高雄醫學大學九十三學年度學士後醫學系招生考試試題

科目:化學　　　　　　　考試時間: 80 分鐘　　　　　共 9 頁

> 說明:一、選擇題用 2B 鉛筆在「答案卡」上作答,修正時應以橡皮擦拭,切勿使用修正液(帶),未遵照正確作答方法而致無法判讀者,考生自行負責。
> 二、試題及答案卡必須繳回,不得攜出試場。

I. Choose one correct answer for the following questions

每題 1 分,答錯一題倒扣 0.25 分,倒扣至本大題零分為止,未作答,不給分亦不扣分。

1. Coco-Cola® is carbonated by injecting the liquid with carbon dioxide gas. Under what conditions is the solubility of carbon dioxide gas the greatest?
   (A) low temperature, low pressure
   (B) low temperature, high pressure
   (C) low temperature, pressure is not a factor
   (D) high pressure, temperature is not a factor
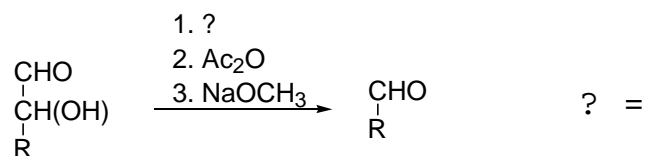   (E) high temperature, high pressure

2. Ninhydrin is the hydrate of a triketone and is in equilibrium with it.
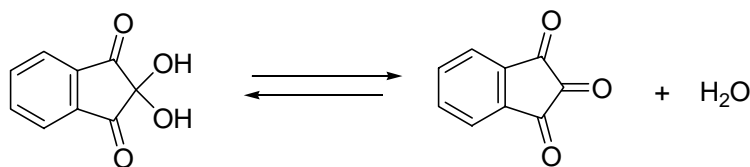
   In the following statements which one is TRUE?
   (A) Ninhydrin is a good reagent for testing α-amino acids, usually carried out at acidic condition.
   (B) The positive ninhydrin test usually exhibits an intense purple color.
   (C) Ninhydrin is a good reagent for testing nucleosides, usually carried out at basic condition.
   (D) The positive ninhydrin test usually exhibits a red color.
   (E) The positive ninhydrin test usually exhibits a green color.

3. Which one is WRONG for gas chromatography?
   (A) The mobile phase does not interact with molecules of the sample.
   (B) Capillary columns provide higher resolution than packed columns.
   (C) Reproducible retention times require control of the column temperature.
   (D) Immobilized liquid phase should be chemical inert and low volatile.
   (E) This method is applicable to species that are appreciably non-volatile.

4. Which of the following contains the metal with the lowest oxidation number?
   (A) $CaCl_2$　　　　(B) $FeSO_4$　　　　(C) MnO_2　　　　(D) CrO_3　　　　(E) $NaBr$

5. Which detector is used in the infrared spectrum?
   (A) phototube
   (B) photomultiplier tube
   (C) photodiode arrays
   (D) silicon photodiodes
   (E) thermal detector

6. A fatty acid gives nonanal and 9-oxononanoic acid on ozonolysis followed by zinc treatment. This fatty acid gives stearic acid on hydrogenation by H_2/Pd. What is this fatty acid?
   (A) Lauric acid　　　　(B) Palmitic acid　　　　(C) Arachidic acid　　　　(D) Oleic acid　　　　(E) Arachidonic acid

7. Cell membranes are composed mostly of _____ organized into a lipid bilayer which serves as an effective barrier to the passage of water, ions, and other components into and out of cells.
   (A) glycerophospholipids
   (B) sphingomyelins
   (C) prostaglandins
   (D) lipids
   (E) fatty acid

8. Wohl degradation: a multi-step reaction sequence for degrading an aldose into the next lower homolog. What is the missing reagent in the following Wohl degradation?

$$\underset{\substack{|\\ R}}{\overset{\text{CHO}}{\underset{|}{\text{CH(OH)}}}} \xrightarrow[\substack{\text{2. Ac}_2\text{O}\\ \text{3. NaOCH}_3}]{\text{1. ?}} \underset{R}{\overset{\text{CHO}}{|}} \qquad ? =$$

(A) $KMnO_4$ (B) AgO   (C) NH_3 (D) NH_2NH_2 (E) NH_2OH

9. Lactose yields 1 equivalent D-glucose and 1 equivalent _____ on hydrolysis.
   (A) D-fructose   (B) D-galactose   (C) D-mannose   (D) D-ribose   (E) D-deoxyribose

