



W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

UNIVERSITY EXAMINATION 2015/2016

BACHELOR OF PHARMACY

THIRD YEAR, THIRD SEMESTER MAIN EXAMINATION

PHA 2305B: PHARMACEUTICAL CHEMISTRY III B

DATE: JULY 2016

TIME: THREE HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A (60 MARKS) AND ANY OTHER TWO QUESTIONS FROM SECTION B (40 MARKS).

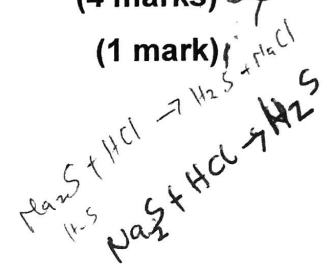
ILLUSTRATE YOUR ANSWERS WITH DIAGRAMS/ STRUCTURES WHERE APPROPRIATE.

SECTION A; 60 MARKS;

- 1) Describe the assay of ferrous sulfate. (5 marks) 2
- 2) a) Describe the synthesis of cisplatin. (2 marks) 2
b) State the medical use of cisplatin and list three other platinum compounds used similarly and their advantages over cisplatin. (3 marks) 3
- 3) a) Describe the assay potassium permanganate. (4 marks) 3
b) State the medical uses of potassium permanganate. (1 mark) 1
- 4) In purified water, heavy metals should have a maximum concentration of 0.1 parts per million (p.p.m) whereas ammonium ions should have 0.2 p.p.m. Describe how these two impurities can be detected. (5 marks) 4
- 5) In halide salts such as potassium iodide, potassium iodate is likely to be present as an impurity and similarly in potassium bromide, potassium bromate might be present as an impurity. Explain how these two impurities can be detected. (5 marks) 4
- 6) Explain how you can differentiate a sodium hydrogen carbonate solution from a sodium carbonate solution. (5marks) 5
- 7) Describe two reactions that can be used in the identification of sodium fluoride. (5 marks) 4

add.

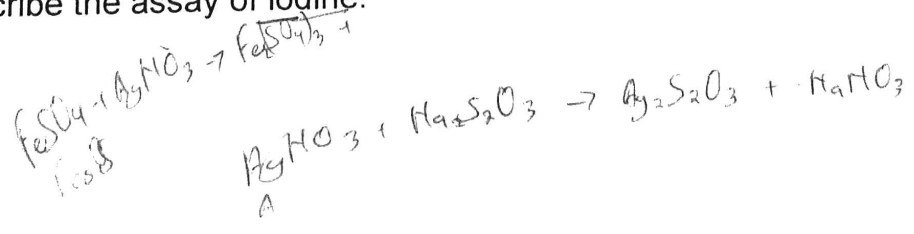
- 8) a) Describe two methods which can be used in the assay calcium chloride. (4marks) 1
- b) State the medical uses of calcium chloride. (1 mark) 1
- 9) a) Describe the assay of dibasic sodium phosphate. (4 marks) 3
- b) Explain the medical uses of dibasic sodium phosphate. (1 mark) 1
- 10) Explain three reactions that can be used in the identification of bismuth subnitrate. (5 marks) 2
- 11) Using chemical equations explain how sulfide, cyanide and carbonate impurities can be identified in activated charcoal. (5 marks) 5
- 12) a) Using chemical equations, explain how hydrogen peroxide is synthesized commercially and under laboratory conditions. (4 marks) 4
- b) State the medical use of hydrogen peroxide. (1 mark) 1



SECTION B: TOTAL MARK: 40 MARKS

- 13) a) Using chemical equations write and explain the synthesis of silver nitrate. (2 marks) 1
- b) Describe four chemical reactions that can be used in the identification of silver nitrate. (8 marks) 6
- c) Explain the assay and uses of silver nitrate. (5 marks) 5
- d) Using chemical equations, explain how sodium aurothiosulfate dehydrate can be synthesized. (4 marks) 2
- e) State the medical uses of gold compounds. (1 marks) 1
- 14) a) Explain the production of iodine. (5 marks) 5
- b) Explain how four impurities which can be present in iodine can be detected citing chemical equations. (8 marks) 8
- c) Describe the assay of iodine. (3 marks) 3

12
17
29



d) Explain two methods which can be used in the assay of hydrochloric acid citing

HCl

chemical equations.

