

系級	科目	授課教師	考試日期	學號	姓名
技一	普通化學	林淑貞	90年1月11日第3-4節		

*①請注意本試題共 5 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

Choice The Best One:

- The reaction of salicylic acid with acetic anhydride produces:
 - acetophenetidin
 - amphetamine
 - aspirin
 - heroin
 - ibuprofen
- Aspirin's effects come from its ability to inhibit the formation of
 - cholinesterase
 - nitrosamines
 - prostaglandins
 - testosterone
 - triglycerides
- Prostaglandins are best described as:
 - a class of endorphins
 - plant extracts used in the manufacture of illicit drugs
 - narcotics available as prescription drugs
 - bodily chemicals that play roles in fever, inflammation and the sensation of pain
 - a class of compounds used as poisons in the Middle Ages
- Ibuprofen belongs to the class of:
 - carboxylic acids
 - esters
 - p-aminophenols
 - proteins
 - salicylates
- Morphine is isolated from:
 - Asian shrubs
 - cactus plants
 - lichens
 - poppies
 - willow trees
- The acetylation of morphine produces:
 - acetylsalicylic acid
 - cocaine
 - codeine
 - heroin
 - tetrahydrocannabinol
- In addition to carbon and hydrogen, all alkaloids contain the element:
 - bromine
 - nitrogen
 - oxygen
 - phosphorus
 - sulfur

教務處
公佈專用

私立臺北醫學院 89 學年度第 1 學期 ~~期中~~ 考試 (試) 命題紙

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技	生	林	年 月 日 第 節		

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8. A chemical used to counter the effects of narcotics is:
 - a. acetylsalicylic acid
 - b. naloxone
 - c. procaine
 - d. reserpine
 - e. tropane
9. An endorphin acts as a(n):
 - a. analgesic
 - b. antioxidant
 - c. carcinogen
 - d. nutrient
 - e. opiate antagonist
10. Opiate receptors are:
 - a. sites in the nervous system that accept precisely fitting narcotic molecules
 - b. chemicals that react with opiates to produce opiate antagonists
 - c. substances produced by the reaction of narcotics with endorphins
 - d. polypeptides formed by the partial hydrolysis of an endorphin
11. The term LD50 refers to:
 - a. a lethal dose to a 50 kg person
 - b. half a lethal dose to a normal individual
 - c. a lethal dose to a 50 g animal
 - d. the quantity that is lethal to half of a large population of animals
 - e. half of a standard lethal dose
12. The LD50 of a certain chemical is 10g/kg, orally in rats. This means that:
 - a. 10 g of the substance will kill 50 1 kg rats
 - b. 10 g of the substance will kill a 1 kg rat in 50 days
 - c. 10 g of the substance will kill 50% of a large group of 1 kg rats
 - d. 50 g of the substance will kill a 1 kg rat if eaten in 10 g portions
 - e. 50 1 kg rats can eat 10 g of the substance without ill effects
13. The most powerful toxin or poison known is:
 - a. arsenic trioxide
 - b. botulinum toxin
 - c. TCDD
 - d. one of the declassified nerve gases
 - e. sodium cyanide
14. The acceptable daily intake of a food additive is generally taken as:
 - a. the maximum level that shows no effect on laboratory animals
 - b. the minimum level that shows no effect on laboratory animals
 - c. 100 times the minimum level that shows no effect on laboratory animals
 - d. 1/100 the maximum level that shows no effect on laboratory animals
 - e. 1/100 the level that shows no effect on 50% of the laboratory animals

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私立臺北醫學院 89 學年度第 / 學期 期中 考試 (試) 命題紙

系級	科	目	授課教師	考試日期	學號	姓名
技	醫	化	林淑芬	年 月 日 第 節		

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15. The additive among the following that would be prohibited by a strict reading of the Delaney Amendment is:
 - a. BHA
 - b. ethyl acetate
 - c. mono- and diglycerides
 - d. saccharin
 - e. sodium bicarbonate

16. Aspartame is a dipeptide that provides the body with 4.0 Calories/gram. Yet aspartame is useful for sweetening low calorie foods and drinks. This is because aspartame:
 - a. is 160 times as sweet as sucrose
 - b. is not metabolized by the body
 - c. consists of two essential amino acids
 - d. consists of two nonessential amino acids
 - e. produces a specific dynamic action large enough to compensate for the calories it delivers

