



INSURANCE

It is a commonly acknowledged phenomenon that there are countless risks in every sphere of life. For property, there are fire risks; for shipment of goods, there are perils of sea; for human life, there are risks of death or disability; and so on. The chances of occurrences of the events causing losses are quite uncertain because these may or may not take place. In other words, our life and property are not safe and there is always a risk of losing it. A simple way to cover this risk of loss money-wise is to get life and property insured. In this business, people facing common risks come together and make their small contributions to the common fund. While it may not be possible to tell in advance, which person will suffer the losses, it is possible to work out how many persons on an average out of the group may suffer the losses.

When risk occurs, the loss is made good out of the common fund. In this way, each and every one shares the risk. In fact, insurance companies bear risk in return for a payment of premium, which is calculated on the likelihood of loss. In this lesson, you will learn Insurance, its various kinds, premium calculation, calculation of paid up/surrender value etc in details.



OBJECTIVES

After studying this lesson, you will be able to :

- define insurance and its significance;
- define various kinds of insurance-General Insurance, Life Insurance;
- explain the scope of insurance;
- define various schemes (Group Insurance scheme, Retirement scheme etc.) and policies of insurances;
- calculate premiums of various types of insurance;
- calculate the age of life to be assured;
- calculate actual premium; and
- calculate paid up/surrender value keeping policy inforce.



Notes

EXPECTED BACKGROUND KNOWLEDGE

- Percentage and its application

39.1 WHAT IS AN INSURANCE?

Insurance is a tool by which fatalities of a small number are compensated out of funds collected from the insured. Insurance companies pay back for financial losses arising out of occurrence of insured events, e.g. in personal accident policy the insured event is death due to accident, in fire policy the insured events are fire and other natural calamities. Hence, insurance is a safeguard against uncertainties. It provides financial recompense for losses suffered due to incident of unanticipated events, insured within the policy of insurance.

Insurance, essentially, is an arrangement where the losses experimented by a few are extended over several who are exposed to similar risks. Insurance is a protection against financial loss arising on the happening of an unexpected event.

An individual who wants to cover risk pays a small amount of money to an organization called an Insurance Company and gets insured. An insurance company insures different people by collecting a small amount of money from each one of them and collectively this money is enough to compensate or cover the loss that some members may suffer.

The fixed amount of money paid by the insured to the insurance company regularly is called premium. Insurance company collects premium to provide security for the purpose.

Insurance is an agreement or a contract between the insured and the Insurance Company (Insurer).

39.2 NATURE OF INSURANCE

On the basis of the definition of insurance discussed above, one can observe its following characteristics:

39.2.1 Risk Sharing and Risk Transfer

Insurance is a mechanism adopted to share the financial losses that might occur to an individual or his family on the happening of a specified event. The event may be death of earning member of the family in the case of life insurance, marine-perils in marine insurance, fire in fire insurance and other certain events in miscellaneous insurance, e.g., theft in burglary insurance, accident in motor insurance, etc. The loss arising from these events are shared by all the insured in the form of premium. Hence, risk is transferred from one individual to a group.

39.2.2 Co-operative Device

Insurance is a cooperative device under which a group of persons who agree to share the financial loss may be brought together voluntarily or through publicity or through solicitations of the agents. An insurer would be unable to compensate all the losses from his own capital.

So, by insuring a large number of persons, he is able to pay the amount of loss.



Example 39.1 In a village, there are 1000 houses. Each house is valued at Rs.30,000 on an average. If 10 houses get burnt every year, calculate the total loss per year. Calculate how much money each house owner should contribute per year to compensate total loss caused by fire.

Solution : Total loss per year = $Rs.30000 \times 10 = Rs.300000$

$$\text{Required contribution from each house owner} = Rs. \frac{300000}{1000} = Rs. 300$$

\therefore All the 1000 house owners should agree to contribute a sum of Rs. 300 each at the beginning of the year and create a fund. This will be enough to pay a compensation of Rs. 30,000 to each of the 10 house owners whose house are burnt by fire. This way the risk of loss of 10 house owners is spread over a group of 1000 house owners.

Example 39.2 In a town, there are 10,000 persons who are all aged 50 years and are enjoying normal health. It is expected that 20 persons may die during the year. If the economic value of the loss suffered by the family of each dying person were taken to be Rs. 50,000, calculate the total loss. How much money each person should contribute to compensate the total loss?

Solution: Total loss workout to be = $Rs. 50000 \times 20 = Rs. 1000000$

$$\text{Required contribution from each person/year would be} = Rs. \frac{1000000}{10000} = Rs. 100$$

This amount is enough to pay Rs. 50,000 to the family of each of the 20 dying persons. Thus, the risk of 20 persons are shared by 10,000 persons.

39.3 BRIEF HISTORY OF INSURANCE

Marine insurance is the oldest form of insurance followed by life insurance and fire insurance. The history of insurance can be traced back to the early civilization. As civilization progressed, the incidence of losses started increasing giving rise to the concept of loss sharing. The Aryans through their village co-operatives practiced loss of profit insurance. The code of Manu indicates that there was a practice of marine insurance carried out by the traders in India with those of Sri Lanka, Egypt and Greece.

The earliest transaction of insurance as practiced today can be traced back to the 14th century A.D. in Italy when ship were only being covered. This practice of Marine Insurance, gradually spread to London during 16th century. The history of Marine Insurance is closely linked with the origin and rise of the Lloyd's shipowners. Marine traders, who used to gather at Lloyd's coffee house in London, agree to share losses to goods during transportation by ship.

Marine related losses included:

- ♦ Loss of ship by sinking due to bad weather
- ♦ Goods in transit by ship robbed by sea pirates
- ♦ Loss or damage to the goods in transit by ship due to bad weather in high sea.

The Lloyd's Act was framed to set up the Lloyd's by whom they were empowered to transact other classes of Insurance. Today, Lloyd's is regarded as the largest insurance underwriter in the world. The first insurance policy was issued in England in 1583.



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39.4 TYPES OF INSURANCE

Insurance occupies an important place in the modern world because the risk, which can be insured, have increased in number and extent owing to the growing complexity of the present day economic system. It plays a vital role in the life of every citizen and has developed on an enormous scale leading to the evolution of many different types of insurance. In fact, now a day almost any risk can be made the subject matter of contract of insurance. The different types of insurance have come about by practice within insurance companies, and by the influence of legislation controlling the transacting of insurance business. Broadly, insurance may be classified into the following categories:

- (1) Classification on the basis of nature of insurance
 - (a) Life Insurance
 - (b) Fire Insurance
 - (c) Marine Insurance
 - (d) Social Insurance
 - (e) Miscellaneous Insurance
- (2) Classification from business point of view:
 - (a) Life Insurance
 - (b) General Insurance
- (3) Classification from risk point of view:
 - (a) Personal Insurance
 - (b) Property Insurance
 - (c) Liability Insurance
 - (d) Fidelity Guarantee Insurance

However, in the present lesson we will discuss insurance in business point of view, personnel insurance and property insurance.

39.5 LIFE INSURANCE IN INDIA

In India, insurance started with life insurance. It was in the early 19th century when the Britishers on their postings in India felt the need of life insurance cover.

It started with English Companies like. 'The European and the Albert'. The first Indian insurance company was the Bombay Mutual Insurance Society Ltd., formed in 1870.

In the wake of the Swadeshi Movement in India in the early 1900s; quite a good number of Indian companies were formed in various parts of the country to transact insurance business. To name a few: 'Hindustan Co-operative' and 'National Insurance' in Kolkata; 'United India' in Chennai; 'Bombay Life', 'New India' and 'Jupiter' in Mumbai and 'Lakshmi Insurance' in New Delhi.

