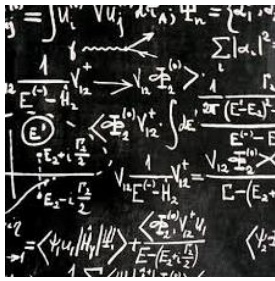


# **IAI Connect 2015**

**Presentation by Subhendu Bal,  
22<sup>nd</sup> August 2015**



Institute of Actuaries of India



IAI Connect 2015



22nd AUGUST 2015

# AGENDA



- The Actuarial Profession
- Examination System
- Common Mistakes
- Conclusion

# Actuarial Profession



→ History

→ Actuary

## Actuarial Profession - History

- ❑ The birth of the actuarial profession can be conveniently fixed as 1848, when the Institute of Actuaries, an organisation was set up in London
- ❑ Institute of Actuaries, started a system of examinations in 1850, only two years after the founding of the Institute
- ❑ The Faculty of Actuaries in Edinburgh followed in 1856. Victorian Great Britain provided a favorable environment for the development of professions
- ❑ In 1889, the American Society of Actuaries was founded with members in both Canada and the United States

## Actuarial Profession - History..(Contd)

- ❑ The Actuarial Society of America followed the lead of the Institute by starting an examination program in 1897
- ❑ The Association of Swiss Actuaries was founded in 1905
- ❑ The Casualty Actuarial Society was founded in the United States in 1914 and within a few months started an examination system
- ❑ The Actuarial Society of India (ASI) was established in September 1944
- ❑ Since 1979 the ASI has been a Full Member of International Actuarial Association and is actively involved in its affairs

## Actuarial Profession - History..(Contd)

- ❑ In 1982, the ASI was registered under Registration of Literary, Scientific and Charitable Societies Act XXI of 1860 and also under Bombay Public started conducting examination leading to professional qualification of an actuary
- ❑ Till then the accreditation was based on Institute of Actuaries, London examinations
- ❑ The Government of India in the Ministry of Finance, Department of Economic Affairs , issued the notification dated 8th November 2006 to establish the actuarial profession under the provisions of the Actuaries Act
- ❑ On 10th November 2006 ASI was dissolved and IAI is a statutory body established under The Actuaries Act 2006 for regulation of profession of Actuaries in India

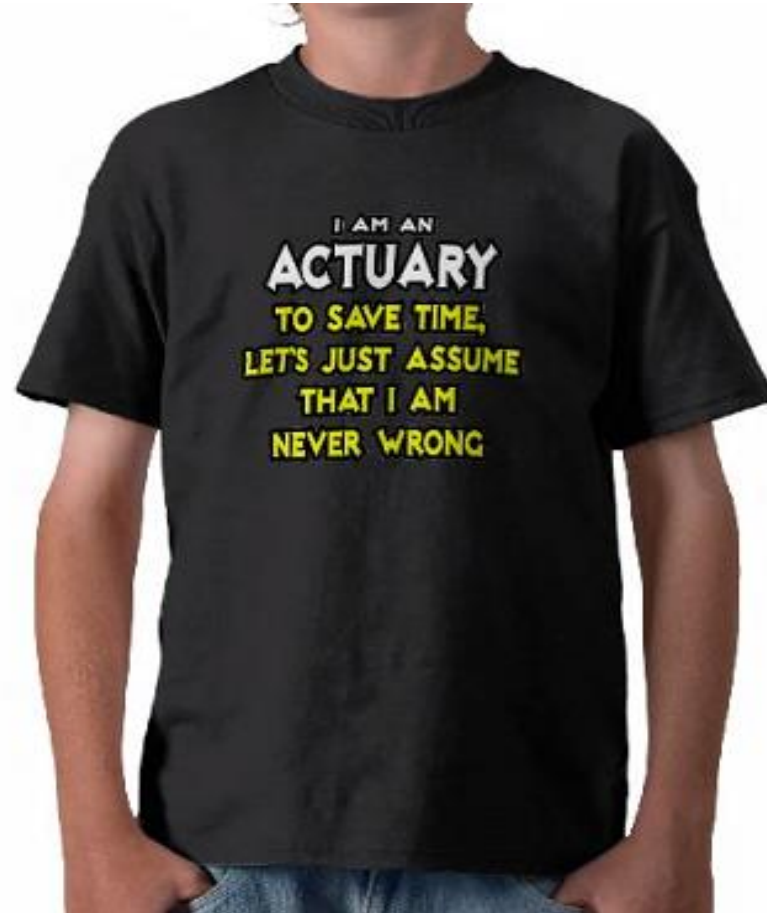
# Actuarial Profession - Actuary





## Actuarial Profession - Actuary

❑ What do you mean by an actuary?



## Actuarial Profession – Actuary..(Contd)

- ❑ An **actuary** is a business professional who deals with the financial impact of risk and uncertainty
- ❑ Actuaries mathematically evaluate the probability of events and quantify the contingent outcomes in order to minimize the impacts of financial losses associated with uncertain undesirable events
- ❑ “Actuary” means a person skilled in determining the present effects of future contingent events or
  - in finance modelling and risk analysis in different areas of insurance, or
  - calculating the value of life interests and insurance risks,
  - or designing and pricing of policies, working out the benefits recommending rates relating to insurance business, annuities, insurance and pension rates on the basis of empirically based tables and
  - includes a statistician engaged in such technology, taxation, employees’ benefits and such other risk management and investments and
  - who is a fellow member of the Institute.