10. Sucrose is an example of_____.
   (A) a reducing sugar   (B) a ketohexose   (C) an anomer of ribose   (D) an aldohexose   (E) a disaccharide

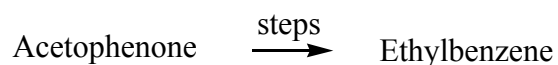11. Glucosamine, the monosaccharide unit from chitin has an amino group at what position?
   (A) C1   (B) C2   (C) C3   (D) C4   (E) C5

12. Which of the following Fischer projections of glyceraldehydes represent the same configuration with **A**?
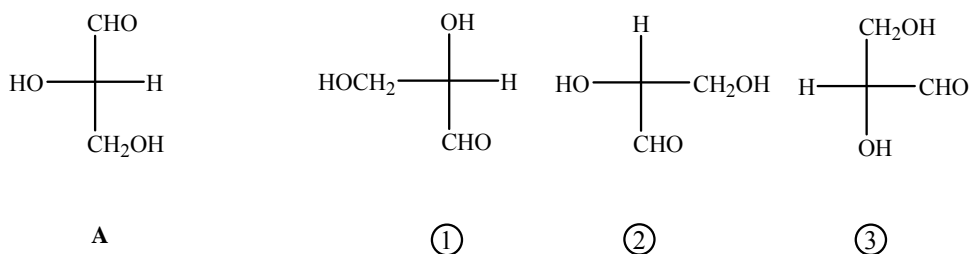
(A) ①, ③   (B) ①, ②   (C) ②, ③   (D) ①, ②, ③   (E) none of these

13. Choose the set of reagents which best accomplishes the desired conversion.

   Acetophenone $\xrightarrow{\text{steps}}$ Ethylbenzene

   (A) sulfuric acid, H_2O (B) 1. hydrogen peroxide, H_2O; 2. KOH
   (C) 1. sodium borohydride; 2. KOH   (D) 1. hydroxylamine; 2. H_2O
   (E) 1. hydrazine; 2. KOH, H_2O

14. The mass spectrum of 5-methyl-2-hexanone shows two typical fragments. One is m/z = 43 due to α-cleavage at the more highly substituted side of the carbonyl group, the other one is m/z = ? due to McLafferty rearrangement.
   (A) 51   (B) 54   (C) 56   (D) 58   (E) 60

15. A nitro group is _____ electrophilic aromatic substitution.
   (A) displaced in   (B) reduced in   (C) activating for   (D) para directing for   (E) deactivating for

16. How many different alkenes have the molecular formula C_5H_{10}, including *E, Z* isomers?
   (A) 4   (B) 5   (C) 6   (D) 8   (E) none of the above

17. From each pair pick the compound with the higher boiling point.
   (i) ① acetic acid or ② propanoic acid
   (ii) ③ n-pentane or ④ neopentane
   (iii) ⑤ methane or ⑥ methyl chloride
   (A) ①, ③, ⑤   (B) ①, ④, ⑤   (C) ②, ④, ⑥   (D) ②, ③, ⑥   (E) ①, ④, ⑥

18. Place in order of stability (most stable FIRST):
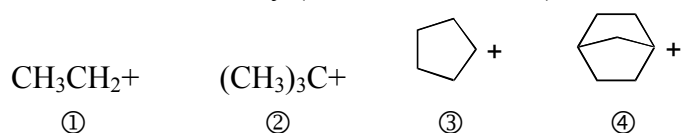
   (A) ④, ②, ③, ①   (B) ②, ③, ①, ④
   (C) ②, ①, ③, ④   (D) ④, ②, ①, ③
   (E) none of the above is correct

19. Pentane can be distinguished from ethyl ether by the following test:
    (A) Only ether liberates hydrogen when sodium is added.
    (B) Only ether dissolves in concentrated sulfuric acid.
    (C) Only ether gives a positive iodoform test.
    (D) Only ether is reduced by sodium borohydride.
    (E) Only ether is oxidized by aqueous dichromate.

