UNAM

FACULTY	Agriculture, Engineering & Natural Sciences		
DEPARTMENT	Geosciences		
SUBJECT	Ore Deposit Geology		
SUBJECT CODE	S4811GO		
PAPER	Paper 1		
DATE	June 2026		
DURATION	180 min (3 Hours)	**Marks**	100

1st Opportunity examination

Examiner(s): Dr E Shalimba .....

Internal Moderators: Dr A Vatuva.....

External moderators: Prof D Zhang .....

This question paper consists of 2 pages (including this one).

Instructions
1. Closed book examination
2. Read each question carefully
3. Answer all questions
4. Use diagrams appropriate to illustrate your answers

UNIVERSITY OF NAMIBIA EXAMINATIONS

Question 1

a) Explain why chalcophile elements are commonly associated with sulfide ore deposits. **(5 Marks)**

b) Explain the Goldschmidt rules of ionic substitution and their role in ore mineral formation. **(15 Marks)**

c) Define compatible and incompatible elements and explain how their behavior during partial melting and fractional crystallization contributes to the formation of ore deposits. **(5 Marks)**

Question 2

a) Explain the concept of isotope fractionation in ore deposits. **(5 Marks)**

b) Discuss ways in which isotopes are used in the study of ore deposit formation. **(20 Marks)**

Question 3

With the aid of a well labeled sketch, define the concept of an ore system and explain how each component contributes to the formation of porphyry deposits. **(25 Marks)**

Question 4

Describe the principal ore-forming processes in magmatic ore systems and evaluate their roles in the formation of major magmatic ore deposits with relevant examples. **(25 Marks)**

END OF EXAMINATION