## Actuarial Profession – Actuary..(Contd)

□ What does actuaries do?

- Analyze financial and demographic events; apply financial and statistical theories to solve real business problems
  
- Actuarial Science helps in,
  - ✓ understanding the risk involved
  - ✓ Development of solution and
  - ✓ monitoring the experience for the better management of insurance operations
  - ✓ Simulate future financial scenarios with likelihood; take key optimal decisions based on that.

## Actuarial Profession – Actuary ..(Contd)

- In India to run any life insurance business, an actuary (more specifically an Appointed Actuary) is mandated
- The duties and obligations along with the power are prescribed in the IRDA regulations
- Appointed Actuary has to fulfill several conditions to become an appointed actuary to a life insurance company
- In life insurance company actuary has to be an employee of the insurer, can not be a consultant

# Actuarial Profession – Actuary ..(Contd)

Role of an  
Actuary  
in Insurance  
Industry



**Examination**



**System**





# Examination System

- The main objective of any examination system should be such that the candidate who clear the subject are expected to understand the concept of the subject
- One of the prime objective of IAI is to be fairer to the candidates
- In actuarial examination there are more than one examiner to set the papers
- The examiners also prepare the indicative solution by themselves to check the applicability of marks and time required to answer them
- After setting the papers by the examiners the review examiner also check for the question papers
- The question papers also reviewed by the external examiners

## Examination System ..(Contd)

- ❑ The examiners, review examiner or external examiners take care of the following criteria at the minimum:
  - Questions are within syllabus
  - Questions are not too hard or too easy
  - Questions are of knowledge based, application based or higher skill based
  - Questions will be differently weighted for different series, CT, CA, ST or SA
  - Questions can be answered by a well prepared candidate within time
  - Questions are not straightway pickup from any material which are available in public domain
  - The mark distribution of the questions would be as per the answer expected



## Examination System ..(Contd)

- At least two examiners or Associate Examiners do check the copies
- The pass mark and the result declaration process are very objective criteria based
- The Associate Examiners and/or Examiners are always kept out of reach about the identity of any candidates
- All so called border line cases are examined several times by three examiners
- The administration process of examination are kept only to the dedicated examination staffs and the several checks and reviews are done before declaration of the results with proper confidentiality

## Examination System ..(Contd)

### ❑ How to study Actuarial Examination?

- Actuarial examination – how to tackle
- Preparing for actuarial examinations
- Enjoyment of study on the Subject

### ❑ Let us check one clip

## Examination System ..(Contd)

❑ For passing the Actuarial examination the students require:

- **D**edication in Full
- **E**njoyment of Study
- **V**ision or clarity on goal
- **I**nterest on the Subject
- **L**ove to do hard work
  
- **K**nowledge gaining or concept clarity
- **I**nspiration or motivation
- **C**oncentration with proper planning
- **K**eenness or commitment

## Subject CT3



I think the next car to arrive will be blue because so far a red car, a green car and a silver car have arrived.

*The 50-50-90 rule: anytime you have a 50-50 chance of getting something right, there's a 90% probability you'll get it wrong.*

CT3: PROBABILITY & MATHEMATICAL STATISTIC



## CT3 Question:

A general insurance company has designed a one year motor insurance policy in such a way that if a policyholder claims for the first time, he will get Rs. 5000 and for the subsequent claims he will get Rs. 2500 each. Obviously, the policyholder will not get any amount if he has not filed any claim during a policy year.

An actuary has made an assumption that for all integers  $n \geq 0$ ,  $P_{n+1} = 0.6 P_n$  where  $P_n$  represents the probability that the policyholder files  $n$  claims during the period.

Find the distribution of the number of claims arising on the motor insurance policy. [5]

## Solution:

$$P_{n+1} = 0.6 P_n ; n \geq 0$$

$$P_1 = 0.6 P_0, \quad P_2 = 0.6 P_1 = 0.6^2 P_0, \quad P_k = 0.6^k P_0 \dots; \text{ where } k \geq 1$$

We know that  $P_0 + P_1 + P_2 + \dots = 1$

$$P_0 + P_0 (0.6 + 0.6^2 + 0.6^3 + \dots) = 1$$

$$P_0 + P_0 (0.6 / (1 - 0.6)) = P_0 + P_0 (3/2) = 1, \quad P_0 = 2/5 = 0.4, \quad P_1 = 0.6 (0.4) = 0.24$$

$$P_2 + P_3 + P_4 + \dots = (1 - 0.4 - 0.24) = 0.36$$

Number of Claims	0	1	2 and more
Probability	0.40	0.24	0.36
Claim Amount	0	5000	2500

## Sample Solution1: Good



QUESTION No.

4(i)

2

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$x$ (no. of claims)	$F_x(x)$ (prob. I.)
0	$x_1$
1	$0.6x_1$
2	$0.6(0.6x_1) = 0.36x_1$
3	$\vdots$
$\downarrow$	and so on.

where  $x$  is the no. of claims filed by holder,  
let  $x_1$  be the prob. that he files 0 claims.  
Then, using actuary's assumption.