20. If 1-hexyne is added to a solution of sodium amide, a gas is evolved. What is it?
    (A) C_6H_{14} (B) NH_3 (C) C_6H_{12} (D) C_6H_{10} (E) C_2H_2

21. In the following reaction, choose the MAJOR organic product.

Cyclohexanone $\xrightarrow{\text{piperidine}}$ $\xrightarrow{\text{methyl iodide}}$ $\xrightarrow{\text{aqueous acid}}$?
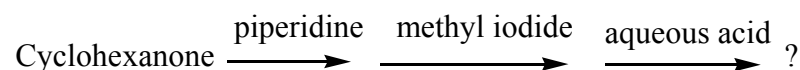
    (A) N-methylpiperidine   (B) methylcyclohexane
    (C) 2-methylcyclohexanone   (D) 1-methylcyclohexanol
    (E) 1-methylcyclohexene

22. The pinacol rearrangement proceeds via _____ route.
    (A) an electrophilic substitution   (B) a free radical
    (C) a cycloaddition   (D) a carbocation
    (E) a carbanion

23. If the nitrogen of pyrrole is protonated, the ring is _____.
    (A) cleaved   (B) no longer aromatic
    (C) susceptible to electrophilic substitution   (D) expanded
    (E) unaffected

24. The anilinium ion exhibits _____.
    (A) no characteristic IR bands
    (B) increased solubility in hexane compared to aniline
    (C) a purple color due to charge delocalization
    (D) decreased reactivity for electrophilic substitution compared to aniline
    (E) a facile decomposition to ammonia

25. How many hydrogen atoms are present in each molecule of 1,3-dimethylbicyclo[1.1.0]butane?
    (A) 10   (B) 12   (C) 13   (D) 14   (E) 15

26. Consider ① Cl^-, ② OH^-, ③ SH^-, and ④ CH_3^-. The CORRECT order of nucleophile reactivity is (strongest nucleophile LAST):
    (A) ④, ③, ②, ①   (B) ④, ②, ①, ③   (C) ②, ①, ③, ④   (D) ①, ②, ③, ④   (E) ①, ③, ④, ②

27. How many grams of $Ca(NO_3)_2$ can be produced by reacting excess HNO_3 with 7.40 g of $Ca(OH)_2$? [Ca = 40]
    (A) 10.2 g   (B) 16.4 g   (C) 32.8 g   (D) 8.22 g   (E) 7.40 g

28. For the redox reaction $2\,Fe^{2+} + Cl_2 \longrightarrow 2\,Fe^{3+} + 6\,Cl^-$, which of the following are the correct half-reaction?

① $Cl_2 + 2e^- \longrightarrow 2\,Cl^-$ ② $Cl \longrightarrow Cl^- + e^-$ ③ $Cl_2 \longrightarrow 2\,Cl^- + 2e^-$

④ $Fe^{2+} \longrightarrow Fe^{3+} + e^-$ ⑤ $Fe^{2+} + e^- \longrightarrow Fe^{3+}$

    (A) ① and ④   (B) ① and ⑤   (C) ② and ④   (D) ② and ⑤   (E) ③ and ④

29. Samples of the gases $H_2(g)$ and $SO_2(g)$ have equal masses and are at the same temperature and pressure. Calculate the ratio of volumes $\dfrac{V_{H_2}}{V_{SO_2}}$.
    (A) 1.0   (B) 0.18   (C) 32   (D) 5.6   (E) 180

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30. For the following reaction

$$PCl_5 (g) \rightleftharpoons PCl_3 (g) + Cl_2 (g) \qquad \triangle H = -89\ KJ$$
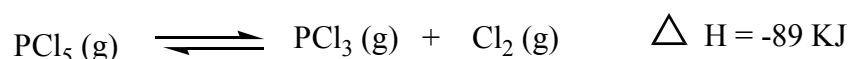
How can the equilibrium be shifted to the right?
(A) add more PCl_5 (B) decrease the pressure by changing the volume
(C) remove Cl_2 (D) remove PCl_3
(E) all of the above are correct

31. Given the following data

	$\triangle H^o_f$ (KJ/mol)
$H_2O(l)$	-286
$H_2O(g)$	-242

Calculate $\triangle S$ for the process $H_2O(l) \longrightarrow H_2O(g)$ at 100^oC

(A) 1.18 J / K mole   (B) 11.8 J / K mole   (C) 118 J / K mole   (D) 1180 J / K mole   (E) none of the above

32. Calculate the pH of 0.10 M NH_4CN. (K_b for NH_3 = 1.8 x 10^{-5}; K_a for HCN = 6.2 x 10^{-10})
(A) 9.23   (B) 8.87   (C) 8.21   (D) 5.79   (E) 5.13

33. Calculate the work for the expansion of CO_2 from 1.0 to 2.5 liters against a pressure of 1.0 atm at constant temperature.
(A) 1.5 liter · atm   (B) 2.5 liter · atm   (C) 0   (D) -1.5 liter · atm   (E) -2.5 liter · atm

34. Green light has a wavelength of 5.50 x 10^2 nm. The energy of a photon of green light is:
(A) 3.64 x 10^{-38} J   (B) 2.17 x 10^5 J   (C) 3.61 x 10^{-19} J   (D) 1.09 x 10^{-27} J   (E) 5.45 x 10^{12} J