39.6 WHY LIFE INSURANCE?

It Covers the Risk of Death



The risk of death is covered under insurance scheme but not under ordinary savings plans. In case of death, insurance pays full sum assured, which would be several times larger than the total of the premiums paid. Under ordinary savings plans, only accumulated amount is payable.

It Encourages Compulsory Saving

After taking insurance, if the premium is not paid, the policy lapses. Therefore, the insured is forced to go on paying premium. In other words it is compulsory. A savings deposit can be withdrawn very easily.

Easy Settlement and Protection against Creditors

Once nomination or assignment is made, a claim under life insurance can be settled in a simple way. Under M.W.P. Act, the policy moneys become a kind of trust, which cannot be taken away, even by the creditors.

It helps to Achieve the Purpose of the Life Assured

If a lump sum amount is received in the hands of anybody, it is quite likely that the amount might be spent unwisely or in a speculative way.

To overcome this risk, the life assured can provide that the claim amount be given in instalments.

Peace of Mind

The knowledge that insurance exists to meet the financial consequences of certain risks provides a form of peace of mind. This is important for private individuals when they insure their car, house, possessions and so on, but it is also vital importance in industry and commerce.

Loss Control

Insurance is primarily concerned with the financial consequences of losses, but it would be fair to say that insurers have more than a passing interest in loss control. It could be argued that insurers have no real interest in the complete control of loss, because this would inevitably lead to an end to their business.

Social Benefits

The fact that the owner of a business has the funds available to receiver from a loss provides the



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stimulus to business activity we noted earlier. It also means that jobs may not be lost and goods or services can still be sold. The social benefit of this is that people keep their jobs, their sources of income are maintained and they can continue to contribute to the national economy.

Investment of Funds

Insurance companies have at their disposal large amounts of money. This arises from the fact that there is a gap between the receipt of a premium and the payment of a claim. A premium could be paid in January and a claim may not occur until December, if it occurs at all. The insurer has this money and can invest it.

Invisible Earnings

We have already said that insurance allows people and organizations to spread risk among them. In the same way, we can also say that countries spread risk. A great deal of insurance is transacted in the UK in respect of property and liabilities incurred overseas. London is still very much the centre of world insurance and large volumes of premium flow into London every year; these are described as invisible earnings.

Insurance Facilitates Liquidity

If a policyholder is not in a position to pay the premium, he can surrender the policy for a cash sum.

Loan Facility and Tax Relief

The person can also take a loan for a temporary period to tide over the difficulty. Sometimes, a life insurance policy is acceptable as security for a commercial loan. By paying the insurance premium, the insured obtains significant reliefs in Income Tax and Wealth Tax.

39.7 NATIONALIZATION OF LIFE INSURANCE IN INDIA

In 1956, life insurance business was nationalized and LIC of India came into being on 01-09-1956. The government took over the business of 245 companies (including 75 provident fund societies) who were transacting life insurance business at that time. Thereafter, LIC got the exclusive privilege to transact life insurance business in India.

Relevant laws were amended in 1999 and LIC's monopoly right to transact life insurance business in India came to an end. At the close of financial year ending 31-03-2004, twelve new companies were registered with the Insurance Regulatory and Development Authority (IRDA) to transact life insurance business in India.

39.8 LIFE INSURANCE CORPORATION (LIC)

As the name suggests, Life Insurance is an insurance of the life of an individual. Thus, life insurance is a contract between the insured and the insurer i.e., the Life Insurance Corporation (LIC). The written record of this contract is called an Insurance policy.

The person who is specified by the insured to receive the insurance policy in case premature death is called a Nominee.

Let us study some types of insurance policies:

1. Whole Life Policy

In some policies, premium is to be paid throughout the life-time of the insured. The payment of premium stops on the death of the insured and the money i.e., amount of the policy is paid to

the nominee. This type of policy is called the whole life policy.

2. Endowment Policy

In some policies premium is paid for a fixed time period and the amount of the policy is paid to the insured after this time period.

The date on which the amount of a policy becomes due is called the date of maturity and the time period for which the insurance is taken is called Endowment Term.

In case, the insured dies before the date of maturity, the payment of premium is stopped immediately and the nominee gets the amount of the policy.

Such a policy is called the Endowment Insurance Policy.

There are many policies under both these categories. Some of the most popular ones are Jeevan Dhara, Jeevan Mitra, Jeevan Sarita, Money Back Policy, Jeevan Kishore etc.

Some of the policies are said to be ‘with profits’ and some ‘without profits’.

The policy-holders (i.e. insured) who have a policy ‘with profits’ share the profits of the LIC. The LIC pays a part of its profits called bonus (as a percentage of the amount of the policy) to such policy – holders.

The policy holders who have policies without profits are not paid this bonus. The premium in case of policies with profits, is generally higher than the premium of policies ‘without profits’.

3. Group Savings – Linked Insurance Scheme (GIS)

This insurance scheme is offered to a group of salaried employees of State/Central Government Undertakings. The scheme is also available to reputed limited companies subject to certain conditions being satisfied.

Rate of premium is much lower in group insurance as compared to LIC.

The employees are grouped into categories based on their designations. Maximum risk cover available under the scheme is given in the follow:

| Group Size | Category | Maximum Cover |
|---------------|----------|---------------|
| 50-99 | A | Rs. 80,000 |
| | B | Rs. 60,000 |
| | C | Rs. 40,000 |
| | D | Rs. 20,000 |
| 100 and above | A | Rs. 1,20,000 |
| | B | Rs. 90,000 |
| | C | Rs. 60,000 |
| | D | Rs. 30,000 |

The monthly premium paid towards GIS is Rs. 10 for an insurance cover of Rs. 10,000 where in Rs. 10 covers insurance premium and savings both. The savings is 65% and insurance premium is 35% of the amount paid towards the GIS i.e. out of Rs. 10, Rs. 6.50 is the savings and Rs. 3.50 is the insurance premium of the individual. Compound interest at a fixed rate of 8% is paid on the savings in GIS.

In case of death of the individual during service, the nominee gets both the full Insurance money and the savings with interest.





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In this lesson, we will now learn how to calculate the premium using the Tables (See Annexure-A) in the life insurance policies. The tables give the premium for an insurance of Rs. 1000 at a particular age.

39.9 CALCULATION OF AGE OF THE LIFE TO BE ASSURED

Risk of death is closely related to the age of the life to be assured. Hence, the age at entry into the contract of insurance becomes the most significant factor to determine premium. Months and days over the completed years of age are not taken as such, but the age to be taken is rounded off to the years in integer may be defined as :

- (1) Age nearer to the birthday
- (2) Age on next birthday
- (3) Age on last birthday

If a person was born 22 years 8 months earlier. Then

- (1) Age nearer to the birthday is 23
- (2) Age on next birthday is 23
- (3) Age as on last birthday is 22

If a person is 22 years 5 months 29 days then the age nearer birthday will be 22 years and if the age is 22 years 5 months 30 days the age nearer birthday will be 23 years.

We will explain this with the help of the following examples:

- (1) If a person is born on 1/1/1980, then on 1/8/2000 he is 20 years 7 months and 1 day old therefore:

| | |
|------------------------------------|-----------|
| (a) his age nearer to his birthday | 21 years. |
| (b) his age as per last birthday | 20 years. |
| (c) his age as per next birthday | 21 years. |
- (2) If a person is born on 1/1/1980, then on 11/4/2000 he is 20 years 3 months and 11 days old therefore:

| | |
|------------------------------------|-----------|
| (a) his age nearer to his birthday | 20 years. |
| (b) his age as per last birthday | 20 years. |
| (c) his age as per next birthday | 21 years. |

39.10 CALCULATION OF ACTUAL PREMIUM

The “Tables of Premiums” (See Annexure-'A') prescribed by various life insurance companies in India, show their premium amount per thousand per year. However, some companies have adopted half yearly, quarterly mode of payment as the basis, while others have adopted ‘yearly’ mode as the basis.