17. The synthetic sweetener aspartame is a dipeptide containing the two amino acids:
 - a. glycine and alanine
 - b. glutamic acid and leucine
 - c. aspartic acid and phenylalanine
 - d. isoleucine and leucine
 - e. aspartic acid and glutamic acid

18. The organ whose function is the detoxification of poisons is the:
 - a. appendix
 - b. kidney
 - c. liver
 - d. spleen
 - e. stomach

Answers:

1	6	11	16
2	7	12	17
3	8	13	18
4	9	14	19
5	10	15	20

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A. Fill out the blanks with the most proper answer (each 2%, total 34%)

- The main reason(s) for the color change of indicators are
 - _____
 - _____
- The treatment of the results from an acid-base titration is always assisted by mathematical method(s), that is the end point can be obtained by the calculated _____ to be maximum, if such an estimation still shows an obscure end point to be decided, the another parameter _____ to be nil (zero) is always taken for the determination of the end point.
- Eriochrome Black T is a good indicator in _____ (a method) which uses _____ (a compound) to titrate the calcium ion content in water.
- The wave length range of UV is _____ nm, for the visible light is _____ nm, while for the IR is _____ nm.
- The _____ is the unique apparatus that can emit characteristic wave length which is in turn quantitatively absorbed by the characteristic element present in the sample.
- The common polydentate ligands often used in chelatometric titrations are _____ and _____ etc..
- In a GC (Gas Chromatography), there are three kinds of detectors commonly encountered, namely,
 - _____
 - _____
 - _____
- In using IC (Ion Chromatography) to analyze trace amount of ions such as Cl^- and Br^- ions, a _____ column is used along with a _____ (an instrument) to detect their quantity.

B. Mark (O) for the right statements, and (x) for those are wrong (each 4%, total 20%)

- () 1. According to the van Deemter's Equation, the larger the flow rate of the carrier gas, the more favorable for the resolution (separation efficiency).
- () 2. In a GC (Gas Chromatography), the higher the flow rate of the carrier gas is, the larger the longitudinal diffusion term will be.
- () 3. The solution (200 mL) containing an excess of EDTA (e.g. 5.0 mmoles), Ca^{2+} (e.g. 2.5 mmoles), and Eriochrome Black T (e.g. 1.0 mmoles) will exhibit a red color.

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技-善化			____年____月____日第____節		

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- () 4. In a mixture of calcium and the magnesium ions, the differential titration (i.e. to titrate separately the calcium and the magnesium ions) can be conducted by taking the advantage of pH 10.
- () 5. The Craig Equation is used to describe the countercurrent extraction between two immiscible contacting liquids.
- C. Select proper item and mark its symbol in the parenthesis (each 2%, total 16%)**
- () 1. In the functionalities $>C=O$, or $>C=C<$, the energy gaps of $\sigma \rightarrow \sigma^*$ transitions are always a). larger b). smaller c). is the same dimension as (than) those of the $\pi \rightarrow \pi^*$ transitions.
- () 2. In acid-base titrations, the color change of the indicator usually covers a pH range of a). $pK_{in} \pm 10$, b). $pK_{in} \pm 1$ c). $\ln pK_{in} \pm 1$
- () 3. The condition to take advantage of an adsorption indicator such as Ag-fluoresceinate is a). the larger of the K_{sp} b). the smaller the K_{sp} c). any K_{sp} of Ag-fluoresceinate is more favorable.
- () 4. In fluorescence technique, we usually use a). X-ray b). UV (Ultra Violet) c). a high temperature heating furnace to excite the sample.
- () 5. The carrier gas generally used in GC (Gas Chromatography) is a). Cl_2 b). He c). O_2 .
- () 6. A cationic exchanger can be used for the separation of a). Cl^- , CO_3^{2-} , Ca^{2+} , Mg^{2+} , etc. b). Ca^{2+} , Mg^{2+} , Ni^{3+} , Cl^- , etc. c). Cu^{2+} , Ni^{2+} , Fe^{2+} , Ni^{2+} , etc.
- () 7. In the AAS (Atomic Absorption Spectrophotometry), the sample solution is excited in a). the atomizer b). the furnace c). the cathode
- () 8. In the IC (Ion Chromatography), the suppressor column is used to suppress the interference of a). Calcium ion b). Sodium ion c). Magnesium ion d). Potassium ion