Using the formula for sum of GP  $\left(\frac{a}{1-r}\right)$ .

and that the sum of all prob. should equal 1.

$$1 = \frac{x_1}{1 - 0.6}$$

$$\therefore x_1 = 0.4.$$

Thus, the distribution for number of claims

$$F_x(x) = (0.6)^x \times \underline{0.4}$$



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i) Given  $P_{n+1} = 0.6 P_n \Rightarrow P_1 = 0.6 P_0, P_2 = 0.6 P_1$   
 $= 0.6(0.6 P_0)$   
 $= 0.6^2 P_0 \dots$

We know that  $\sum_{n=0}^{\infty} P_n = 1$

$$\therefore P_0 + P_1 + P_2 + \dots + P_{\infty} = 1$$

$$\Rightarrow P_0 + 0.6 P_0 + (0.6)^2 P_0 + \dots = 1$$

$$\Rightarrow P_0 (1 + 0.6 + 0.6^2 + \dots) = 1 \quad (\text{decreasing infinite geometric series})$$

$$\therefore P_0 \left( \frac{1}{1-0.6} \right) = 1 \Rightarrow P_0 = 0.4$$

Number of claims follow a geometric distribution

$$P(x) = 0.4 \times (0.6)^x \quad \text{where } x = 0, 1, 2, \dots$$



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(i)

$$P_{n+1} = 0.6 P_n.$$

for  $n=0$  (i.e. no claim filed)

$$P_1 = 0.6 P_0.$$

for  $n=1$  (1 claim filed)

$$P_2 = 0.6 P_1 = (0.6)^2 P_0.$$

$$\boxed{P_{n+1} = (0.6)^{n+1} P_0} \text{ (no claims filed)}$$

Let  $X$  denotes the no. of claims.

$X=0$  he files 0 claims with prob.  $P_0$ .

$X=1$  he files 1 claim with prob  $P_1 = 0.6 P_0$ .

$X=2$  he files 2 claims with prob  $P_2 = (0.6)^2 P_0$ .

$X=n$  he files  $n$  claims with prob  $P_n = (0.6)^n P_0$ .

Hence, the no. of claims arising on the motor insurance policy follows a geometric distribution.



### Sample Solution 4: Not Good

your name or roll number on the sheet

1<sup>st</sup> time      2<sup>nd</sup> time      ...  
5000      2500      - - -  
 $n \geq 0$ .

$$P_{n+1} = 0.6 P_n$$

$n=0$  ,       $P_1 = 0.6 P_0$   
 $n=1$  ,       $P_2 = 0.6 P_1 = 0.36 P_0$   
 $n=2$  ,       $P_3 = 0.6 P_2 = 0.216 P_0$   
 $n=3$  ,       $P_4 = 0.6 P_3 = 0.1296 P_0$

Probability where the policy holder don't claim  
is  $P_0 \Rightarrow \int_0^1 e^{-tx} dx$

$$\Rightarrow t=0 \int_0^1 dx =$$

$$0.6 P_0 + 0.6^2 P_0 + \dots = 1$$
$$\therefore P_0 \times 0.6 (1 + 0.6 + 0.6^2 + \dots) = 1$$

$$0.6 P_0 \times \frac{1}{1-0.6} = 1$$
$$\frac{6}{4} P_0 = 1$$

$$\therefore P_0 = \frac{4}{6} = 0.67 //$$

$$\therefore P_1 = 0.402$$
$$P_2 = 0.241$$
$$P_3 = 0.145$$
$$P_4 = 0.086$$

## Sample Solution 4 (Contd..)

Do not write your name or roll number on the sheet

distribution of the no. of claims arising on the motor insurance policy by policy.

$$npq \leq 1 \quad np(1-p) < 1$$

$$\therefore n \times 0.67 \times 0.33 \leq 1$$

$$\therefore n \leq 20.46$$

$\therefore$  Approx. 20 claims are in the motor insurance policy.

## Subject CT5

$$L = v^{K(x)+1} - P\ddot{a}_{\overline{K(x)+1}|}$$

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$$L = v^{K(x)+1} - P\ddot{a}_{\overline{K(x)+1}|}$$

### **CT5 Question:**

What is mortality selection? Explain the various types of selection effects that can occur. [6]

### **Solution:**

Selection is the process by which lives are divided into separate groups so that the mortality (or morbidity) within each group is homogeneous. That is, the experience of all lives within a particular group can be satisfactorily modelled by the same stochastic model of mortality (or morbidity). Lives in different classes will be charged according to different premium scales, which reflect the mortality differences between the classes.

### **Types of mortality selection**

1. **Temporary initial selection:** Each group is defined by a specified event (the select event) happening to all the members of the group at a particular age, eg buying a life assurance policy at age  $x$ , retiring on ill-health grounds at age  $x$ . A select mortality table (representing the stochastic model of mortality) is estimated for each group. The mortality patterns in each group are observed to differ only for the first  $s$  years after the select event. The length of select period is  $s$  years. The differences are temporary, producing the phenomenon called temporary initial selection.
2. **Class selection:** Each group is specified by a category or class of a particular characteristic of the population, eg sex with categories of male and female, occupation with categories of manual and non-manual employment. The stochastic models (life tables) are different for each class. There are no common features to the models, they are different for all ages. This is termed class selection.
3. **Time selection:** Within a population mortality (or morbidity) varies with calendar time. This effect is usually observed at all ages. The usual pattern is for mortality rates to become lighter (improve) over time, although there can be exceptions, due, for example, to the increasing effect of AIDS in some countries.
4. **Adverse selection:** Adverse selection usually involves an element of self-selection, which acts to disrupt (act against) a controlled selection process which is being imposed on the lives. This adverse selection tends to reduce the effectiveness of the controlled selection.
5. **Spurious selection:** When homogeneous groups are formed we usually tacitly infer that the factors used to define each group are the cause of the differences in mortality observed between the groups. However, there may be other differences in composition between the groups, and it is these differences rather than the differences in the factors used to form the groups that are the true causes of the observed mortality differences.