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A grace period of 30 is allowed sometimes to make payment of premium in case of yearly, half yearly or quarterly payment and upto 15 days grace period is allowed in case of monthly payment of premium.

After calculating the age, the premium will be calculated as follows:

- (1) Tabular premium for the age concerned
- (2) Loading proposal for reason of health and/or physical impairments. Extras on adverse health features or adverse Medical report e.g. Blood pressure, sugar, diabetic, smokers, etc.
- (3) **Extra for occupation :** There are extra premium on hazardous or extra-hazardous occupations e.g. Aviation and defence, mining and other occupational risks.
- (4) Extra for accident benefits (if asked and if allowed): To get additional benefit on account of accidental death, the extra premium is to be paid for **Double Accident Benefit (DAB) and Extended Permanent Disability Benefit (EPDB).**
- (5) **Extra for premium waiver benefit:** If a person becomes disabled then he will not be able to pay the premium because he may not be able to earn because of his disability. Therefore, the company waives off the premium on payment of additional premium.
- (6) **Mode of Payment:** Adjustment are made for different mode of payment as per details given below:

| Mode | Rebates |
|--|----------------------------------|
| 1. Yearly | 3% of Tabular premium |
| 2. Half-Yearly | 1.5% of Tabular premium |
| 3. For Quarterly mode and Monthly mode under Salary Saving Scheme (SSS) | No Rebate : No loading |
| 4. For Ordinary Monthly mode except Salary Saving Scheme for monthly payment | Loading of 5% on Tabular Premium |

- (7) **Rebate for large sum assured :** Adjustments are also made for higher sum assured. For every new policy there are certain:

- **‘fixed costs’** which are uniform for all policies irrespective of sum assured, for example, cost of policy preparation or postal expenses for mailing the policy document.
- **‘variable costs’** depending on the sum assured; for example stamp duty on the policy document or medical examiner’s fee.

When the sum assured is large, fixed costs get reduced per thousand sum assured resulting into savings to the insurer. Insurer shares these savings with the policy holders by offering rebate in tabular premium for large sum assured.

The reduction in premium for large sum assured ranges from Rs. 1 to Rs. 8 per thousand varying from company to company and the type of product.

39.11 ACCIDENT BENEFIT

LIC also offers policies with accident benefits. In such policies, if the insured gets a permanent disability due to accident or dies in an accident, the LIC pays double the sum assured. In such

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a policy, while calculating the premium, an extra amount of Re 1 per thousand per annum is added to the tabular premium.

Rounding off

If the paise portion of the premium is 0.50 or less, it is rounded off to the lower rupee and if it is more than 0.50, it is rounded off to the next higher rupee.

The different insurers follow different rates but the oldest Insurance Company in India, i.e. LIC follows the following discounts structure:

Rebates assumed for large Sum Assured:

Sum Assured Rebates

| Sum Assured | Rebates |
|---|-------------------------------------|
| 1. Upto Rs. 24,999 | No Rebate |
| 2. From Rs. 25,000 to Rs. 49,999 | @ Re 1 per thousand sum assured |
| 3. From Rs. 50,000 and above | @ Rs. 2 per thousand sum assured |
| Extra Premium to be charged for grant of Double Accident Benefit (DAB) and Extended Permanent Disability Benefit (EPDB) | @ Rs. 1 per thousand of sum assured |

Where the premiums are payable on half yearly basis, there is saving in administrative expenses compared to quarterly mode. In half yearly or yearly mode the insurer issues less number of notices and fewer collection receipts and consequential accounting entries would also be less. This would result in saving in administrative cost. Moreover the insurer can earn more interest. While for monthly payment the extra premium is to be charged to cover up additional administrative expenses.

In short we can say:

Lesser number of installment of premium : Higher amount but more discount

More number of installment of premium : Lower Amount but less discount

Premium Amount = $\text{Sum Assured} \times \text{Premium Rate} / 1000$

Let us now take some examples on calculation of premium, using the tables, and the rates of rebate etc. given above.

Example 39.3

- (i) A person at the age of 25 years takes a insurance policy of sum assured Rs. 50,000 for 30 years term. Calculate premium for yearly payment assuming the following details:

| | |
|------------------------------|----------------|
| Tabular Premium/1000 | Rs. 40 |
| Rebate for large Sum assured | Rs. 2 per 1000 |
| Rebate for yearly payment | 3% |

Solution :

| Premium Calculation | Rs. |
|---|----------------|
| Tabular Premium/1000 | 40.00 |
| Less Rebate for large Sum Assured | – 2.00 |
| Less Rebate for yearly payment (3% of Rs. 40) | – 1.20 |
| Total | = 36.80 |



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Yearly Premium = Rs. $36.80 \times 50000/1000$ = Rs. 1840

- (ii) A person at the age of 25 years takes a insurance policy of sum assured Rs. 50,000 for 30 years term. Calculate premium for half-yearly payment assuming the following details:

| | |
|--------------------------------|----------------|
| Tabular Premium/1000 | Rs. 40 |
| Rebate for large Sum assured | Rs. 2 per 1000 |
| Rebate for half-yearly payment | 1.5% |

Solution :

| Premium Calculation | Rs. |
|--|----------------|
| Tabular Premium/1000 | 40.00 |
| Less Rebate for large Sum Assured | -2.00 |
| Less Rebate for half-yearly payment (1.5% of Rs. 40) | -0.60 |
| Total | = 37.40 |

Premium = Rs. $37.40 \times 50000/1000$ = Rs. 1870

Half-yearly Installment Rs. $1870/2$ = Rs. 935

- (iii) A person at the age of 25 years takes a insurance policy of sum assured Rs. 50,000 for 30 years term. Calculate premium for quarterly payment assuming the following details:

| | |
|------------------------------|----------------|
| Tabular Premium/1000 | Rs. 40 |
| Rebate for large Sum assured | Rs. 2 per 1000 |
| Rebate for quarterly payment | NIL |

Solution:

| Premium Calculation | Rs. |
|-----------------------------------|----------------|
| Tabular Premium /1000 | 40.00 |
| Less Rebate for large Sum Assured | -2.00 |
| Total | = 38.00 |

Premium = Rs. $38.00 \times 50000/1000$ = Rs. 1900

Quarterly Installment Rs. $1900/4$ = Rs. 475

- (iv) A person at the age of 25 years takes a insurance policy of sum assured Rs. 50,000 for 30 years term. Calculate premium for monthly payment assuming the following details:

| | |
|-----------------------------------|-----------------------|
| Tabular Premium/1000 | Rs. 40 |
| Rebate for large Sum assured | Rs. 2 per 1000 |
| Extra premium for monthly payment | 5% of tabular premium |

Solution:

| Premium Calculation | Rs. |
|-----------------------------------|----------------|
| Tabular Premium /1000 | 40.00 |
| Less Rebate for large Sum Assured | -2.00 |
| Add for Monthly Mode 5% on Rs. 40 | +2.00 |
| Total | = 40.00 |

Premium = Rs. $40.00 \times 50000/1000$ = Rs. 2000

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Monthly premium = Rs. 2000/12 = Rs. 167 (rounded off)

From the above examples you must have observed that if the number of installments are more then the yearly premium will be more and if the number of installments are less then the yearly premium will be less.

| | No. of Installments | Each Installment (Rs.) | Yearly Premium (Rs.) |
|-------------|---------------------|---------------------------|-------------------------|
| Yearly | 1 | 1840 | 1840 |
| Half Yearly | 2 | 935 | 1870 |
| Quarterly | 4 | 475 | 1900 |
| Monthly | 12 | 167 | 2000 |

Note : The rebates and loading are always calculated on the basic tabular premium.

