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#### MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

FACULTY OF ENGINEERING, APPLIED SCIENCES AND TECHNOLOGY

**DEPARTMENT: MINING AND MINERAL PROCESSING ENGINEERING**

**MODULE: FUNDAMENTALS OF GEOLOGY**

**CODE: ENGP215**

### SESSIONAL EXAMINATIONS

**JUNE 2023**

**DURATION: 3 HOURS**

**EXAMINER: MS NCUBE**

## INSTRUCTIONS

1. *Answer* ***All*** *in Section A*
2. *Answer* ***three*** *question in Section B.*
3. *Start a new question on a fresh page*
4. *Total marks 100*

***Additional material(s):*** *pen, pencil*

**SECTION A**

**Question 1**

1. What is the difference between a breccia and a conglomerate? [1]
2. Name three agents of erosion. [3]
3. Briefly describe any two sedimentary depositional environments [6]
4. During the formation of sedimentary rocks, diagenesis is one of the key process. What are the principal activities taking place during this stage? Discuss a few examples of these for diagenesis of sandstone. [10]

**Question 2**

1. Briefly explain the features of a continent – continent collision orogeny. [5]
2. From your own understanding discuss the evidence for continental drift. [5]
3. Explain plate tectonics as a cause of natural disasters. [10]

**SECTION B**

**Question 3**

1. What is a mineral? [2]
2. Describe the following mineral physical properties:
   1. i) Cleavage ii) streak iii) luster iv) tenacity v) hardness [5]
3. Distinguish between the terms slip and separation as applied to faults. [4]
4. Define elements of a fold. Give the classification of a fold. [4]
5. With the aid of diagrams, describe dip-slip and strike-slip faults. [5]

**Question 4**

1. What are migmatites and how are they formed? [3]
2. Explain the concept of metamorphic facies and with the help of a diagram, explain the characteristic of various metamorphic facies. [7]
3. Describe five different types of metamorphism giving examples in each

case. [10]

**Question 5**

1. Describe any one general process that can produce granitic magma. [3]
2. Describe how the mineral textures of an igneous rock can be used to infer its origin. [5]
3. Give an account on the physico-chemical conditions of formation, differentiation, variability and compositional classification of magmas. [12]

**Question 6**

1. Define Geomorphology and its development concept. [3]
2. What is weathering? Describe briefly the physical and chemical weathering [5]
3. Describe karst geomorphology? [5]
4. Describe the major geomorphic features of the fluvial, glacial and coastal landforms. [7]

**END OF EXAM QUESTION PAPER**