## Sample Solution1: Good

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- > Mortality Selection :-  
When mortality is modelled based on homogeneous groups of population, it is called Mortality Selection.
- Types of Selection :-
- > Class Selection :  
Lives can be split into groups with a different permanent attribute. The mortality of each group is different.  
Example: Groups formed by occupation (Manual/Non-Manual Employment); based on sex (Males, Females).
- > Time Selection :  
Mortality varies with calendar time. This effect is ~~that~~ usually observed over all ages. The usual pattern is that mortality improves with age.  
Example: English Life Table based on 1992 data and English Life Table based on 1982 data. The difference between these two tables is time selection.
- Temporary Limited Selection :  
Mortality varies by duration since some specific event.  
Examples: Lives who have just passed a medical test would have better health as compared to average population because average population would have lives who are sick and have not

## Sample Solution1 (Contd..)

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-passed the medical test.

1.) Adverse Selection / Self Selection :

On purchasing a particular product type, the policyholder places himself in a particular group.

Example : Policyholder might purchase annuities and experience better health as compared to those who purchased term assurance.

2.) Spurious Selection :

Ascribing the mortality differences to factors which are not the true cause of differences is called Spurious Selection.

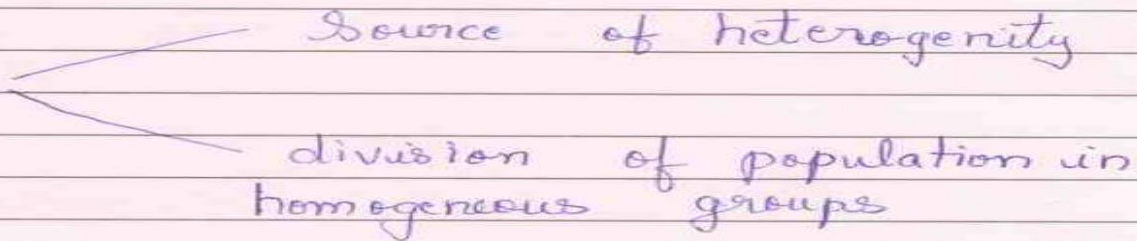
Example : Regional Mortality differences might be due to differences in composition of occupations in different regions.



## Sample Solution2: Good

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- Selection is the process of dividing heterogeneous data into homogeneous groups such that within a specific group a lives experience similar mortality levels.

Selection can be 

Various types of selection effects.

Temporary Initial Selection → Source of heterogeneity wear off over some time.

Example: In case of Aids infected group, mortality level will depend upon deviation till individual was infected.

Class Selection → Division into classes or categories in relation to the particular characteristic of the population.

Example: Gender into male or female, occupation in manual or non-manual occupation.

Time Selection → Mortality rates are infected to differ in the particular group over time.

Example: An individual aged 45 today can have a higher mortality rate as compared to individual aged 45, 20 years in future due

to medical advancement.

Adverse Selection → It involves self-selection which acts to disrupt a controlled selection process.

Example : If an individual feels that he or she is not inclined to live long then he or she will not buy an immediate annuity.

Spurious Selection → Where difference in mortality levels between groups is because of some other reasons instead of reason earlier thought off.

Example : If company improves its underwriting process, then data will show reduction in mortality levels. But it might be given an explanation that mortality rates have reduced due to medical advancement etc.



### Sample Solution3: Not Good

> - Mortality selection refers to differentiate people in different groups like on the basis of age, sex, etc.

By this the company gets to know the average mortality of that particular group.

The various types are :

) Occupation :- What a person is doing to earn his living, if employed than the nature, its environment, working conditions, all are noticed.

) Education :- How much education a person has is also linked to the mortality, it will reflect his standard of living.

) Age-group :- Categorized on the basis of age, high mortality in higher ages and less in lower.

These effects the mortality of the group and as a whole and sometimes lead to misleading figures.

## Sample Solution 4: Not Good

1) Mortality selection is the process of selecting groups from population of individuals to reduce the heterogeneity because each person have different mortality characteristic and reduce the population into groups (homogeneous) with similar mortality experience.

The following are different types of selections :-

2) Temporary Initial Selection

Time Selection :- When selecting groups from population in different calendar year.

