系所組別：環境醫學研究所甲組

考試科目：環境衛生 考試日期：0223，節次：2

※ 考生請注意：本試題不可使用計算機。 請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Please compare the following 2 public health concerns and provide your understanding to listed inquiries: **(20%)**

	Norovirus infection	Dengue fever
Etiological agent		
Major pathway of exposure		
Disease's mechanism		
Primary symptoms		
Dissemination pattern		
Environmental reservoir		
Control measure		
Preventive strategy		
Vaccination possibility		
Public health risk (High/Medium/Low)		

2. Shown in the following table, information of the 2 countries with the law-binding indoor air quality standard, namely Taiwan and Korea, is organized for your comments **(10%).**

	CO (ppm)[c]	CO_2 (ppm)[a]	O_3 (ppb)[c]	TVOC(ppb)[b]	HCHO(ppm)[b]	$PM_{2.5}$ ($\mu g/m^3$)[d]	PM_{10} ($\mu g/m^3$)[d]	Fungi(CFU/m^3)[e]	Bacteria(CFU/m^3)[e]
Taiwan	9	1000	60	560	0.08	35	75	1000 (I/O > 1.3)	1500
Korea	10	1000	60	218(Subway) ($500\ \mu g/m^3$) 175(Clinics) ($400\ \mu g/m^3$)	0.1 (0.12 mg/m^3)		100 (Clinics) 150 (Subway)		800
	25[d]		80[d]	437[d]			200[d]		
WHO/Europe	8.7 30.6[b]				0.081 (0.5h) (0.1 mg/m^3)	25 10 (year)	50 40 (year)		

a: Indoor parking garage (Korea) b: 1-hour average (unless specified) c: 8-hour average (unless specified) d: 24-hour average e: maximum

(a) Do you agree the Taiwan standard in view of the standard in Korea and recommended levels by WHO? Why?

(b) 「I/O>1.3」is being set as an alternative standard for controlling indoor fungi. How do you interpret it? Do you agree with this option? Why?

3. Please describe the four steps of health risk assessment of toxic chemicals **(16%).**

4. In general, which factors could influence the water consumption quantity in a particular community? **(9 %)**

（背面仍有題目，請繼續作答）

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5. The levels of 5 air pollutants within 24 hours were determined from an air quality monitoring station of Tainan city and showed as follows (1) PM10：195 μg/m^3、（2）SO_2：48 ppb、（3）CO：7 ppm、（4）O_3：180 ppb、（5）NO_2：24 ppb.

   Use above data and following table to calculate the PSI and point out which pollutant is the indicator pollutant. **(10 %)**

PSI	Daily average of PM10 (μg/m^3)	Daily average of SO_2 (ppb)	Max. of 8-hrs average of CO (ppm)	Max. of hourly average of O_3 (ppb)	Max. of hourly average of NO_2 (ppb)
50	50	30	4.5	60	-
100	150	140	9	120	-
200	350	300	15	200	600
300	420	600	30	400	1200
400	500	800	40	500	1600
500	600	1000	50	600	2000

6. Please describe the role of particulate matter during Fukushima nuclear disaster **(10%)**? From figure 1, what particle size has the longest lifetime at 0-1 km altitude **(10%)**?

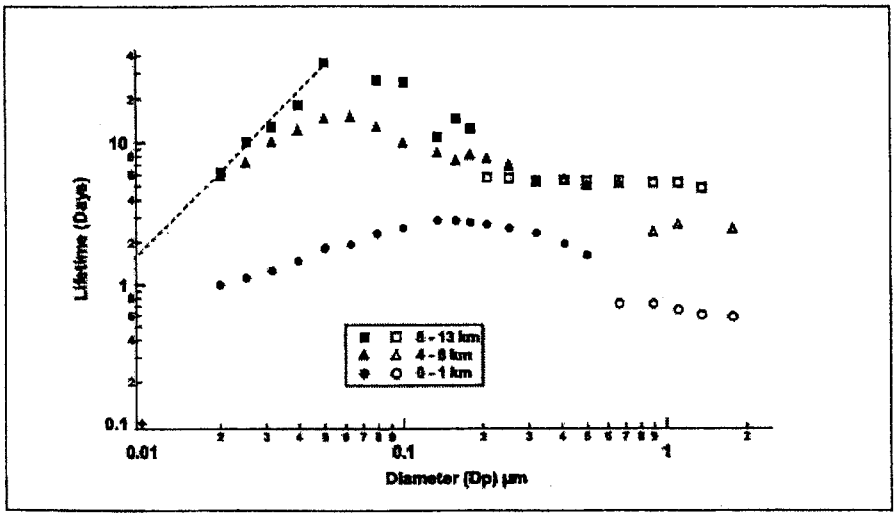

Figure 1. Particle lifetime at different diameter and altitude. (Williams et al., 2002)

7. Please list three major greenhouse gases**(9%)** and it's sources**(6%)**?