CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN MINING PHYSICS (GEOPHYSICS)

GPHY 334: MINERAL PROCESSING

STREAMS: BSC **TIME: 2 HOURS**

DAY/DATE: MONDAY 16/12/2024 **11.30 A.M – 1.30 P.M.**

INSTRUCTIONS:

- Answer all Questions in Section A and any Two questions in Section B.
- Do not write anything on the question paper

SECTION A (30 MARKS)

Q.1. a. Define the following terms as used in mineralogy.

(i)Mineral [1 Mark]

(ii) Luster [1 Mark]

(iii) Mineralogical assessment [1 Mark]

(iv) Mineral sampling theory [1 Mark]

b. state two factors that affect the choice of method of separation used in mineral processing

[2 Marks]

c. Differentiate between cleavage and fracture as used in mineralogical assessment [1 Mark]

d. Explain the Purpose of Screening in mineral processing [4Marks]

e. i) define Mineral liberation [1 Mark]

ii) State three reasons as to why Mineral liberation is important [3 Marks]

f. state four primary goals of mineralogical assessment [4 Marks]

g. Outline the working principle of an X-ray diffractometer. [3 Marks]

h. Explain 4 methods used in mineral identification [8 Marks]

SECTION B 40 MARKS

Q.2. (a) Define the term Mineral processing [1 Mark]

(b)discus four key steps and processes involved in mineral processing.

[8 Marks]

(c)Discus the various types of screening equipment are used in mineral processing

[10 Marks]

Q.3. (a) Basic mineral identification can be done using optical microscopy. Discus optical microscopy in this context [10 Marks]

(b) State four differences between X ray fluorescence (XRF)and X-ray diffractometer (XRD) in mineralogy [4 Marks]

(c) Explain the Challenges involved in Mineral Sampling [6 Marks]

Q.4. (a) State two applications of Metallurgical Balances [2 Marks]

(b) Discus Importance of Particle Size Analysis [8Marks]

(c)Discus Methods used in Particle Size Analysis [10 Marks]