

編號： 468 系所：環境醫學研究所甲組

科目：工業衛生

本試題是否可以使用計算機：可使用，不可使用（請命題老師勾選）

1. Please define following terminologies: (a) Organic solvent (5%) (b) Semi-volatile organic compound (5%) (c) Aerodynamic diameter (5%) (d) Confined space (5%) and (e) dBA (5%).
2. What is nanoparticle? (5%) What are appropriate metrics for assessing workers' nanoparticle exposures? (5%) Why? (5%)
3. Please describe the industrial processes involved in a casting plant. (5%) Please develop a sampling strategy for assessing workers' free silica exposures. (10%)
4. Please describe a decision-making flowchart for selecting appropriate personal respiratory protective equipments for workers in a given workplace. (10%)
5. A workplace with a dimension of 10m (L) x 8m (W) x 4m (H) is known to evaporate toluene 1 kg/hr into the workplace environment. It is known that the current PEL-TWA for toluene is 100 ppm. If the general ventilation is adopted, what is the required ventilation rate for the given workplace? (5%) Please list any assumptions which are used in your calculation. (5%)
6. A steel plant was found with a natural wet bulb temperature 35°C, air temperature 37°C, and globe temperature 38°C. What is the WBGT of the indoor environment? (5%) Please indicate the work/rest time regimen for the given workplace based on the current regulation promulgated in Taiwan. (5%)
7. At sea level (atmospheric pressure = 760mmHg), the fraction of O₂ is ~20.9%. What is the partial pressure of O₂ at the sea level? (5%) It is known that the increase of elevation per 100 m will result in the decrease in the atmospheric pressure of 8 mmHg. What would be the fraction and the partial pressure of O₂ at the top of 4000 m height mountain? (5%) Will you consider it as an oxygen deficiency environment and why? (5%)