DEPARTMENT OF STATISTICS
UNIVERSITY OF KARACHI
ACT-316 FUNDAMENTAL OF INSURANCE MATHEMATICS
QUIZ-1

Duration: 1 hours

Country	Year	Estimated mid year population	Number of deaths	CRUDE DEATH RATE(CDR)
Aregentina	1990	32322000	295796	9.151
Brazil	1989	147404000	1,164452	7.899
Colombia	1990	328987000	201,166	0.611
Costa Rica	1991	3064000	12,452	4.063
Mexico	1991	87836000	500,615	5.699

Q.1 Above table gives the total number of deaths in certain years,together with the estimated mid year population for those years,for certain countries in Latin America .use them to calculate the crude death rate for each of these countries .

FOR AREGENTINA

$$\frac{\text{Number of death}}{\text{estimated midyear population}} \times 1000$$

$$\frac{295796}{32322000} \times 1000 \quad = \mathbf{9.151}$$

FOR BRAZIL

$$\frac{\text{Number of death}}{\text{estimated midyear population}} \times 1000$$

$$\frac{1164452}{147404000} \times 1000 \quad = \mathbf{7.899}$$

FOR COLOMBIA

$$\frac{\text{Number of death}}{\text{estimated midyear population}} \times 1000$$

$$\frac{201166}{328987000} \times 1000 \quad = \mathbf{0.611}$$

FOR COSTA RICA

$$\frac{\text{Number of death}}{\text{estimated midyear population}} \times 1000$$

$$\frac{12452}{3064000} \times 1000 \quad = \quad \mathbf{4.063}$$

FOR MAXICO

$$\frac{\text{Number of death}}{\text{estimated midyear population}} \times 1000$$

$$\frac{500615}{87836000} \times 1000 \quad = \mathbf{5.699}$$

Age group	males			
	Mid-year Po ulation	Number of deaths	Females	Number of deaths
1-4	1422	1637	1380	1,325
5-14	3062	1390	2968	920
15-24	2430	2816	2318	1,437
25-44	4101	9690	4023	5942
45-64	2755	36581	2753	18535

Q.2 Above table gives the estimanated mid-year population in certain age group,together with the number of deaths to people in those age group, for males and females in Argentina in 1986.use them to calculate age specific death rates for two sexes .

FOR MALES

Age group	males		
	Mid-year Population	Number of deaths	Age-specific death rates
1-4	1422000	1637	1.151
5-14	3062000	1390	0.453
15-24	2430000	2816	1.158
25-44	4101000	9690	2.362
45-64	2755000	36581	13.278

FOR AGE GROUP (1-4)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{1637}{1422000} \times 1000 = \mathbf{1.151}$$

FOR AGE GROUP (5-14)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{1390}{3062000} \times 1000 = \mathbf{0.453}$$

FOR AGE GROUP (15-24)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{2816}{2430000} \times 1000 = \mathbf{1.158}$$

FOR AGE GROUP (25-44)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{9690}{4101000} \times 1000 = \mathbf{2.362}$$

FOR AGE GROUP (45-64)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{36581}{2755000} \times 1000 = \mathbf{13.278}$$

FOR FEMALES

Age group			
	Females	Number of deaths	Age-specific death rates
1-4	1380000	1,325	0.960
5-14	2968000	920	0.309
15-24	2318000	1,437	0.619
25-44	4023000	5942	1.477
45-64	2753000	18535	6.732

For age group (1-4)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{1325}{1380000} \times 1000 \quad = \quad \mathbf{0.960}$$

FOR AGE GROUP (5-14)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{920}{2968000} \times 1000 \quad = \quad \mathbf{0.309}$$

FOR AGE GROUP (15-24)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{1437}{2318000} \times 1000 \quad = \quad \mathbf{0.619}$$

FOR AGE GROUP (25-44)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{5942}{4023000} \times 1000 = \mathbf{1.477}$$

For age group (45-64)

$$\frac{\text{Number of death}}{\text{Mid - year Population}} \times 1000$$

$$\frac{18535}{2753000} \times 1000 = \mathbf{6.732}$$