Class Selection

Adverse Selection

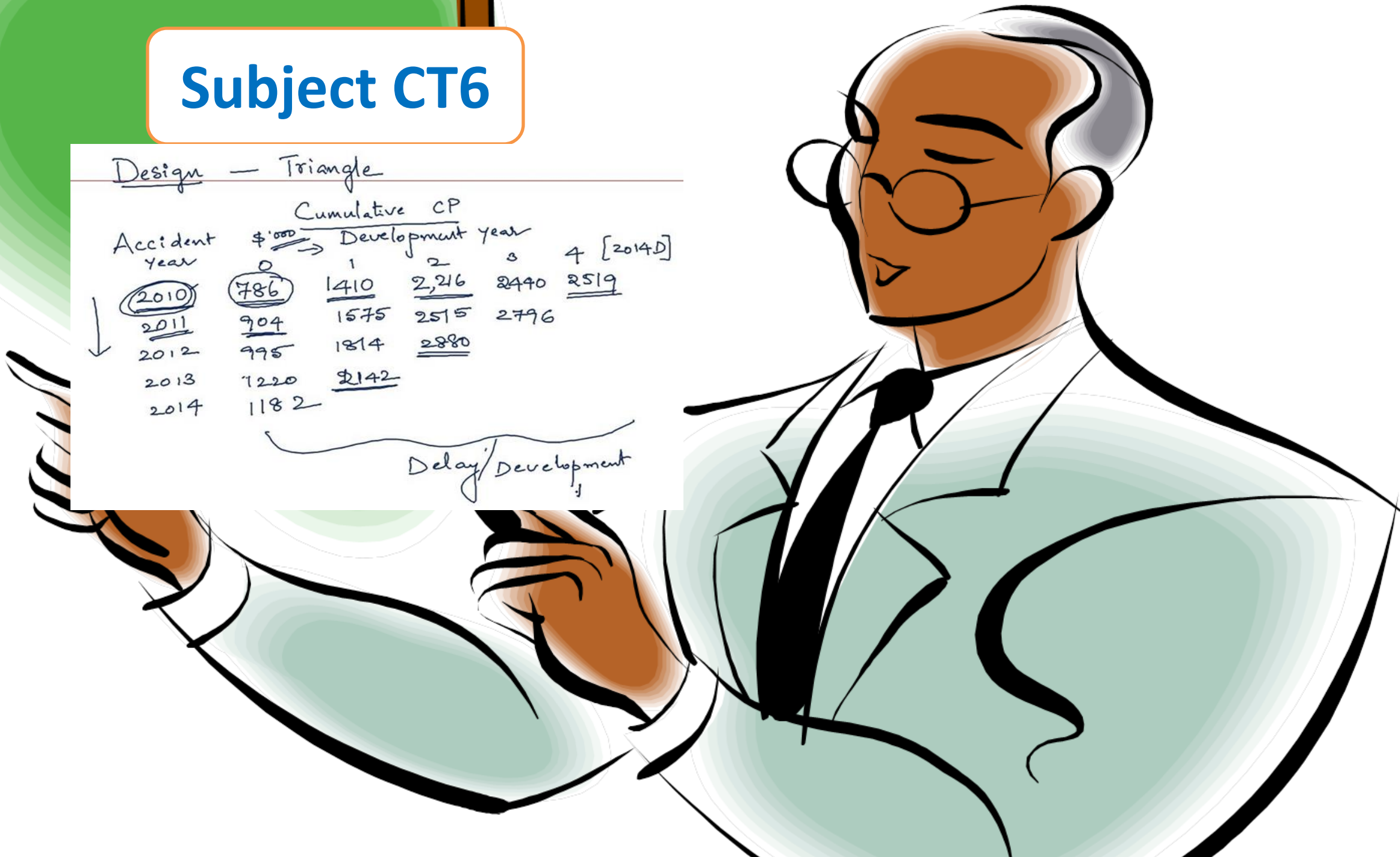
Spurious Selection

# Subject CT6

## Design — Triangle

Accident Year	\$'000	Cumulative CP Development year			
		0	1	2	3
2010	786	1410	2,216	2440	2519
2011	904	1575	2515	2796	
2012	995	1814	2880		
2013	1220	2142			
2014	1182				

Delay/Development<sub>1</sub>





**CT6 Question:**

The past year's claim data of an insurance company is given in the table below:

Claim Incidence Year	Claim Intimation Year	No. of Claims	Total Claim paid
2012	2012	50	45,000
2012	2013	35	32,375
2012	2014	25	24,375
2013	2013	95	80,275
2013	2014	60	57,000
2014	2014	80	72,800

Past inflation experience is 5% and expected future inflation is 10%.

Calculate the outstanding claim reserve using the average cost per claim method with weighted average development factors [7]

**Solution:****(a) Past inflation adjustment for claim paid**

Incidence Year	Development Year		
	0	1	2
2012	49,612.50	33,993.75	24,375
2013	84,288.75	57,000.00	
2,014	72,800.00		

**(b) Cumulative claim paid**

Incidence Year	Development Year		
	0	1	2
2012	49,612.50	83,606.25	1,07,981.25
2013	84,288.75	1,41,288.75	
2,014	72,800.00		

**(c) Cumulative no of claims**

Incidence Year	Development Year		
	0	1	2
2012	50	85	110
2013	95	155	
2,014	80		

**(d) Average cost per claim**

Incidence Year	Development Year		
	0	1	2
2012	992.25	983.60	981.65
2013	887.25	911.54	
2,014	910.00		

Now using the development factors we have completed the lower triangle for the above two table as given below:

(e) No of claims

Incidence Year	Development Year		
	0	1	2
2012	50	85	110
2013	95	155	200.59
2,014	80	132.41	171.36

(f) Average cost per claim

Incidence Year	Development Year		
	0	1	2
2012	992.25	983.60	981.65
2013	887.25	911.54	909.73
2,014	910.00	917.57	915.75