Example 39.4 A man at the age of 24 years takes a whole life policy (without profits) for Rs.14000. He gets a rebate of 3% if he pays the premium annually. Find the amount of premium he has to pay if he chooses to pay the premium annually.

Solution : The tabular rate of premium = Rs.12.60

(See table 1 of **Annexure- A**, in the row of 24 years)

Rebate for mode of payment = 3% of Rs. 12.60

= Rs. 0.38

∴ Premium to be paid/1000 = Rs. (12.60 – 0.38)

= Rs. 12.22

This is because there is no other adjustment or rebate.

∴ Rs. 12.22 is to be paid for a policy of Rs. 1000

∴ Premium for a policy of Rs. 14000 = Rs. $\left(\frac{12.22}{1000} \times 14000 \right)$

= Rs. 171.08

annual Premium payable = Rs. 171 (after rounding off)

Example 39.5 Sohan takes a whole life policy (without profits) at the age of 28 years for Rs. 40000. If the tabular premium for half yearly premium is Rs. 20.30, find the amount for half yearly premium which Sohan has to pay.

Solution : Tabular premium = Rs. 20.30

Mode of payment = Half yearly

∴ Rebate for mode of payment = 1.5% of Rs. 20.30

= Rs. 0.30

∴ Balance = Rs. (20.30 – 0.30)

= Rs. 20

Rebate for large sum assured = Rs. 1.00

(because the sum assured is between Rs. 25000 and Rs. 49999)

$$\therefore \text{Annual Premium to be paid} = \text{Rs. } (20 - 1) = \text{Rs. } 19 \text{ per thousand}$$

$$\begin{aligned} \therefore \text{Annual premium to be paid} &= \text{Rs. } \left(\frac{19}{1000} \times 40000 \right) \\ &= \text{Rs. } 760 \end{aligned}$$

$$\therefore \text{Semi annual payment} = \text{Rs. } \left(\frac{760}{2} \right) = \text{Rs. } 380$$

Thus, Sohan has to pay Rs. 380 every half-yearly towards his premium.

Example 39.6 Calculate the annual premium for a whole life policy (with profits) for Rs.

85,000 taken at the age of 40 years, assuming that the mode of payment is half yearly, and the policy covers the risk of accident.

Solution :

$$\text{Tabular Annual premium (See table -2)} = \text{Rs. } 37.00$$

$$\begin{aligned} \text{Rebate for mode of payment} &= 1.5\% \text{ of Rs } 37 \\ &= \text{Rs } 0.55 \end{aligned}$$

$$\therefore \text{Balance is Rs. } (37 - 0.55) = \text{Rs. } 36.45$$

$$\text{Adjustment for sum assured} = \text{Rs. } 2.00$$

$$\begin{aligned} \therefore \text{Annual premium per Rs. } 1000 &= \text{Rs. } (36.45 - 2.00) \\ &= \text{Rs. } 34.45 \end{aligned}$$

$$\text{Money to be paid towards accident benefit per Rs. } 1000 = \text{Rs. } 1$$

$$\therefore \text{Annual premium per Rs. } 1000 = \text{Rs. } 35.45$$

$$\begin{aligned} \therefore \text{Annual premium to be paid} &= \text{Rs. } \left(\frac{35.45}{1000} \times 85000 \right) \\ &= \text{Rs. } 3013.25 \end{aligned}$$

$$\begin{aligned} \therefore \text{Half-yearly premium to be paid} &= \text{Rs. } \left(\frac{3013.25}{2} \right) = \text{Rs. } 1506.62 \\ &= \text{Rs. } 1507 \text{ (after rounded off)} \end{aligned}$$

Thus, premium to be paid half yearly is Rs. 1507

Example 39.7 Calculate the premium for an Endowment Insurance Policy (with profits) for Rs 50,000 taken at the age of 30 years for a term of 35 years. Assume that the mode of payment is monthly under the salary saving scheme (SSS) and the policy also covers the risk of accident.

Solution: You have to see table 4 of **Annexure-A** to find the annual tabular premium.

$$\text{Annual tabular premium per thousand} = \text{Rs. } 30.40$$

$$\text{Rebate for sum assured} = \text{Rs. } 2$$

$$\text{Rebate for monthly payment} = \text{Nil}$$



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$$\begin{aligned}
 \therefore \text{Annual premium per thousand} &= \text{Rs } 28.40 \\
 \text{Payment for accident benefit} &= \text{Re } 1 \text{ per thousand} \\
 \therefore \text{Annual premium payable per thousand} &= \text{Rs. } (28.40 + 1) \\
 &= \text{Rs. } 29.40 \\
 \therefore \text{Total annual premium} &= \text{Rs. } \left(\frac{29.40}{1000} \times 50000 \right) = \text{Rs. } 1470 \\
 \therefore \text{Monthly premium} &= \text{Rs. } \left(\frac{1470}{12} \right) = \text{Rs. } 122.5 \\
 &= \text{Rs. } 122 \text{ (rounded off)}
 \end{aligned}$$

Thus, the monthly premium payable is Rs. 122.

Example 39.8 Calculate the annual premium for an Endowment insurance policy (with profits) of Rs. 40000 taken at the age of 25 years for a term of 20 years, premium paid annually and the policy is without accident benefits.

$$\begin{aligned}
 \text{Solution : Tabular Premium} &= \text{Rs. } 50.80 \\
 \text{Rebate for mode of payment} &= 3\% \text{ of Rs. } 50.80 \\
 &= \text{Rs. } 1.52 \\
 \therefore \text{Balance} &= \text{Rs. } 49.28 \\
 \text{Rebate for sum assured} &= \text{Re. } 1 \\
 \therefore \text{Annual premium per thousand} &= \text{Rs. } 48.28 \\
 \therefore \text{Total premium to be paid} &= \text{Rs. } \left(\frac{48.28}{1000} \times 40000 \right) = \text{Rs. } 1931.20
 \end{aligned}$$

Thus, the annual premium payable is Rs. 1931.

Example 39.9 Jitender is 30 years old and wants to purchase an Endowment insurance policy (with profits) for Rs. 90000 for a term of 25 years. Find the premium he has to pay if he pays premium half yearly and the policy is with accident benefits.

$$\begin{aligned}
 \text{Solution : Tabular annual premium} &= \text{Rs. } 41.05 \\
 \text{Rebate for the mode of payment} &= 1.5\% \text{ of Rs. } 41.05 \\
 &= \text{Rs. } 0.62 \\
 \therefore \text{Balance} &= \text{Rs. } 40.43 \\
 \text{Rebate for sum assured} &= \text{Rs. } 2 \text{ per thousand} \\
 \therefore \text{Balance to be paid per thousand} &= \text{Rs. } 38.43 \\
 \text{Amounts towards accident benefit} &= \text{Re } 1 \text{ per thousand} \\
 \therefore \text{Annual premium to be paid per thousand} &= \text{Rs. } 39.43 \\
 \text{Annual premium to be paid by Jitender} &= \text{Rs. } \left(\frac{39.43}{1000} \times 90000 \right) = \text{Rs. } 3548.70 \\
 \text{Half-yearly premium} &= \text{Rs. } \left(\frac{3548.70}{2} \right) = \text{Rs. } 1774.35
 \end{aligned}$$

Thus, Jitender has to pay Rs. 1774 as premium half yearly.



