

## SAMPLE PAPER 5: PAPER 2

### QUESTION 7 (70 MARKS)

#### Question 7 (a)

(i) Total number of deaths = 3324

(ii) Total number injured = 89 026

(iii) Mean number of deaths per year:

$$\mu = \frac{3324}{10} = 332.4$$

$$\mu = \frac{\text{Sum of } x's}{n}$$

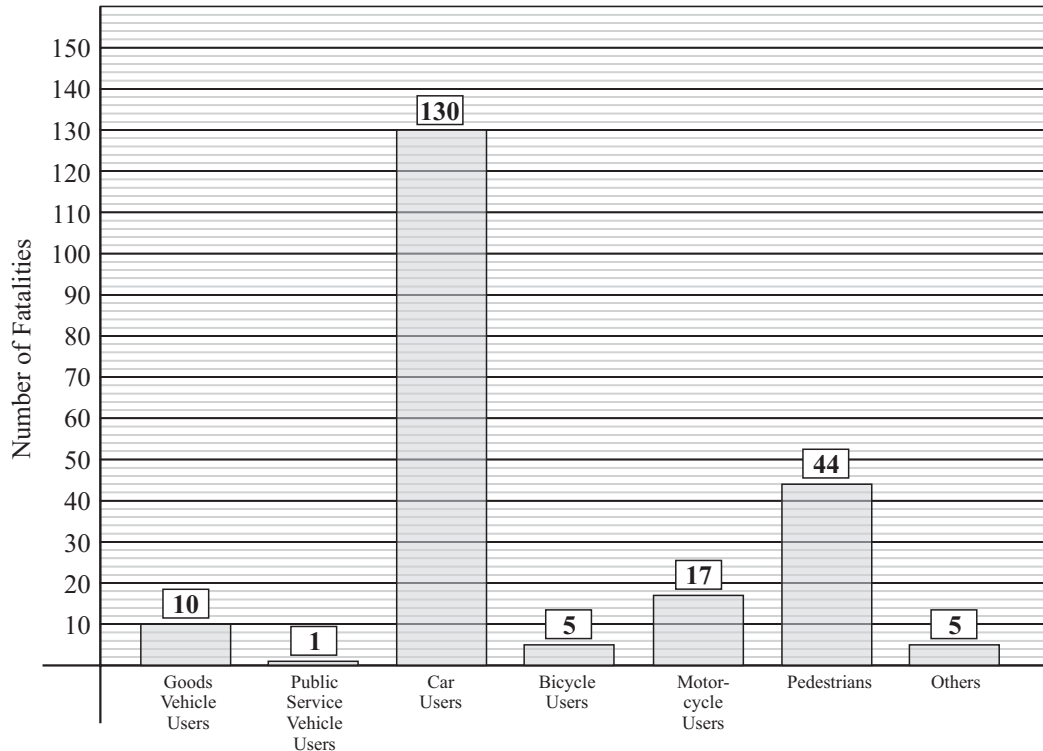
Year	Killed	Injured
2001	411	10 222
2002	376	9206
2003	335	8262
2004	374	7867
2005	396	9318
2006	365	8575
2007	338	7806
2008	279	9758
2009	238	9742
2010	212	8270
	3324	89 026

#### Question 7 (b)

(i) % decrease =  $\frac{640 - 212}{640} \times 100\% = 66.875\%$

- (ii) Reason 1: Better roads  
 Reason 2: Less drink-driving  
 Reason 3: Safer cars

#### Question 7 (c) (i)



#### Question 7 (c) (ii)

Number of car fatalities = 130  
 Total number of fatalities = 212

$$\% \text{ of car fatalities} = \frac{130}{212} \times 100\% = 61.3\%$$

#### Question 7 (c) (iii)

Fatalities highest among car users, number of pedestrian casualties is of concern, should there be compulsory wearing of bicycle helmets?

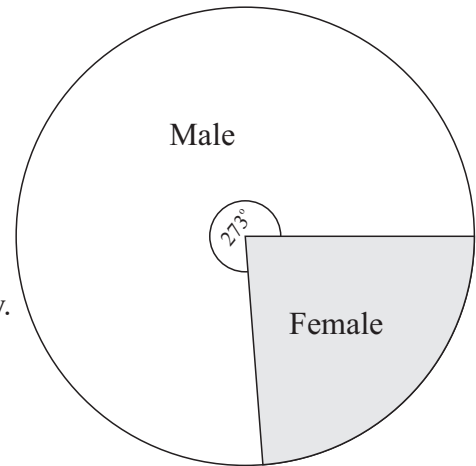
**Question 7 (d) (i)**

$$P(\text{Male Fatality}) = \frac{273}{360} = 0.7583$$

$$P(\text{Female Fatality}) = 1 - 0.76 = 0.2417$$

$$\frac{P(\text{Male Fatality})}{P(\text{Female Fatality})} = \frac{0.7583}{0.2417} = 3.1$$

A male fatality is 3.1 times more likely than a female fatality.



**Question 7 (d) (ii)**

Yes, lower level of women involved in car accidents should be reflected in insurance premiums.

**Question 7 (e) (i)**

Type	Number of collisions	Cost per collision (euro)	Total cost (euro)
Fatal	185	<b>2 583 311</b>	477 912 535
Serious	409	345 121	<b>141 154 489</b>
Minor	5186	33 991	<b>176 277 326</b>
Material damage	<b>21 305</b>	2719	57 928 295
<b>Total</b>	<b>27 085</b>		<b>853 272 645</b>

**Question 7 (e) (ii)**

$$\text{Average cost per collision} = \frac{853\,272\,645}{27\,085} = \text{€}31\,503.51$$


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