For No. Claims, DF for Year 1 =  $(85+155)/(50+95) = 1.65517$ , for Year 2 =  $110/85 = 1.294118$

For Avg. cost per claim Development factor for Year 1 = 1.00832, and for Year 2 = 0.99801

So total claim cost per claim can be calculated using the below table (after **adjusting future inflation**)

Average Cost per claim	Total No of claims	Total Claim
981.65	110	1,07,981.50
1,000.70	200.59	2,00,730.41
1,108.06	171.36	1,89,877.16
		4,98,589.07

Claims already paid =  $72,800 + 1,41,288.75 + 1,07,981.25 = 3,22,070$

Hence outstanding reserve requirement =  $498,589.07 - 3,22,070 = 1,76,519.07$

## Sample Solution1: Good

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The given data can be arranged as .

		Development Year (DY)		
		<u>0</u>	<u>1</u>	<u>2</u>
Accident	2012	45000	32375	24375
Year	2013	80275	57000	
(AY)	2014	72800		

No. of claim

		D. Y		
		<u>0</u>	<u>1</u>	<u>2</u>
AY	2012	50	35	25
	2013	95	60	
	2014	80		

∴ Avg. claim Paid

		DY		
		<u>0</u>	<u>1</u>	<u>2</u>
AY	2012	900	925	975
	2013	845	950	
	2014	910		

## Sample Solution1 (Contd..)

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- Inflated claim paid to figor of mid-20

	<u>DY</u>		
	<u>0</u>	<u>1</u>	<u>2</u>
2012	49612.5	33993.75	24375
2013	84288.75	57000	
2014	72800		

Cumulative inflated claim Paid

	<u>DY</u>		
<u>AY</u>	<u>0</u>	<u>1</u>	<u>2</u>
12	49612.5	83606.25	107981
13	84288.75	141288.75	
14	72800		

Cumulative no. of claim

	<u>DY</u>		
<u>AY</u>	<u>0</u>	<u>1</u>	<u>2</u>
12	50	85	110
13	95	155	201
14	80	132	171
Development Factor:	$\frac{85+155}{50+95} = 1.655$		$\frac{110}{85} = 1.294$

∴ Aug claim Paid

	<u>DY</u>		
<u>AY</u>	<u>0</u>	<u>1</u>	<u>2</u>
12	992	983	982
13	887	912	911
14	910	918	917

Development Factor  $1.0085$   $0.9989$



**Sample Solution1 (Contd..)**

Cumulative claim paid

	<u>0</u>	<u>1</u>	<u>2</u>
12			
13			
14			

Sample Solution2: Good

	0	1	2
2012	50	35	25
2013	95	60	
2014	80		

Cumulative no of claims

	0	1	2
2012	50 45.45%	85	110
2013	95 47.36%	155	200.588
2014	80 46.407%	72.27%	172.385

Total Claims

	2012	2013	2014
0	45000	32375	24375
1	80275	57000	
2	72800		

Cumulative total claims

	2012	2013	2014
0	45000	77375	101750
1	80275	137275	
2	72800		

## Sample Solution2 (Contd..)

Average cost per claim is

	2012	2013	2014
0	900 97.297%	910.3	925
1	845 93.8628%	885.65	900.25
2	910 95.5799%	98.378%	952.08

So total outstanding reserve is

$$900.25 \times 200.588 + 172.385 \times 952.08$$
$$72,800 - 57,000 - 80,275$$

$$\Rightarrow 134628.66$$



### Sample Solution 3: Not Good

	0	1	2
2012	45000	32375	24375
2013	80275	57000	
2014	72800		
	0	1	2
2012	50	35	25
2013	85	60	
2014	80		
ACPC			
2012	900	925	975
2013	845	850	
2014	910		
ACPC			
2012	900	25	50
2013	845	105	
2014	910		
	Inflation	Adjustment	
2012	992.25	26.25	50
13	887.25	105	
14	910		
Caumulative			
2012	992.25	1018.5	1068.5
13	887.25	992.92	1041.664
14	910	973.872	1021.68
r1 = 1.0702			
r2 = 1.0491			

### Sample Solution 3 (Contd..)

O/S	Claim reserve	
		48.744
	63.872	47.808

Inflation adjustment	C.R.	
		53.62
	70.2892	57.85

∴ Total O/S ACPC  
= 181.73 — (1)

No. of claims

50	85	110
95	155	200.6
80	132.414	171.36

	45.6
82.414	38.95

Total O/S no. of claims  
= 136.964 — (2)

∴ O/S claim Reserve  
= (1) × (2)  
= 24890.5



**Sample Solution 4: Not Good**

AEPG Method

Incremental Claim

	DY		
	0	1	2
2012	45000	32375	24375
2013	80275	57000	
2014	72800		

Incremental No. of claim paid

	DY		
	0	1	2
2012	50	35	25
2013	95	60	
2014	80		

Cumulative claim paid

	DY		
	0	1	2
2012	45000	77375	101750
2013	80275	137275	
2014	72800		

Cum. no of claim paid.

