

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR
OF SCIENCE AND BACHELOR OF EDUCATION

CHEM 212: COMPARATIVE STUDY OF S AND P BLOCK ELEMENT

STREAMS: BSC & BED (SCI)

TIME: 2 HOURS

DAY/DATE: MONDAY 15/4/2019

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- **Do not write anything on the question paper**
- **Answer question ONE and any other TWO questions**

QUESTION ONE (30 MARKS)

- (a) Determine the effective nuclear charge experienced by one of the outermost electron of aluminum, potassium and copper (atomic numbers 13, 19 and 29 respectively) [5 marks]
- (b) Giving an appropriate equation in each case, state two ways that small crystalline amount of boron can be obtained [5 marks]
- (c) Briefly discuss amphoteric properties of silica and give its use [5 marks]
- (d) Complete and balance the following reactions [5 marks]

- (e) Outline five (5) uses of helium [5 marks]

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- (f) Using relevant chemical reactions, briefly discuss two (2) reactions of boranes [5 marks]

QUESTION TWO (20 MARKS)

- (a) Explain the trends in ionization energies of the elements in the period Table [10 marks]
(b) Discuss interstitial hydrides preparation and properties [10 marks]

QUESTION THREE (20 MARKS)

- (a) Briefly discuss five (5) chemical properties of group IA elements [10 marks]
(b) Outline the differences between beryllium and other group IIA elements [10 marks]

QUESTION FOUR (20 MARKS)

- (a) Briefly describe how each of group VA element is extracted and give two uses of each of them [10 marks]
(b) Discuss chemical properties of group VI A element [10marks]
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