct?
  - a. The premium collected in the early years is less than what is required.
  - b. The premium collected in the early years is more than what is required.

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- c. The premium collected in early years is exactly what is required.
  - d. All the above statements are correct.
6. The net premium will be
  - a. Less than the risk premium.
  - b. More than the risk premium.
  - c. Calculated by adding expenses to the risk premium.
  - d. More than the pure premium.
7. When interest rates fall, the tabular premium rates are likely to
  - a. Increase.
  - b. Decrease.
  - c. Remain the same.
8. The premium is loaded because of
  - a. Interest likely to be earned.
  - b. Likely expenses.
  - c. Likely claims.
  - d. Age of the insured person.
9. The policyholder is concerned with the
  - a. Office premium.
  - b. Pure premium.
  - c. Net premium.
  - d. Risk premium.
10. The reason for charging level premiums is
  - a. Risk increases as age increases.
  - b. It is convenient to the policyholder.
  - c. It is convenient to the insurer.
  - d. All the above reasons.



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## **4.5 ANSWERS TO INTEXT QUESTIONS**

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### **4.1**

1. Level premium means the same amount of premium is paid during term of the policy. It does not change with increase of expenses every year.
2. Office premium means the management expenses plus pure premium.
3. Net Premium means the risk premium.
4. Rider premium means additional premium to cover the extra risk.

### **4.2**

1. Interim bonus means the bonus declared by the company between two valuation dates.
2. Reversionary Bonus means that the bonus will accrue but will be paid on the maturity or death of the policyholder.

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## **4.6 ANSWERS TO OBJECTIVE TYPE QUESTIONS**

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|------|-------|
| 1. c | 2. c  |
| 3. d | 4. d  |
| 5. c | 6. a  |
| 7. a | 8. b  |
| 9. a | 10. d |