35. According to the Bohr model for the atom:
(A) electrons are located in similar orbitals   (B) electrons have identical energies
(C) protons spin counterclockwise   (D) electrons can only occupy specific orbitals
(E) all of the above are correct

36. The maximum number of electrons that can occupy a 4d sub-shell is:
(A) 4   (B) 6   (C) 8   (D) 10   (E) varies

37. How many electrons are in a hydride ion if it has a charge of -1?
(A) 0   (B) 1   (C) 2   (D) 3   (E) 1.5

38. A polar covalent bond results from two atoms:
(A) unequally sharing a pair of electrons   (B) equally sharing a pair of electrons
(C) one atom giving up an electron   (D) two atoms sharing a single electron
(E) hydrogen atom overlap

39. Which of the following molecules would you expect to be polar?
(A) CO_2 (B) CH_4 (C) CH_2Cl_2 (D) H_2 (E) F_2

40. The entropy of the universe is always increasing. This is a statement of _____.
(A) 1st law of thermodynamic   (B) 2nd law of thermodynamics
(C) 3rd law of thermodynamics   (D) Hess' law
(E) Gibbs' law

41. The reaction of NaOH with a fat is referred to as:
(A) esterification   (B) dissociation   (C) hydrolysis   (D) saponification   (E) condensation

42. For a reaction to be spontaneous, which of the following must be TRUE?
(A) delta H must be negative   (B) delta H must be positive
(C) delta S must be negative   (D) delta S must be positive
(E) delta G must be negative

43. How many mL of 15 M HNO_3 are needed to make 500 mL of a 2 M solution?
　　(A) 0.015　　　　　(B) 0.03　　　　　(C) 33.3　　　　　(D) 66.7　　　　　(E) 15

44. Which of the following is NOT a property of alcohols compared to alkenes?
　　(A) exhibit hydrogen bonding
　　(B) higher solubility in water
　　(C) can be oxidized to form aldehydes or ketones
　　(D) undergo dehydration in acid
　　(E) undergo addition reaction with bromine

45. Which of the following process is used by nuclear power plant?
　　(A) Fission　　　　(B) Fusion　　　　(C) Gamma emission　　(D) Isotope dilution　　(E) Radiation

46. What is the complementary sequence (3' → 5') to the DNA segment CAT ?
　　(A) ATG　　　　　(B) TAA　　　　　(C) AGG　　　　　(D) CAT　　　　　(E) GTA

47. An atom becomes an ion by:
　　(A) gaining or losing protons　　　　　　(B) gaining or losing electrons
　　(C) gaining or losing neutrons　　　　　 (D) gaining or losing mass
　　(E) gaining or losing isotope

48. In order for the electron to return to the ground state, what must happen?
　　(A) energy is absorbed　(B) energy is released　(C) no energy change　(D) electron is lost　(E) electron is gained

49. Which bond is the least polar? (Electronegativities: H = 2.2; N = 3.0; O = 3.5; P = 2.1; S = 2. 5)
　　(A) N-H　　　　　(B) P-H　　　　　(C) O-H　　　　　(D) S-H　　　　　(E) P-S

50. For a double displacement reaction demonstration in class, a solution of potassium iodide and a solution of lead (II) nitrate were combined. A precipitate was formed as a product. What color was the precipitate?
　　(A) white　　　　(B) green　　　　(C) yellow　　　　(D) black　　　　(E) red

51. Which one is WRONG for the safety in the laboratory?
　　(A) Wear eye protection at all times.
　　(B) In the event of contact with acids, immediately flood the affected area with copious quantities of water.
　　(C) Never work alone in the laboratory.
　　(D) Never use your mouth to provide suction.
　　(E) It is legal to flush solutions containing heavy metal ions or organic liquids down the drain.

52. Which working electrode is used for pH measurement?
　　(A) Ag/AgCl electrode　(B) Calomel electrode　(C) Hg electrode　　(D) Glass electrode　(E) Pt electrode

53. Salt A and salt B were dissolved separately in 100 mL beakers of water. The water temperatures were measured and recorded as shown in the table below:
　　　Salt A: initial water temp. 25.1°C　final water temp. 30.2°C
　　　Salt B: initial water temp. 25.1°C　final water temp. 20.0°C
　　Which statement is a CORRECT interpretation of these data?
　　(A) The dissolving of only salt A was endothermic.
　　(B) The dissolving of only salt B was exothermic.
　　(C) The dissolving of both salt A and salt B was endothermic.
　　(D) The dissolving of salt A was exothermic and the dissolving of salt B was endothermic.
　　(E) The dissolving of both salt A and salt B was endothermic.