CHECK YOUR PROGRESS 39.1

1. A man at the age of 30 years takes a whole life Policy (without profits) for Rs. 24,000. The rates of annual tabular premium being Rs. 14.95 per thousand. The corporation allows a rebate of 3% of the tabular premium if the premium is paid annually. Find the premium if it is paid annually.
2. Madhu at the age of 35 years takes a whole life policy (without profits) for Rs. 48,000. Find the amount of premium Madhu has to pay, if she chooses to pay premium half yearly.
3. A man at the age of 26 years purchases a whole life policy (with profits) for Rs. 95,000. Calculate premium, assuming that the policy covers the risk of accident and is paid half yearly.
4. Calculate premium for a policy of Rs. 1,00,000 endowment insurance (with profits), if a man aged 29 years wants it for a term of 25 years. Assume that the man pays through salary saving scheme and the policy also covers the risk of accident.
5. Renuka takes an Endowment policy (with profits) for Rs. 2,00,000 for 25 years at the age of 35 years. Calculate the premium she has to pay annually if she wants to cover the risk of accident also.

39.12 PAYMENT OF BONUS

Financial soundness of a company is determined by comparing all assets with all liabilities. In a valuation of a life Insurance Company, the liabilities pertaining to life Insurance policies are worked out. Other liabilities, like outstanding capital etc. are already determined clearly and don't have to be estimated or assessed every time. The policies liabilities as determined by the valuation have to be compared with all the assets less what is earmarked for other liabilities, which are known. The net figure of assets is equal to what appears as "life fund" on the liabilities side and is the fund set aside for meeting the claim of policyholders. There is surplus if the actual life fund exceeds the liabilities shown by the valuation, which means that the fund set aside for policyholders is more than the need. If the fund is less there is deficit.

If a surplus is shown in a valuation, it has to be distributed amongst the policyholder. Any bonus distribution system should be equitable to existing and new policyholders, simple to operate, easy to understand and flexible. Following are the main systems of distribution of bonus:

1. Reversionary Bonus

Under this system, bonus is given as uniform percentage additions to the basic sum assured and is payable with the sum assured. It is called Simple Reversionary Bonus. If the bonus is calculated as a percentage of the basic sum assured plus any existing bonus previously declared it is known as Compound Reversionary Bonus.

2. Interim Bonus

Generally the bonus vests on policies that are in force on the date of valuation. Policies resulting into claims by death or maturity subsequent to the policy year containing the date of valuation will not have any bonus that year.

Therefore, interim bonus may be declared to be paid along in such claims. This is with a view to





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facilitate settlement of claims that may arise before the next valuation is completed and avoid reopening of all these cases at a later date.

3. Terminal Bonus

This benefit is payable on policies which are in force for the full sum assured for a minimum period of 15 years before resulting into claim by death or maturity. This bonus is in addition to the reversionary or interim bonus, if any. Terminal Bonus is not payable for paid up policies, surrendered, or discounted policies. The bonus is always paid on Sum Assured.

39.13 PAID-UP VALUE AND SURRENDER VALUE

Under Section 113 of Insurance Act, 1938, the policy of life Insurance under which the whole of benefit becomes payable on a contingency, which is bound to happen, shall if all premiums have been paid for at least 3 consecutive years, acquire a guaranteed surrender value to which shall be added the surrender value of any subsisting bonus already attached to the policy.

Further Section 113 (2) provides that a policy which has acquired surrender value shall not lapse by reason of non-payment of further premiums but shall be kept alive to the extent of paid-up sum assured and such paid-up sum shall include in full all subsisting reversionary bonuses that have already attached to the policy. Such amount shall not be (Excluding attached bonuses) less than the amount bearing to the total period for which premiums have already been paid bears to the maximum period for which premiums were originally payable.

The paid up value is calculated as under:

$$\text{Paid Up Value(PV)} = \frac{\text{Number of Instalments Paid} \times \text{Sum Assured}}{\text{Total No. of Instalments Payable}} + \text{Bonus (if any)}$$

$$\text{Surrender Value (SV)} = \text{Paid-up Value} \times \text{Surrender Value Factor} / 100$$

The Surrender Value factor depends upon the following :

- Rate of interest earned by the Insurer.
- The payment made in advance for number of years.

The table showing the **Surrender Value Factor** is given in **Annexure-'B'**.

To illustrate the paid up and surrender value the examples are given below:

Example 39.10 A person at the age of 35 years takes an insurance policy for a term of 20 years on 01-04-1990 for Rs. 1,00,000. The last premium paid is on 01-04-2001 Calculate the paid-up value and surrender value given that the Surrender Value Factor is 60% and mode of payment is (a) yearly (b) half yearly (c) quarterly (d) monthly.

Solution:

(a) If mode of payment is yearly:

$$\text{Number of instalments paid} = (1/4/2001 - 1/4/90) + 1 = 12$$

(Because the instalment on 1/4/90 is also paid)

$$\text{Total instalments payable} = 20$$

$$\text{Paid up value} = \text{Rs. } \frac{12}{20} \times 1,00,000 = \text{Rs. } 60,000$$

$$\text{Surrender value} = \text{Rs. } 60,000 \times 60\% = \text{Rs. } 36,000$$

(b) If mode of payment is half-yearly:

$$\text{Number of instalments paid} = (1/4/2001 - 1/4/90) \times 2 + 1 = 23$$

(Multiplied by 2 because of half-yearly mode and added 1 because the instalment on 1/4/90 is also paid)

$$\text{Total instalments payable} = 20 \times 2 = 40$$

$$\text{Paid up value} = \text{Rs. } \frac{23}{40} \times 1,00,000 = \text{Rs. } 57,500$$

$$\text{Surrender value} = \text{Rs. } 57,500 \times 60\% = \text{Rs. } 34,500$$

(c) If mode of payment is quarterly:

$$\text{Number of instalments paid} = (1/4/2001 - 1/4/90) \times 4 + 1 = 45$$

(Multiplied by 4 because of quarterly mode and added 1 because the instalment on 1/4/90 is also paid)

$$\text{Total instalments payable} = 20 \times 4 = 80$$

$$\text{Paid up value} = \text{Rs. } \frac{45}{80} \times 1,00,000 = \text{Rs. } 56,250$$

$$\text{Surrender value} = \text{Rs. } 56,250 \times 60\% = \text{Rs. } 33,750$$

(d) If mode of payment is monthly:

$$\text{Number of instalments paid} = (1/4/2001 - 1/4/90) \times 12 + 1 = 133$$

(Multiplied by 12 because of monthly mode and added 1 because the instalment on 1/4/90 is also paid)

$$\text{Total instalments payable} = 20 \times 12 = 240$$

$$\text{Paid up value} = \text{Rs. } \frac{133}{240} \times 1,00,000 = \text{Rs. } 55,416$$

$$\text{Surrender value} = \text{Rs. } 55,416 \times 60\% = \text{Rs. } 33,250$$

39.13.1 Guaranteed Surrender Value

The minimum surrender value is equal to 30% of the total amount of premiums paid excluding first year premium and additional premiums for additional benefits. In addition, cash value of existing bonus will also be allowed subject to surrender value factor. This is known as "Guaranteed Surrender Value". As per the provisions of Insurance Act, the surrender value formula has to be mentioned in policy documents.

Minimum (guaranteed) surrender value allowable = 30% of the total premiums paid

(a) excluding the First year Premium (b) all extra Premiums and (c) additional premiums for D.A.B. **The Surrender of policy would mean cancellation of the contract.**





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Example 39.11 A person at the age of 30 years takes an endowment policy on 14-06-1989 for Rs. 25,000 for 25 years term. Calculate the paid-up value if the last premium paid is on 14.06.1997 and the mode of payment is quarterly.

Solution: Policy in force up to : = 14/06/1997

Total number of premiums paid = $(14/6/1997 - 14/6/89) \times 4 + 1 = 33$

Total number of premiums payable

(Term \times number of premiums in a year depending on mode) = $25 \times 4 = 100$

Paid-up value = Rs. $(33 \times 25000) / 100 = \text{Rs. } 8250$

Example 39.12 In Example 39.11, what will be the paid-up value if the consolidated Reversionary Bonus declared by the insurer from March, 1990 to March, 1996 is Rs. 410 per thousand S.A. bonus declared for the year ending March 1997 is @ Rs. 70 per thousand.