	DY			
	0	1	2	
2012	50	85	110	110
	45.5%	77.3%	100%	
2013	95	155		201
	47.3%	77.3%		
2014	80			172
	46.4%			

**Sample Solution 4 (Contd..)**

- com. avg claim paid

BY

	0	1	2	
2012	$\frac{900}{97.3\%}$ 845	$\frac{910}{98.4\%}$ 886	$\frac{925}{100\%}$ 925	110
2013	$\frac{93.9\%}{910}$ 967	$\frac{98.4\%}{886}$ 967		201
2014		$\frac{93.4\%}{910}$ 967		172

com. avg. claim paid

BY

	0	1	2	
2012	$\frac{900}{97.3\%}$ 845	$\frac{910}{98.4\%}$ 886	$\frac{925}{100\%}$ 925	925
2013	$\frac{93.9\%}{910}$ 967	$\frac{98.4\%}{886}$ 967		900.4
2014		$\frac{93.4\%}{910}$ 967		952

∴ Total Liab

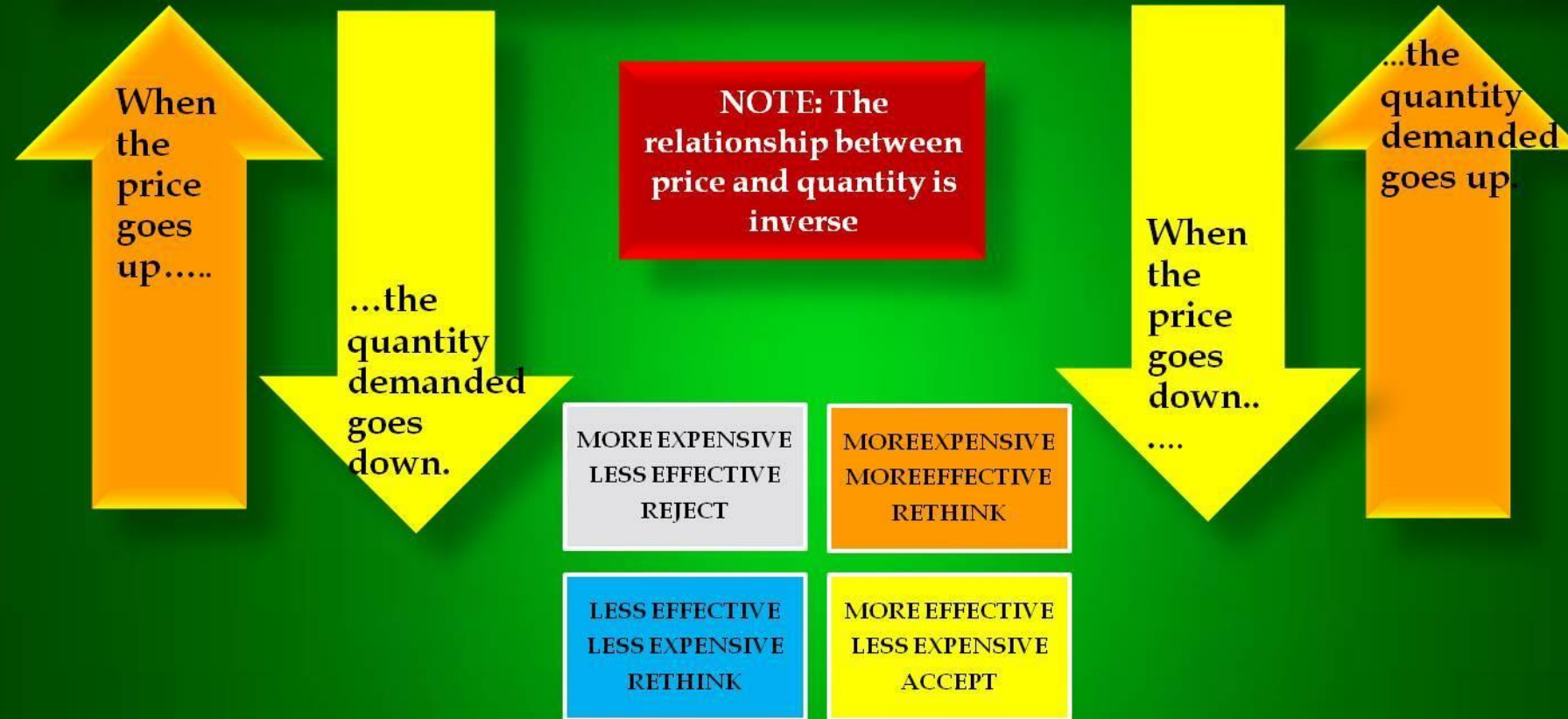
$$= 110 \times 925$$

$$+ 201 \times 900.4$$

$$+ 172 \times 952$$

$$= 446474$$

# LAW OF DEMAND



*Providing you the choices to get what you really need.*

## CT7 : BUSINESS ECONOMICS



**CT7 Question:**

Discuss the arguments in favour of restricting trade by a developing country. [6]

**Solution:**

Following are various reasons in favour of restricting trade by a developing country

- a. The infant industry argument – In a developing country there are many infant industries which may be too small at present to have sufficient economies of scale to withstand international competition. The government may therefore wish to take measures to protect this industry until it has grown sufficiently in size and expertise to compete internationally.
- b. To reduce reliance on goods with little dynamic potential – There is a danger that a developing economy becomes locked into industries with low income elasticities of demand such as agriculture. To avoid this problem, the government may act to protect domestic industries with the potential for higher growth in the long term.
- c. To prevent “dumping” and other unfair trade practices.
- d. To prevent the establishment of a foreign-based monopoly - If all domestic firms in an industry were driven out of business by an overseas firm, then the overseas firm could charge higher prices. To avoid this, the government may restrict imports or subsidise domestic firms.
- e. To reduce the influence of trade on consumer tastes – Multinational firms attempt to influence consumer tastes through their advertising. Governments may therefore wish to restrict this “producer power” and hence imports from such firms, particularly if the firms are believed to promote a culturally different or undesirable set of values.
- f. To spread the risks of fluctuating markets – Countries that specialise in the production of a single good will be highly exposed to fluctuations in the market for that good. The government may then decide to protect its other industries from overseas competition.