54. How many moles of oxygen gas, O_2, will react with 2 moles of nitrogen monoxide gas, NO, according to the following equation? ___ NO (g) + ___ O_2 (g) → ____ NO_2 (g) [O_2 = 32.00 g/mol; NO = 30.01; NO_2 = 46.01]
　　(A) 1 mol　　　　(B) 2 mol　　　　(C) 3 mol　　　　(D) 4 mol　　　　(E) none of the above

55. Which pair of Lewis electron-dot symbols correctly depicts the elements: boron and carbon?

　　(A) 　(B) 　(C) 　(D) B• •C•　(E) B　　C

56. Which pair of words correctly completes this statement: Ultraviolet light is more dangerous than infrared light because it has more energy. The _____ of ultraviolet light is _____ than infrared light.

(A) wavelength – longer   (B) frequency – higher

(C) speed – greater   (D) speed – less
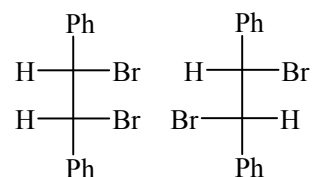
(E) frequency – lower

57. Which orbital diagram violates the rule "no two electrons can have the same set of four identical quantum numbers"?
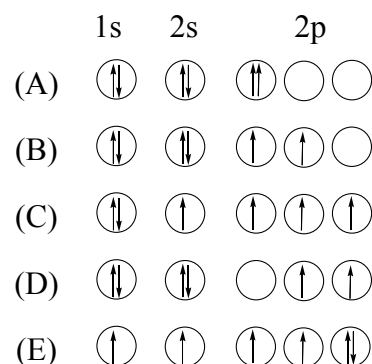
58. Which of the following plots correctly describe ideal gas behavior?

(A) ①, ②, ③   (B) only ① and ②   (C) only ① and ③   (D) only ② and ③   (E) only ①
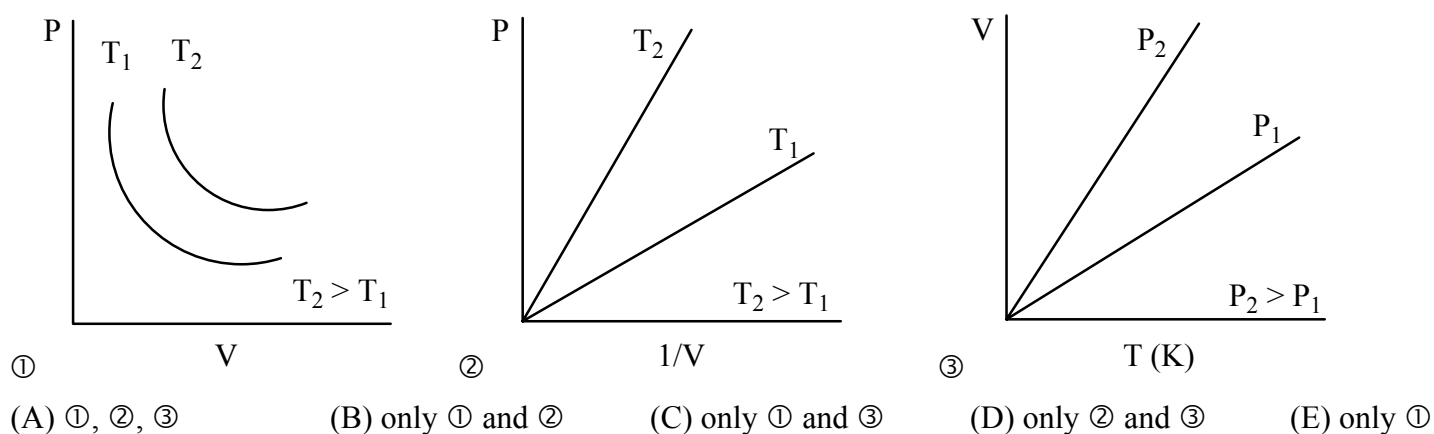
59. These compounds are:

(A) enantiomers   (B) diasteroisomers   (C) conformers   (D) geometrical isomers (E) identical

60. Rank the following molecules in order of **decreasing** C-C bond length of their **shortest** C-C bonds.

①: benzene   ②: 1,3-butadiene ($CH_2CHCHCH_2$)   ③: 1,2-propadiene (CH_2CCH_2)   ④: ethyne (HCCH)