Solution: Paid-up value (as derived from Example 39.11) = Rs. 8,250

Total paid-up value = PV + Bonuses

Bonus for valuations 3/1990 to 3/1996 = Rs. $(410 \times 25) = \text{Rs. } 10250$

(@ Rs. 410 per thousand sum assured)

Bonus for valuation of 3/1997 @ Rs. 70 per thousand = Rs. $(70 \times 25) = \text{Rs. } 1750$

Total PV (including bonus) = Rs. $(8250 + 10250 + 1750)$

= Rs. 20250

39.14 MEDICLAIM INSURANCE

Mediclaim Insurance is meant to cover the medical expenses incurred by the insured during the period of insurance under the policy.

1. Salient Features of the Policy

- (a) The Policy covers reimbursement of Hospitalization and/or Domiciliary Hospitalization expenses only for illness/disease contracted or injury sustained by the Insured Person.
- (b) In the event of any claim becoming admissible under this scheme, the Company will pay to the Insured Person the amount of such expenses as would fall under different heads mentioned below as are reasonably and necessarily incurred in respect thereof anywhere in India by or on behalf of such Insured Person, but not exceeding Sum Insured for that person as stated in the Schedule in any one period of Insurance.
 - (i) Room, Boarding Expenses as provided by the Hospital/Nursing Home.
 - (ii) Nursing Expenses
 - (iii) Surgeon, Anesthetist, Medical Practitioner, Consultants, Specialist fees.
 - (iv) Anesthesia, Blood, Oxygen, Operation Theater Charges, Surgical Appliances, Medicines & Drugs, Diagnostic Materials and X-Ray, Dialysis, Chemotherapy, Radiotherapy, Cost of Pacemaker, Artificial Limbs and Cost of Organs and similar expenses.

Note : Company's Liability in respect of all claims admitted during the period of insurance shall not exceed the Sum Insured per person mentioned in the Schedule.

- (c) “Surgical Operation” means manual and/or operative procedures for correction of deformities and defects, repair of injuries, diagnosis and cure of diseases, relief of suffering and prolongation of life.
- (d) Expenses on Hospitalization for minimum period of 24 hours are admissible. However, this time limit is not applied to specific treatment i.e. Dialysis, Chemotherapy, Radiotherapy, Eye-Surgery, Lithotripsy (Kidney stone removal), Tonsillectomy, Dog bite, D&C taken in the Hospital/Nursing Home and the insured is discharged on the same day, the treatment will be considered to be taken under Hospitalization Benefit.



39.14.1 Pre-Hospitalization

Relevant medical expenses incurred during period upto 30 days prior to hospitalization on disease/injury sustained will be considered as part of claim.

39.14.2 Post-Hospitalization

Relevant medical expenses incurred during period upto 60 days after hospitalization on disease/illness/injury sustained will be considered as part of claim.

39.15 AGE LIMIT

This insurance is available to persons between the age of 5 years and 75 years. For fresh proposals above 60, acceptance subject to satisfactory medical examination at proposer's cost. Children between the age of 3 months and 5 years of age can be covered provided one or both parents are covered concurrently. Where the Insured Person is over 75 years of age as on Renewal date. Renewal of Mediclaim Policy should be subject to the following:

- (a) There should not be any break in renewal.
- (b) Premium chargeable upto 80 years should be the same as that applicable for the age group 71 to 75 years. For persons over 80 years of age, following loading should be carried out:
 - (i) Upto 85 years :15%
 - (ii) Over 85 years : 25%
- (c) Renewal of Policies over 75 years should always be on expiring Sum Insured Basis.
- (d) While intention should be to allow continuation of such policies subject to “No Break” all renewal cases of over 80 years should be approved at the Manager's level in the Regional Office once in two years but well before the Renewal date by judiciously reviewing the claims experience under the Policy vis-à-vis other relevant factors.

Note : the above provision would apply only in case of policies issued under Standard Mediclaim Scheme .

39.16 SUM INSURED

Rs.15,000 (Minimum) and Rs. 5 lakhs (Maximum) for one year. **For detail mediclaim schedule, you may refer to Annexure -'C'.**

39.17 FAMILY DISCOUNT

A discount of 10% in the total premium will be allowed comprising the insured and any one or more of the following:



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- (i) Spouse
- (ii) Dependent Children (i.e. legitimate or legally adopted children)
- (iii) Dependent parents

39.18 NOTICE OF CLAIM

Preliminary notice of claim with particulars relating to policy numbers, Name of the Insured Person in respect of whom claim is made. Nature of illness/injury and Name and Address of the attending Medical Practitioner/Hospital/Nursing Home should be given by the Insured Person to the Company within seven days from the date of Hospitalization/Domiciliary Hospitalization. Final Claim along with receipted Bills/Cash Memos, Claim Form and list of documents as listed in the claim form etc. should be submitted to the Company within 30 days of discharge from the Hospital.

39.19 COST OF HEALTH CHECK-UP

The Insured shall be entitled for reimbursement of cost of medical checkup once at the end of every four underwriting years provided there are no claims reported during the block. The cost so reimbursement shall not exceed the amount equal to 1% of the average Sum Insured during the block of four claims free underwriting years.

39.20 PERIOD OF INSURANCE

Policy is issued for one year. No Short Period Policy.

Note: When an individual having Mediclaim Policy and traveling abroad with OMP the Mediclaim Policy shall stand suspended for the period the insured is covered under OMP. Therefore, the Mediclaim Policy shall stand extended for the same period beyond the expiry date, thus no adjustment/refund of premium would be involved.

Example 39.13 Ram Avtar takes a Mediclaim Insurance Policy for himself for Rs. 2 lakhs. His age is 61 years. Consult the table given below and find out the annual premium he has to pay. If 12% is the service charge on the premium, calculate the total amount he has to pay for this Insurance. (See Annexure - 'C')

| Sum Insured (Overall Liabilities in Rs.) | Amount of liability for Domiciliary Hospitalization | Upto 35 years | 36-45 years | 46-55 years | 56-65 years | 66-70 years | 71-75 years | 76-80 years |
|--|---|------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 195000 | 34250 | 2414 | 2624 | 3811 | 4354 | 4892 | 5340 | 6918 |
| 200000 | 35000 | 2469 | 2683 | 3900 | 4458 | 5010 | 5471 | 7097 |
| 205000 | 35500 | 2518 | 2736 | 3982 | 4555 | 5120 | 5595 | 7269 |

Solution : From the given table, the annual premium = Rs. 4458

$$\text{Service charge} = \text{Rs.} \left[4458 \times \frac{12}{100} \right] = \text{Rs.} 534.96 \approx \text{Rs.} 535$$

$$\text{Total amount to be paid} = \text{Rs.} (4458 + 535) = \text{Rs.} 4993$$

Example 39.14 John wants to take a Mediclaim Insurance Policy for self, his wife and daughter for Rs. 2 lakhs for self, 2.05 lakhs for his wife and 1.95 lakhs for his daughter. Their ages are 63

years, 55 years and 25 years respectively. 10% discount on the premium is allowed for family insurance. If 10% service charge is levied on the net premium, calculate the total amount to paid for the Medclaim Insurance of the family consulting the following premium table:

| Sum Insured (Overall Liabilities in Rs.) | Amount of liability for Domiciliary Hospitalization | Upto 35 years | 36-45 years | 46-55 years | 56-65 years | 66-70 years | 71-75 years | 76-80 years |
|--|---|------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 195000 | 34250 | 2414 | 2624 | 3811 | 4354 | 4892 | 5340 | 6918 |
| 200000 | 35000 | 2469 | 2683 | 3900 | 4458 | 5010 | 5471 | 7097 |
| 205000 | 35500 | 2518 | 2736 | 3982 | 4555 | 5120 | 5595 | 7269 |

Solution : Premium for self = Rs.4458
 Premium for wife = Rs. 3982
 Premium for daughter = Rs.2414

Total Premium = Rs.10854

Discount (10%) = Rs.1085.40 \approx Rs. 1085

\therefore Net Premium \square = Rs.(10854 – 1085) = Rs. 9769

Service Charge = Rs. 976.9 \approx Rs. 977

\therefore Total Amount to be paid = Rs. [9769 + 977] = Rs. 10746.