(4 marks)

15) a) Describe the production of boric acid.

(4 marks)

b) Explain two chemical reactions that can be used in the identification of boric acid.

(4 marks)

c) Describe the assay of boric acid.

(4 marks)

d) Explain the assay of sodium tetraborate using chemical equations.

(3 marks)

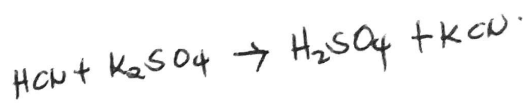
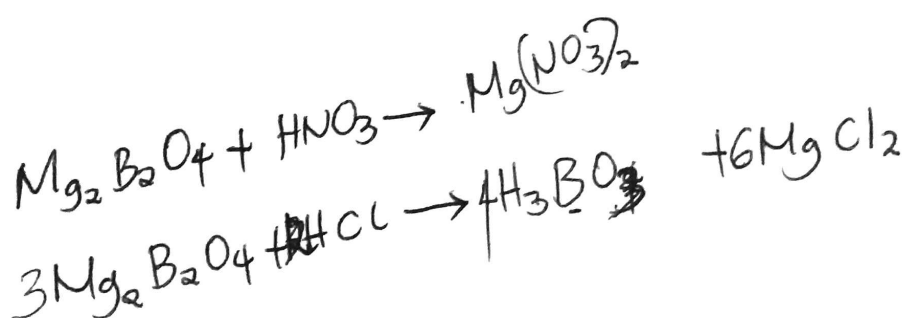
e) Explain the production and identification of aluminium hydroxide citing

chemical equations.

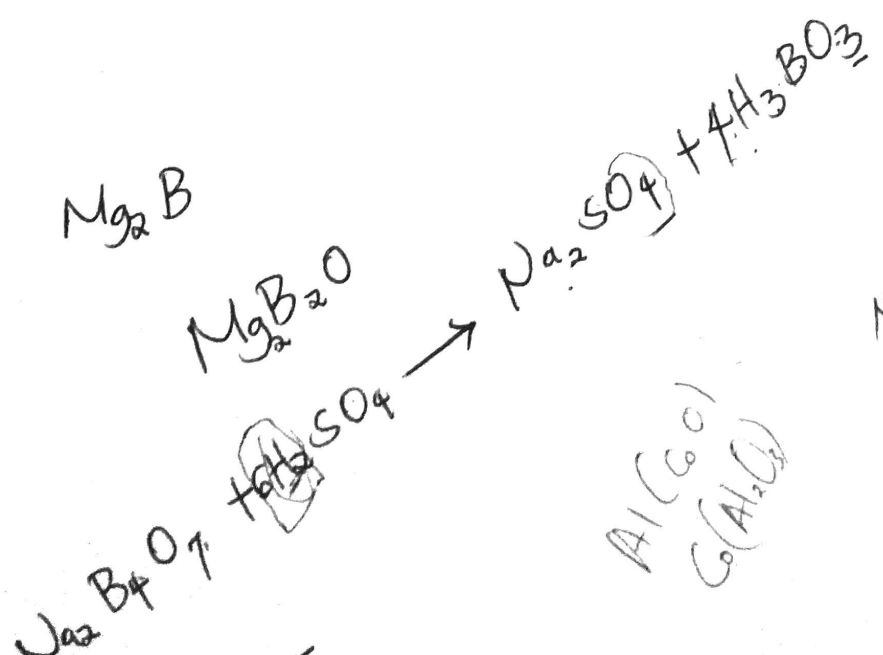
(5 marks)

-END-

$\begin{matrix} H & & H \\ | & & | \\ H-C & - & H \\ | & & | \\ H & & H \end{matrix}$
 $Mg_2B_4O_7$



KCN
 Mg_2B



$Al(OH)_3$
 $Co(Al_2O_3)$

