



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF PHARMACY

PPC 320: PHARMACEUTICAL CHEMISTRY II

DATE: Friday 30th March, 2012

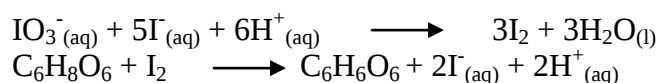
TIME: 8.00 a.m. – 10.00 a.m.

Instructions:

- Answer all questions
- Each section must be answered in a separate answer booklet.

SECTION A

1. Explain why the amount of diphenhydramine, a weakly basic drug ($pK_a = 9.0$), can be determined when it is dissolved in glacial acetic acid but not in water. (5 marks)
2. By use of examples, differentiate between protophilic, protogenic and aprotic solvents. (6 marks)
3. In regard to complexometric titrations, explain why;
 - a. EDTA is the preferred titrant
 - b. it necessary to include a buffer (4 marks)
4. a) Describe the principle behind the use of acid-base indicators in titrimetric analysis. (4 marks)
b) Why is it not possible to use one indicator for all acid-base titrations? (1 mark)
5. In an analytical determination, powder equivalent to one vitamin C tablet was dissolved in 50 mL water, and titrated with 0.0250 M potassium iodate (KIO_3) in the presence of potassium iodide and dilute sulphuric acid. The titre volume was 7.60 mL. Calculate the vitamin C content per tablet. (The molecular weight of vitamin C [$C_6H_8O_6$] is 176 g/mol; the relevant equations are given below) (5 marks)

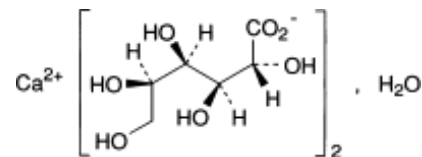
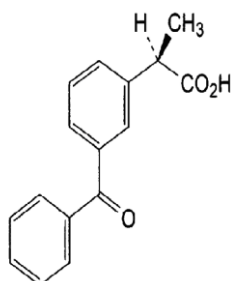


6. For each of the drugs or drug products below, suggest a titrimetric method that may be used for assay (include titrant and relevant equation/s). (15 marks)

a) Normal saline solution

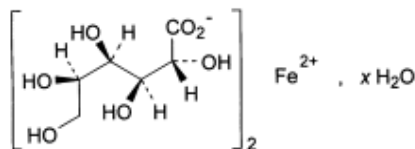
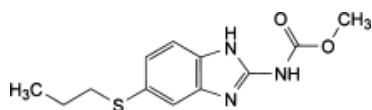
b) Ketoprofen

c) Calcium gluconate



d) Albendazole

e) Ferrous gluconate



SECTION B

Q1. (a) Write the chemical formula for and a pharmaceutical use of: (4 marks)

(ii) Ferrous lactate

(ii) Magnesium trisilicate

Q2. Name **one** inorganic compound used as: (4 marks)

a) Expectorant

b) Diuretic

c) Preservative

d) Laxative

Q3. Using a relevant example, state three physiological roles of essential trace elements

(3 marks)

Q4. Give **one** method of preparation and pharmaceutical use for each of the following compounds. (6 marks)

- a). Stannous Fluoride
- b). Disodium Hydrogen Phosphate

Q5. Briefly describe how you will test for purity of the following. (4 marks)

- a) Sterile water for injection
- b) Sodium Fluoride

Q6. Explain three pharmacological factors considered when selecting a pharmaceutical buffer. (6 marks)

Q7. Using a relevant example in each case, explain **five** roles of acids and bases in pharmacy (10 marks)

Q8. Classify inorganic compounds which are used in dental products. (3 marks)

SECTION C

Q1. Define the following terms as used in pharmacy. (3 marks)

- a) Astringent
- b) Ligand
- c) Chelating agent

Q2. a). What are anti-infective agents? Give four requirements for an ideal anti-infective agent. (5 marks)

b). State four factors that may modify the action of anti-infective agents (4 marks)

Q3. Briefly describe the preparation, properties and any two pharmaceutical uses of each of the following: (18 marks)

- (a) Povidone-Iodine
- (b) Boric acid
- (c) Potassium permanganate

Q4. Briefly discuss the role of metal complexes in therapy. Use appropriate examples. (10 marks)

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