## Sample Solution1: Good

i) Arguments in favour of restricting trade by a developing country -

1. Infant-industry argument -

Some new firms (who have potential) may be too small now to benefit from economies of scale. Restricting trade will protect them against international competition and allow them to grow until they realize their potential.

2. To reduce reliance on goods with little dynamic potential

Some developing countries may be locked into industries with low elasticity of demand such as agriculture. Hence, restricting trade will reduce their reliance on goods with little dynamic potential.

3. To prevent the establishment of a foreign based monopoly - As an overseas firm might drive all the domestic firms out of the economy.

4. To prevent dumping and other unfair trade practices.

## Sample Solution1 (Contd..)

Country X can retaliate against country Y by imposing trade restrictions if country Y has dumped cheaper goods in country X or country Y has indulged in other unfair trade practices.

5. To prevent the importation of goods which are believed to propagate culturally different set of values.



## Sample Solution2: Good

i) A developing country may restrict trade from foreign countries due to the following reasons:

a) Infant Industry argument: The developing country may restrict trade in order to help building domestic industries to grow. They have a potential comparative advantage over the foreign companies however, it has not yet attained economies of scale.

Thus, by protecting its industries from trade, it can help them grow and expand.

b) Prevent a foreign based monopoly:

The developing country would not want consumers' tastes, demands, etc. to be dominated by foreign based monopoly. It may even charge high prices, provide poor quality and thus exploit consumers by its monopoly power.

c) To take account of externalities:

The foreign companies may impose costs on the society of the domestic



## Sample Solution2 (Contd..)

Country. in the form of pollution, depletion of the country's resources, etc. Since they do not take account of these in the financial costs trade could be restricted.

d) Dumping: A developing country that has higher costs may restrict trade from foreign countries that are likely to dump their goods into the domestic country by charging extremely low prices.

eg: Chinese goods are flooded in Indian markets due to dumping at a very low price.

e) To prevent reliance on goods with little dynamic potential:

Especially for developing countries, which are usually dependent on goods that have low income elasticity of demand such as agriculture.

Since foreign trade requires a country to trade goods in which it has comparative advantage too much dependance on low income elastic goods would eventually



## Sample Solution 2 (Contd..)

~ reduce the trade opportunities for the developing country as demand for its goods would rise by little percentage as compared to rise in incomes every where.

f) To prevent goods which are undesirable and harmful to the country such as drugs, pornography, etc.

g) For other reasons such as loss to domestic firms which are unable to tackle competition from the large multinational companies of developed countries and ultimately have to shut down.

### Sample Solution 3: Not Good

- i)
- a) Stop the specialization of another goods :  
because of the trade a country is specialize only on one goods but not specialize in another goods. Therefore it will reduce the development of developing country.
- b) dumping :-  
Sometime a country will dump their good in cheaper price in another country. Dumping of goods will spoil the domestic market of a developing country.
- c) Monopoly.  
Big - multi national firm create monopoly because of economies of scale and danger for industries in developing country.
- d) threat for the small-medium industry:  
Because of trade between countries, the small-medium industries will face a lot of competition. Hence, they will out of the market.
- (e) effected the country resources :-  
Because of the trade, the multinational firm start production in developing country it will increase the pollution and create externalities in country. eg :- Bopal



### Sample Solution 3 (Contd..)

gas tragedies is a major example of harmful effect of resources, East India Company.

(F) Change in cultural environment :-  
increasing trade will create in cultural of a developing country. it will create erasing of cultural that is harmful for a particular country.

#### Sample Solution 4: Not Good

(a) Protecting the infant industries :-  
By restricting trade, the newly domestic industries can be protected by reverse competition, which would exist if the trade isn't restricted. If there are no restrictions, many well-settled heavy industries would dump their products at lower rates making the subsistence of new industries / domestics endangered.

(b) Balance of trade :-

If there is no balance of trade, it affects economy a lot. If cost of production in domestic company is high, there would be an increase in imports which would lead to deficit balance of trade.

(c) Unemployment: Due to trade restrictions, there is a bit of control over technology dependence and hence it provides work to many labours and if lifted it can cause unemployment at large scale.



(d) Reduction in foreign exchange :


With increase in imports, we have less foreign exchange making scarcity of it for important works.

# Conclusión



## Concluding remark

- Passing the actuarial paper with in time is not impossible
- We have to believe ourselves to understand the subject and have clear understanding
- If you believe in who you are, what you are, how you can do this, you will always be the winner.
- [4.avi](#)

A close-up photograph of a hand in a dark suit sleeve giving a thumbs up gesture. The hand is the central focus, with the thumb pointing upwards. The background is dark and out of focus.

THANK YOU FOR YOUR ATTENTION