

# 國立高雄師範大學九十四學年度碩士班招生考試試題

系所別：科學教育研究所

科目：化學（共 1 頁，第 1 頁）

- 一、Classify each of the following as an element, a compound, or a mixture. Justify each answer. (10%)
- (a) Mercury
  - (b) Milk
  - (c) Pure water
  - (d) A piece of lumber
  - (e) Ink
  - (f) Iced tea
  - (g) Pure ice
  - (h) Carbon
  - (i) Antimony.
- 二、Express 0.000000028 in exponential (scientific) notation. (10%)
- 三、How many valence electrons do chlorine atom contain? Explain your answer. (10%)
- 四、Ultraviolet light has a wavelength of approximately 200 nm. What is the frequency for this form of uv light? (10%)
- 五、The element iodine (I) occurs naturally as a single isotope of atomic mass 127; its atomic number is 53. How many protons and how many neutrons does it have in its nucleus? (10%)
- 六、Define the following terms: (5% for each term)
- (a) dielectric constant
  - (b) colligative property
  - (c) chelate effect
  - (d) diprotic acid
  - (e) paramagnetism
  - (f) node plane
  - (g) Pauli exclusive principle
  - (h) Raoult's law
  - (i) Steric effect
  - (j) Transition state