

Problem 3**BBA (Professional) 2009**

Calculate the net single premium and net annual premium for 5 years endowment policy of Tk 10000 at the age of 30 from the following:

Age	No. of persons insured	No. of death	Present Value of Tk 1.00 @5%
30	9480	125	0.952
31	9355	126	0.907
32	9229	128	0.864
33	9101	130	0.823
34	8971	136	0.784

Solution:

Calculate the NSP and NAP for the 5 years endowment policy

year	age	Number of insured person	Number of Death	Amount of claim	Pv of Tk 1@ 5%	Present Value of Death Claim /PV
1	30	9480	125	10000	0.952	1190000
2	31	9355	126	10000	0.907	1142820
3	32	9229	128	10000	0.864	1105920
4	33	9101	130	10000	0.823	1069900
5	34	8971	136	10000	0.784	1066240
Total Present value of death claim						5574880

Number of living person at the end of 5th year = (8971-136) per
= 8835 person

Total claim of living person = (8835×10000) = Tk. 8,83,50,000

Total PV of living person = (8,83,50,000 × .784)
= 69266400

We know,

$$\begin{aligned} \text{Net single premium (NSP)} &= \frac{\text{Total PV of claim (Death + Living)}}{\text{Total no of insured person}} \\ &= \frac{5574880 + 69266400}{9480} \\ &= \text{TK.7895} \end{aligned}$$

Calculate the NAP for the 5 years Endowment Policy

year	age	Number of insured person	Premium collected @Tk.1	PV of Tk 1 @ 5%	Present Value of the premium collected @ Tk. 1 per policyholder
1	30	9480	9480	1.00	9480
2	31	9355	9355	0.952	8906
3	32	9229	9229	0.907	8371
4	33	9101	9101	0.864	7863
5	34	8971	8971	0.823	7383
Total present value of the premium collected @ TK 1 per policy holder					42003

So, Net annual premium (NAP)

$$\begin{aligned}
 &= \frac{\text{Total PV of Claim (death + living)}}{\text{Total PV of Premium collected @Tk 1 Per policyholder}} \\
 &= \frac{5574880 + 69266400}{42003} \\
 &= \text{TK. 1781.81}
 \end{aligned}$$

Problem 4

BBA (Professional) 2010

Calculate the net single premium (NSP) and net annual premium (NAP) for 5 years term policy from the following information:

Age	No. of insured persons	No. of death	Present Value of Tk. 1 @5%
31	9480	125	0.952
32	9355	126	0.907
33	9229	128	0.864
34	9101	130	0.823
35	8971	136	0.784

** Policy value Tk. 10000.