(A) ① > ② > ③ > ④   (B) ④ > ③ > ② > ①   (C) ③ > ② > ④ > ①   (D) ① > ③ > ② > ④   (E) ④ > ② > ③ > ①
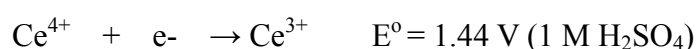
II. Choose one correct answer for the following questions

每題 2 分，答錯一題倒扣 0.5 分，倒扣至本大題零分為止，未作答，不給分亦不扣分。

61. Which one is CORRECT for buffer capacity of a solution?
    (A) It is defined as the number of moles of a strong acid or a strong base that cause 1 mL of the buffer to undergo a 1.00-unit change in pH.
    (B) It depends only on the total concentration of buffers, not on their concentration ratio.
    (C) The pKa of the acid chosen for a given application should lie within ± 1 unit of the desired pH for the buffer.
    (D) A buffer solution of any desired pH can be prepared by combining calculated quantities of buffer pair, no need any adjustment.
    (E) Dissociation constants would not interfere with the predicted pH values.

62. There is a titration of 50.00 mL of 0.0500 M Fe^{2+} with 0.1000 M Ce^{4+} in a medium (1.0 M H_2SO_4). Calculate the potential after the addition of 25.00 mL of Ce^{4+}.

$$Ce^{4+} + e- \rightarrow Ce^{3+} \quad E^o = 1.44 \text{ V (1 M } H_2SO_4)$$

$$Fe^{3+} + e- \rightarrow Fe^{2+} \quad E^o = 0.68 \text{ V (1 M } H_2SO_4)$$

    (A) 0.64 V   (B) 1.06 V   (C) 1.56 V   (D) 2.01 V   (E) 2.21 V

63. What mass of $Ba(IO_3)_2$ (487 g/mol) ($K_{sp} = 1.57 \times 10^{-9}$) can be dissolved in 400.0 mL of water at 25℃?
    (A) 0.732 mg   (B) 5.45 mg   (C) 0.142 g   (D) 0.178 g   (E) 0.280 g

64. The iron in a 0.6656-g ore sample was reduced quantitatively to the +2 state and then titrated with 26.75 mL of the $KMnO_4$ solution (0.02966 M). Calculate the percentage of Fe_2O_3 (Fe=55.8 g/mol) in the sample.
    (A) 95.12 %   (B) 47.56 %   (C) 43.12 %   (D) 38.04 %   (E) 19.02 %

65. Which of the following compounds does NOT react with acetyl chloride?

   (A) C_2H_5OH (B) $C_6H_6 + AlCl_3$ (C) CH_3COONa (D) C_2H_5Cl (E) $C_2H_5NHC_2H_4OH$

66. A compound exhibits an infrared band at 2245 cm^{-1} and is hydrolysed by mineral acid to give an organic acid. The original compound is:
    (A) an ester   (B) an amide   (C) a nitrile   (D) an acid anhydride   (E) an alkyne

67. Compound **X** has an empirical formula CH_2 and a molecular weight of 84. When **X** is subjected to ozonolysis two organic products are obtained; only one of these reduces Fehling's solution and both give positive iodoform reactions. **X** is:
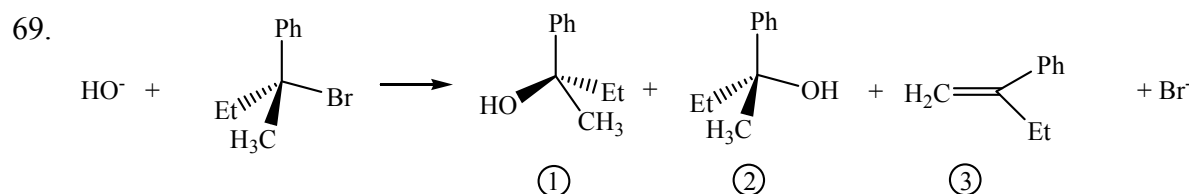   (A) hex-1-ene   (B) hex-2-ene
    (C) hexa-1,4-diene   (D) 3-methylpent-2-ene
    (E) 2,3-dimethylbut-2-ene

68. Metathesis reactions have been known for many years, and one of examples is given as follow.
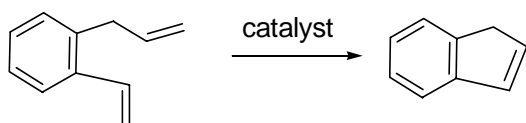
    What catalyst is commonly used in running the metathesis reactions?
    (A) Lindlar catalyst   (B) Raney nickel   (C) Grubbs' catalyst   (D) $Pd(OH)_2/C$ (E) None of above

69.

