

COURSE CODE: CHM306
COURSE TITLE: INSTRUMENTAL METHODS OF ANALYSIS
TIME: 2 HOURS
INSTRUCTION: Answer question one and any other three questions.

QUESTION ONE

1a. What is electromagnetic radiation? Hence define the two parameters that can be used to characterize electromagnetic radiation

(5 marks)

1aii. State five types or components of electromagnetic radiation.

(5 marks)

1aiii. Give an equation that relates wavelength, frequency and energy of electromagnetic radiation

(4 marks)

1b. Differentiate between atomic and molecular absorption spectroscopy

(2 marks)

1ci. In Nuclear Magnetic Resonance (NMR) common standard is used in calibration, what is this?

(1.5 marks)

1cii. State the effect of external magnetic field on proton orientation of a given sample.

(3 marks)

1d. Describe fourier transform spectroscopy

(4.5marks)

QUESTION TWO

2ai. What is a detector in spectroscopy and How do they operate? Give example of a detector

(3 marks)

2aii. Name the two classes of photoelectric detector