



NATIONAL OPEN UNIVERSITY OF NIGERIA
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ABUJA.

FACULTY OF SCIENCES
DEPARTMENT OF PURE AND APPLIED SCIENCE
SEPTEMBER 2020_1 EXAMINATION

COURSE CODE: CHM 391
COURSE TITLE: PRACTICAL CHEMISTRY V – INORGANIC AND ANALYTICAL
CREDIT UNIT: TWO (2)
TIME: 2 HOURS
INSTRUCTION: Answer question one and any other three.

QUESTION ONE

1a. What are the two major types of fundamental vibrations in an organic molecule? 2 marks

1b. State the important use of Atomic Absorption Spectroscopy. 2 marks

1ci The UV-Visible absorbance recorded for a solution using a cell of length 1 cm was 1.85.

Calculate the concentration of the solution if molar absorptivity is 18000 at this wavelength.

4 marks

1cii. Draw a schematic representation of a spectrophotometer. 5 marks

1ciii. What is a;

i. Monochromator 2 marks

ii. Light source 2 marks

1di. What are the two main steps involved in qualitative chemical analysis? 2 marks

1dii. State two applications of Potentiometric Titration. 2 marks

1e. Why is it necessary to ignite a filtrate/supernatant retained on a filter paper during gravimetric analysis. 4 marks

QUESTION TWO

- 2a. Using the principle of UV-Visible spectroscopy, explain formation of absorption peak at a given wavelength. 8marks
- 2b. How does UV-Visible absorption occur in inorganic complexes? 7marks

QUESTION THREE

- 3a. What are the causative agents of water hardness? 4marks
- 3b. Explain the implications of hard water. 6marks
- 3c. How is hardness of water determined? 5marks

QUESTION FOUR

- 4a. Describe briefly the term Gravimetric Analysis. 5marks
- 4b. Explain briefly the principles of Precipitation Gravimetry. 6marks
- 4c. Explain the following terms as relates to Precipitation Gravimetry:
- (i) Inclusion 2marks
 - (ii) Occlusion 2marks

QUESTION FIVE

- 5a. list and explain briefly three (3) methods of preparing solid samples for metal analysis using AAS? 7marks
- 5b. Explain the Baseline Method in IR measurement. 8marks