Notes

39.21 GENERAL INSURANCE

The Insurance of goods, property, vehicles etc. is called General Insurance. The General Insurance Company (GIC) was formed in 1973. There are four companies under GIC.

They are:

- (1) National Insurance Company Limited
- (2) New India Insurance Company Limited
- (3) Oriental Insurance Company Limited
- (4) United Insurance Company Limited

All these companies have the same rate of premium (but the names of the schemes may be different).

The various schemes of the GIC cover

- (1) Movable and Immovable Property Insurance
- (2) Vehicle Insurance
- (3) Goods in Transit Insurance

Let us study something about each one of them.

1. Movable and Immovable Property Insurance

Movable and Immovable Property belonging to an individual or an organization can be insured against fire, theft, natural calamities, riots etc.

2. Vehicle Insurance

There are two types of insurance for vehicle.



Notes

(i) **Act Insurance or the Third party Insurance** : This is compulsory for all vehicles under the Motor Vehicle Act. If a vehicle is insured under “Act Insurance” only, then the damage caused to another person or his property (Including Vehicle) is payable by the company in case of an accident i.e. the person who suffers the loss is compensated and not the insured. The insured doesn’t get any compensation.

The rates of annual premium at present are:

(a) Rs. 160 for cars; (b) Rs. 40 for two-wheeler scooters; (c) Rs. 30 for Mopeds

(ii) **Comprehensive Insurance** : Under this scheme, the person whose vehicle is assured also gets compensation, in addition to the money paid to the third party.

Thus, the insured also gets a cover for the damage or loss suffered by him (or her) or his/her vehicle.

No Claim Bonus: If no claim is made during the year of comprehensive insurance, the company allows a rebate to the insured (i.e. owner of the vehicle) in the premium to be paid in the successive year. The rate of rebate continues to increase year after year if no claim is made on the policy. This is called “No Claim Bonus”.

Note: ‘No Claim Bonus’ is not given on ‘Act Insurance’.

The present rates of ‘No Claim Bonus’ are as under”

| Year | Car | Scooter |
|----------------------|-----|---------|
| First Year | 15% | 15% |
| Second Year | 30% | 25% |
| Third Year | 45% | 30% |
| Fourth Year | 60% | 40% |
| Fifth Year and after | 60% | 60% |

Thus, the maximum ‘**No Claim Bonus**’ for cars is 60% after 4 consecutive years of not claiming the policy and for two wheelers it is 60% after 5 consecutive years of not claiming the policy.

‘**No Claim Bonus**’ is a sort of reward for not claiming any damages by the insured and not for the vehicle. Thus, an insured who manages his (or her) car without any claim for 5 years, pay only 40% of the basic premium.

(3) **Goods in transit insurance** : When goods are sent from one place to another, there is a possibility of loss/damage occurring in transit due to accident, strike, riots etc. The mode of transit could be road, rail, sea or air. To cover such risk, there are many policies with different rates of premium.

Difference between Life Insurance and General Insurance

| Life Insurance | General Insurance |
|--|---|
| 1.Amount assured becomes payable on death or maturity. | Actual financial loss suffered becomes payable subject to the limit of sum assured. |
| 2.It is for whole life or for a specified period | Usually for a period of one year |
| 3.It promotes savings alongwith financial protection. | It provides financial protection only. |

We will now take some examples.



Notes

Example 39.15 A man insured his house for Rs. 4,20,000 against fire and other calamities at the rate of 1% premium. What annual premium he has to pay?

$$\begin{aligned}
 \text{Solution : Value of the house} &= \text{Rs. } 420000 \\
 \text{Rate of premium} &= \text{Rs. } 10 \text{ per thousand} \\
 \therefore \text{Annual premium} &= \text{Rs. } \left(\frac{420000 \times 10}{1000} \right) \\
 &= \text{Rs. } 4200 \\
 \text{Thus, the annual premium to be paid is} &= \text{Rs. } 4200
 \end{aligned}$$

Example 39.16 If a car costs Rs. 2,20,000, then what will be the comprehensive insurance of the car if the tabular premium charged is Rs. 4113 for Rs. 1,30,000 and 2.95% of the excess amount and the act insurance is Rs. 160.

$$\text{Solution : Tabular premium} = \text{Rs. } 4113$$

$$\text{Excess amount} = \text{Rs. } (2,20,000 - 1,30,000) = \text{Rs. } 90,000$$

$$\begin{aligned}
 \therefore \text{The premium on excess amount} &= \text{Rs. } \left(\frac{2.95}{100} \times 90000 \right) = \text{Rs. } 2655 \\
 \therefore \text{Premium} = \text{Rs. } (4113 + 2655) &= \text{Rs. } 6768 \\
 \text{Act Insurance} &= \text{Rs. } 160 \\
 \therefore \text{Premium to be paid} &= \text{Rs. } (6768 + 160) \\
 &= \text{Rs. } 6928
 \end{aligned}$$

Thus, premium to be paid = Rs. 6928

Note : If the owner of the car is allowed No Claim Bonus, it will be calculated on Rs. 6768 and then Act insurance will be added.

Example 39.17 The comprehensive insurance charges for a two-wheeler scooter costing Rs. 42000 are Rs. 432. If a no claim bonus @ 30% is allowed and the 'Act Insurance' is Rs. 40, find the premium to be paid for the renewal of the policy next year.

$$\begin{aligned}
 \text{Solution : Tabular Premium} &= \text{Rs. } 432 \\
 \text{No Claim Bonus} &= 30\% \text{ of Rs. } 432 \\
 &= \text{Rs. } \left(\frac{30}{100} \times 432 \right) = \text{Rs. } 129.6 \\
 \text{Premium} &= \text{Rs. } (432 - 129.6) \\
 &= \text{Rs. } 302.40 \\
 \text{Act Insurance} &= \text{Rs. } 40 \\
 \therefore \text{Premium to be paid} &= \text{Rs. } (302.40 + 40) \\
 &= \text{Rs. } 342.40 = \text{Rs. } 342
 \end{aligned}$$

Thus, the premium to be paid is Rs. 342.



Notes

Example 39.18 A man is transferred from Delhi to Mumbai and he wants to insure his household goods against accident, riots and other perils. The present rate of insurance is 95 paise per hundred rupees. If he insures his household goods for Rs. 90,000 what premium the man will pay for his transit insurance?

Solution : Present rate 95 paise per hundred i.e. Rs. 9.5 per thousand

$$\text{Total Premium for transit} = \text{Rs. } 90 \times 9.5 = \text{Rs. } 855$$

Example 39.19 The owner of the car is entitled for no claim bonus of 60% after 4 years. If the owner purchases a new car after 4 years for Rs. 2,25,000 what premium the owner will pay for his comprehensive insurance? The tabular value for Rs. 1,30,000 is Rs. 4113 + 2.95% of the excess amount if amount (cost) is more than Rs. 130000.

