Insurance Policy Calculations

PREMIUM

- Consideration required to be paid by the insured for an Insurance Contract (Insurance Policy)
- Premium is to be paid in advance
- Premium can be one time or periodical payment
- One time payment – Single Premium
- Periodical Payment – Annual Premium
- Annual premium can be paid (Monthly, Quarterly, Half-Yearly, Yearly)
- General Insurance contracts are per year and Premium amount is decided every year at the beginning of the contract

PREMIUM

- Premium charged for the death risk is called Risk Premium
- Interest earned on Risk premium is deducted and paid to the client. This net Premium is called Pure Premium
- Pure Premium = Risk Premium – Interest on Risk Premium
- The administrative and management expenses of the insurer are called “Office expense” and are loaded to pure premium
- Office Premium = Pure Premium + Rate of Expenses on Office Premium
- Stepped up premium charges less amount at the beginning and charges higher premium at later stages of the policy
- If Risk premium is spread on uniform basis throughout the term of the life, it is called as Level Premium

BONUS

- Cash Bonus: Also known as Reversionary Bonus. It can be simple or compounded bonus. It is added to the policy account and paid along with SA at the time of policy claim
- Interim Bonus: It is given to policies with claims after 31Mar, but before next valuation results. It is decided by actuary in advance at the time of previous valuation results.
- Final / Terminal / Loyalty Bonus: It is additional bonus. Given to clients with long period of contracts. Given to encourage clients not to surrender policies pre-maturely.
- Maturity Claim: It is the demand that the insurer should fulfil as per promise made in the contract. Insurer settles the claim after satisfying that all the conditions and requirements for settlement are complied with.

CLAIMS

- Plan type – Endowment
  Policy Maturity – 25 Years

SA = 100000

Terminal bonus – 175 per thousand

Reversionary bonus – 40 per thousand

What is the maturity amount?

Solution:

SA = 100000

Reversionary Bonus = (40/1000)*25*100000 = 100000

Terminal Bonus = 175*100 = 17500 = (175/1000) * 100000

Maturity Claim = SA + Reversionary Bonus + Final Bonus

= 100000 + 100000 + 17500

=217500

CLAIMS

- Plan type – Moneyback
  Policy Maturity – 25 Years

SA = 500000
Interim bonus – 50 per thousand
Accrued bonus – 980 per thousand

Survival benefit of 15% each is paid at the end of 5,10,15 and 20 Years

What is the maturity amount?

Solution:

	SA = 500000
Less	Survival benefits paid = 500000 * 4* (15/100) = 300000
	= 200000
Add	Reversionary Bonus = (980/1000)*500000 = 490000
Add	Interim Bonus = (50/1000)*500000 = 25000
	Maturity Claim = 500000 + 490000 + 25000
	=715000

EXAMPLE

- Find the number of deaths each year if mortality rate is 0.02 and Number of people living in a year are 150000

Mortality rate = No of deaths / People living in a year

No of deaths = Mortality Rate * People Living in a year

No of deaths = 150000 * 0.02

= 3000

EXAMPLE

- Pure Premium = 2000

  Rate of Interest = 5%

  Calculate Risk Premium.

Risk Premium = Pure Premium + Interest

=2000 + (2000*0.05)

=2000 + 100

Risk Premium =2100

EXAMPLE

- Risk Premium = 4000

  Rate of Interest = 6%

  Calculate Pure Premium.

Pure Premium = Risk Premium / (1+rate of interest)

=4000 /(1.06)

Pure Premium =3773.6

EXAMPLE

- Risk Premium = 5000

  Pure Premium = 4672.9

Calculate Rate of Interest?

Risk Premium = Pure Premium + Interest

$$5000 = 4672.9 + (4672.9*i)$$

$$5000-4672.9=4672.9 * I$$

$$i = 327.1/4672.9$$

$$I = 0.069 \text{ or } 7\%$$

EXAMPLE

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EXAMPLE

- A godown is insured for 15 Lakhs which is worth 20 lakhs. It is completely destroyed by fire. What is the liability of insurance company to pay for the loss?

= (1500000/2000000)*1500000

=0.75 * 1500000

=1125000

Liability of insurance company in the case of the claim is 1125000

EXAMPLE

- Kumar insures his house worth 50 Lakhs for 40 Lakhs. He suffered loss of 20 Lakh due to fire accident. What will be the claim he can receive from insurance company.

Claim = Percent of insurance done* Actual Loss

= (4000000/5000000) * 2000000

= 0.8 * 2000000

= 1600000

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EXAMPLE

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Excess is a compulsory deductible and the amount paid will be 0.

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EXAMPLE

- A home with market value of 500000 is insured for 250000. The loss due to fire is estimated at 150000. What is the admissible Claim?

Underinsurance = 250000/500000 = 50%

Claim admissible will be 50% of 150000

= 75000

EXAMPLE

- SA of health insurance policy is 1 lakh with deductible of 10000. Cost of operation for cancer treatment is 175000. He lost wages for 2 weeks which amounts to 25000. What is the admissible claim?

= 175000 + 25000 -10000

= 190000

EXAMPLE

- An insurance policy has a franchise clause of 100000 rupees. What will be payable claim if it is filed for 50000 and 150000

Franchise is a deductible in which full claim is paid if the claimed amount is above franchise amount and nothing is paid if its below the franchise amount

For a Claim of 50000 nothing is paid

For a Claim of 150000 total claim of 150000 is paid

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