    If the above reaction was strictly S_N1, the organic product(s) would be:
    (A) ① only   (B) ① and ②   (C) ①, ② and ③   (D) ② only   (E) ③ only

70. The minimum concentration of oxygen necessary to sustain fish life in an aquarium is 4 mg/L. Assuming the density of the aquarium water solution is 1.00 g/mL, what is the minimum concentration of O_2 expressed in parts per million (ppm).
    (A) 2 ppm   (B) 4 ppm   (C) 2000 ppm   (D) 250 ppm   (E) 0.004 ppm

71. For the reaction $2 A + B \rightarrow$ products, determine the rate law for the reaction given the following data:

A: Initial Concentration, M	B: Initial Concentration, M	Initial Rate, $M \cdot s^{-1}$
0.1	0.1	2.0×10^{-2}
0.2	0.1	8.0×10^{-2}
0.3	0.1	1.8×10^{-1}
0.2	0.2	8.0×10^{-2}
0.3	0.3	1.8×10^{-1}

    (A) rate = $k[B]^2$ (B) rate = $k[A]$ (C) rate = $k[A][B]$ (D) rate = $k[A]^2$ (E) rate = $k[A][B]^0$

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72. A certain carbohydrate compound (containing only C, H and O) is 53.3 % C, 11.1 % H, and 35.6 % O by mass. The experimentally determined molecular mass is 90 amu. What is the empirical and chemical formula for this carbohydrate?
    (A) C_2H_5O (B) C_3H_5O (C) CH_3O (D) $C_3H_5O_2$ (E) $C_4H_{10}O_2$

73. Given the standard reaction enthalpies for the following reactions:
    What is $\triangle H^\circ$ for the reaction: $C_3H_8(g) + 5\,O_2(g) \rightarrow 3\,CO_2(g) + 4\,H_2O(g)$

$$3\,C(s) + 4\,H_2(g) \rightarrow C_3H_8(g) \qquad \triangle H^\circ = -103.8\ kJ$$
$$C(s) + O_2(g) \rightarrow CO_2(g) \qquad \triangle H^\circ = -393.5\ kJ$$
$$2\,H_2(g) + O_2(g) \rightarrow 2\,H_2O(g) \qquad \triangle H^\circ = -483.6\ kJ$$
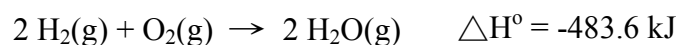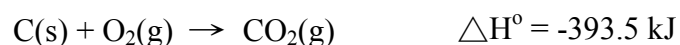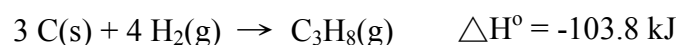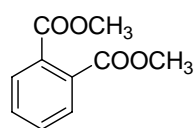
    (A) 773.3 kJ   (B) -773.3 kJ   (C) -2043.9 kJ   (D) -2251.5 kJ   (E) -2527.5 kJ

74. Propose a structure for a compound $C_5H_{10}O$ that fit the following ^{1}H-NMR data: δ 0.92 (3H, t, J = 7 Hz), 1.20 (6H, s), 1.50 (2H, q, J = 7 Hz), 1.64 (1H, br s).
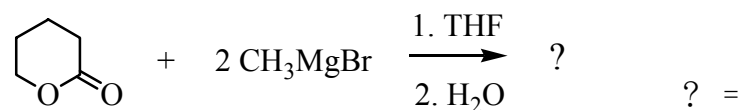   (A) isopentanol   (B) 2-methyl-2-butanol   (C) isopropyl methyl ketone
    (D) 2-methyl-1-butanol   (E) ethyl propyl ether

75. How many signals are expected in the ^{13}C NMR spectrum of the following compound?
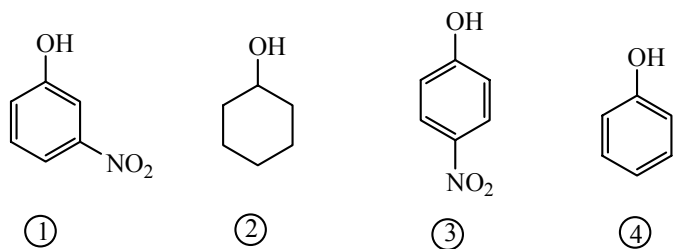

    (A) 5   (B) 6   (C) 7   (D) 8   (E) 10

76. What is the product of the following reaction?

77. Rank the following in order of decreasing acid strength (most acidic FIRST).

    (A) ② > ④ > ① > ③   (B) ① > ③> ④ > ②   (C) ③> ① > ② > ④   (D) ③> ①> ④ > ②   (E) ①> ② > ③> ④

78. Which of the following choices correctly describe the solubility of benzoic acid (I) and 2-naphthol (II) in the aqueous solution shown?