Solution : Tabular premium for Rs. 1,30,000 = Rs.4113

For extra 95,000 premium = 2.95% of 95,000 = Rs. 2802.5 \approx Rs. 2802

Premium for Rs. 2,25,000 = Rs.(4113 + 2802) = Rs. 6915

$$\text{No claim bonus} = 60\% \text{ of Rs. } 6915 = \text{Rs.} \left(\frac{60}{100} \times 6915 \right) = \text{Rs. } 4149$$

$$\text{Balance} = \text{Rs. } (6915 - 4149) = \text{Rs. } 2766$$

Adding Act Insurance (Third party) = Rs. 160

Total annual premium = Rs. (2766 + 160) = Rs. 2926

Thus, premium to be paid is Rs. 2926.



CHECK YOUR PROGRESS 39.2

1. A man insured his house and belongings against fire and other natural calamities for Rs. 1,60,000 at the rate of Re. 1 per thousand. What is the annual premium he has to pay?
2. Ms. Mehta was transferred from Mumbai to Chennai. She insured her belongings for Rs. 4,00,000 at the rate of 1% premium. What is the amount of premium?
3. A comprehensive insurance of a car was taken by Robert. If the cost of his car is Rs. 130000 and the tabular value of the premium is Rs. 4113, what is the annual premium if he has had 7 years of accident free driving?
Assume act insurance = Rs. 160 (maximum no claim bonus allowed = 60%)
4. What is the annual premium for a comprehensive policy if the Act Insurance is Rs.160, cost of the car is Rs. 2,05,000 and 'No Claim Bonus' not admissible on his insurance. Assume that the rate of premium is Rs. 4113 for Rs. 130000 and 2.95% for the extra amount.
5. Arun wants to renew the 'comprehensive insurance' of his car costing Rs. 2,95,000 after having a 6 year period of accident free driving. How much more amount would he

pay in getting the insurance renewed over getting a new 'Act Insurance Policy'?
(Tabular value of premium = Rs. 4113 for Rs. 130000 and excess @ 2.95%,
Maximum 'No Claim Bonus' = 60% of the premium and Act Insurances is Rs. 160).



LET US SUM UP

- Insurance is an agreement or a contract between the insured and the Insurance Company (Insurer).
- By paying the insurance premium, the insured obtains significant relief in income tax and wealth tax.
- Adjustments are made for different mode of payments as per details given below:

| Mode | Rebates |
|--|----------------------------------|
| 1. Yearly | 3% of Tabular premium |
| 2. Half-Yearly | 1.5% of Tabular premium |
| 3. For quarterly mode and monthly mode under Salary Saving Scheme (SSS) | No Rebate : No loading |
| 4. For ordinary monthly mode except Salary Saving Scheme for monthly payment | Loading of 5% on Tabular Premium |

- Rebates assumed for large sum assured are as follows:

| Sum Assured | Rebates |
|---|----------------------------------|
| 1. Upto Rs. 24,999 | No Rebate |
| 2. From Rs. 25,000 to Rs. 49,999 | @ Re 1 per thousand sum assured |
| 3. From Rs. 50,000 and above | @ Rs. 2 per thousand sum assured |
| Extra Premium to be charged for grant of Double Accident Benefit (DAB) and Extended Permanent Disability Benefit (EPDB) | @ Re. 1 per thousand sum assured |

- Paid Up Value(PV)** = $\frac{\text{Number of Instalments Paid} \times \text{Sum Assured}}{\text{Total No. of Instalments Payable}} + \text{Bonus (if any)}$
- Surrender Value (SV)** = Paid-up Value \times Surrender Value Factor / 100
- The rates of "No claim Bonus" are given below:

| Year | Car | Scooter |
|----------------------|-----|---------|
| First Year | 15% | 15% |
| Second Year | 30% | 25% |
| Third Year | 45% | 30% |
| Fourth Year | 60% | 40% |
| Fifth Year and after | 60% | 60% |

Notes

OPTIONAL - II
Mathematics for
Commerce, Economics
and Business



Notes



SUPPORTIVE WEB SITES

- <http://www.licindia.com>
- <http://www.nationalinsuranceindia.com>
- <http://www.irdaindia.org>
- <http://www.insuremarket.com>



TERMINAL EXERCISE

1. Reena takes a whole life policy (without profits) at the age of 30 years for Rs. 50,000. If a rebate of 3% is allowed for mode of payment and Rs. 2 per thousand for the sum assured, find the annual premium she has to pay.
2. Rashmi takes a whole life policy with risk coverage at the age of 35 years for Rs. 2,00,000. Find the annual premium that she has to pay if a rebate of 3% of tabular premium for the mode of payment and Rs. 2 per thousand for the sum assured are allowed.
3. Ram Prasad takes an Endowment policy (without profits) for Rs. 4,00,000 at the age of 40 years for 10 years, which covers accident risk also. Find the premium he has to pay annually if 3% rebate is given for annual payment of premium.
4. Mr. Mohan Kumar insured his house for Rs. 2,80,000 against fire and other risks. If the rate of premium is 2%, per annum find the annual premium.
5. Nillu renewed her 'Comprehensive Insurance' for her car costing Rs. 2,50,000 after having 2 years of accident free driving. If the rate of premium is Rs. 4773 for Rs. 150000 and 2.95% for the excess amount, find the premium she has to pay.
6. Sheetal takes a whole life policy (with profits) at the age of 40 for Rs. 2,00,000 and pays the premium annually. If a rebate of 3% is allowed for this mode of payment and Rs. 2 per thousand for the sum assured, find the annual premium she has to pay.
7. Rooma takes a whole life policy (without profits) at the age of 50 years for Rs. 3,00,000. Find the annual premium she has to pay if 3% rebate is allowed for this mode of payment and rebate @ Rs 2 per thousand is allowed for the sum assured, and the policy covers the risk of accident also (Re 1 per Rs 1000 to be paid towards premium for this benefit).
8. Garima takes an Endowment insurance policy (without profits) of Rs. 1,00,000 at the age of 22 years for a term of 25 years. Find the annual premium that she has to pay if the policy is with accident benefits.
9. Dr. Saurav wants to take a Mediclaim Insurance Policy for self, his wife and daughter for Rs. 2.7 lakhs for self, 3.5 lakhs for his wife and 3 lakhs for his daughter. Their ages are 40 years, 38 years and 6 years respectively. 10% discount on the premium is allowed for family insurance. If 10% service charge is levied on the net premium, calculate the total amount to be paid for the Mediclaim Insurance of the family consulting the following premium table:

| Sum Insured (Overall Liabilities in Rs.) | Amount of liability for Domiciliary Hospitalization | Upto 35 years | 36-45 years | 46-55 years | 56-65 years | 66-70 years | 71-75 years | 76-80 years |
|--|---|------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 270000 | 42000 | 3151 | 3425 | 5057 | 5809 | 6553 | 7207 | 9508 |
| 300000 | 45000 | 3444 | 3743 | 5553 | 6388 | 7214 | 7951 | 10542 |
| 350000 | 50000 | 3870 | 4207 | 6311 | 7283 | 8248 | 9122 | 12195 |

**ANSWERS****CHECK YOUR PROGRESS 39.1**

- | | | |
|------------|-------------|-------------|
| 1. Rs. 348 | 2. Rs. 400 | 3. Rs. 1054 |
| 4. Rs. 332 | 5. Rs. 8094 | |

CHECK YOUR PROGRESS 39.2

- | | | |
|-------------|-------------|-------------|
| 1. Rs. 160 | 2. Rs. 4000 | 3. Rs. 1085 |
| 4. Rs. 6485 | 5. Rs. 3752 | |

TERMINAL EXERCISE

- | | | |
|---------------|-------------|---------------|
| 1. Rs. 625 | 2. Rs. 5634 | 3. Rs. 32,736 |
| 4. Rs. 5600 | 5. Rs. 4248 | 6. Rs. 6778 |
| 7. Rs. 10,350 | 8. Rs. 2200 | 9. Rs. 10,965 |



Notes