

※ 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 define following terminologies:

- (1) Similar exposure group (5%)
- (2) Static sampling (5%)
- (3) Biological monitoring (5%)
- (4) Exposure profile (5%)

2. (1) Please explain what is "chemical control banding (CCB)". (10%)

(2) What are the limitations while CCB is used for conducting exposure and health risk assessment? (10%)

3. (1) Based on the occupational health regulation in Taiwan, exposure modeling should be used for what kinds of chemicals under what situations? (10%)

(2) Please describe the vapor saturation model and its limitations while it was used for conducting exposure assessment. (10%)

4. If you are requested to assess workers' free silica exposures, please describe the sampling and analysis method which can be used for the above purpose. (20%)

5. Assuming a worker has exposed to chemical A as the followings:

- Exposed conc.: $1\text{mg}/\text{m}^3$
- Worker weight: 60kg
- Breathing rate: 20 L/min
- Contaminant permanently retained by the body: 50%
- Job duration: 8h/day, 5 days/week, 48 weeks/year, 5 years
- Chemical A absorption rate: 100%

(1) Please calculate worker's absorber dose per day, absorbed dose at the end of 5 years, potential dose per day, and potential dose at the end of 5 years. (10%)

(2) Please make any assumptions if you feel necessary for the above calculations. (10%)