	Aq. NaOH		Aq. NaHCO$_3$	
(A) I, soluble;	II, insoluble	I, insoluble;	II, soluble
(B) I, insoluble;	II, soluble	I, soluble;	II, insoluble
(C) I, soluble;	II, soluble	I, soluble;	II, insoluble
(D) I, soluble;	II, insoluble	I, soluble;	II, insoluble
(E) I, soluble;	II, soluble	I, soluble;	II, soluble

79. Which of the following compounds will undergo decarboxylation on heating?
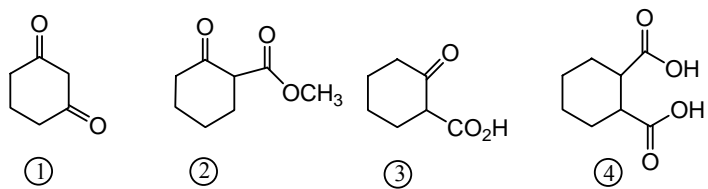
①   ②   ③   ④

(A) ① and ②   (B) ② and ③   (C) ③ and ④   (D) ③ only   (E) ④ only

80. What is the product from the following esterification?

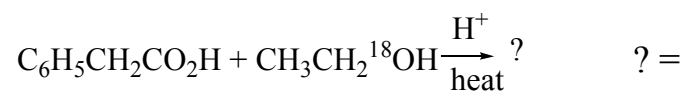$$C_6H_5CH_2CO_2H + CH_3CH_2{}^{18}OH \xrightarrow[\text{heat}]{H^+} ? \qquad ? =$$

(A)

(B)

(C)

(D)

(E) none of the above

第 9 頁

高雄醫學大學 93 年度學士後西醫招生考試 - 試題詳解

科目：化學

題號	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
答案	B	B	E	E	E	D	A	E	B	E	B	B	E	D	E	C	D	B	B	B	C	D	B	D	A
題號	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
答案	D	B	A	C	E	C	A	D	C	D	D	C	A	C	B	D	E	D	E	A	E	B	B	B	C
題號	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
答案	E	D	D	A	C	B	A	B	B	A	C	B	C	B	D	C	D	C	B	B	D	E	C	送分	A
題號	76	77	78	79	80																				
答案	C	D	C	D	B																				

評析：洪亮老師

（1）今年後醫化學試題普通化學佔 48%，全是一般觀念問題，不必煩雜演算即可得知正確答案；分析化學僅佔 2%（第 62 題），此題目出在普化講義第 12 回（第 38 頁）；另外有機化學則佔 50%，包含鹵烷、烯、炔、芳香烴、醇、醛、酮及羧酸皆有命題，今年有機化學考題甚至還考醣類（第 8、9、10 及 11 題），脂質（第 6、7 題），胺基酸（第 2 題）及核酸（第 46 題）等，是歷屆考試中較爲罕見的，但題目簡單，例如：Ninhydrin 檢驗 α-amino acids，臭氧分解測定不飽和脂肪酸雙鍵位置，及 DNA 二級結構雙螺旋鹽基對互補性： $A = T$ 及 $G \equiv C$ 等課堂上皆有介紹。

（2）由於化學題目簡單，無法測出考生化學程度，一般考生皆可掌握 80 分以上成績，實力佳者可拿滿分，預計本班學員在化學科方面應可大獲全勝！

（3）此次考試化學一科爭議題有：

① 第 67 題：原公佈解答爲(E)，化合物 **X** 分子式爲 C_6H_{12}，經臭氧分解產生兩個有機產物，一個產物 Fehling's test 及 Iodoform test 呈陽性，推測此產物爲 $\underset{CH_3CH}{\overset{O}{\|}}$ ，另一個產物僅 Iodoform test 呈陽性，推測此產物爲 methylketone，由以上結果推論化合物 **X** 結構式應爲 (D) $\underset{CH_3CH=CCH_2CH_3}{\overset{CH_3}{|}}$

② 第 72 題：原公佈解答為(E)，化學式(Chemical formula)有實驗式（empirical formula）、

分子式（molecular formula）及結構式（structural formula）三種，此題目問實驗式，

因此答案應為（A） C_2H_5O

③ 考試題目有誤者為第 74 題：原題目 Propose a structure for a compound $C_5H_{10}O$ 應更正

為 Propose a structure for a compound $C_5H_{12}O$