

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2082 Chaitra

Exam.	Regular (New Course)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1½ hrs.

Subject: - Engineering Geology I (ENCE 102)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.



1. How geology differs from engineering geology? Describe relationship between civil engineering and geology. [1+1]
2. Define geological time scale. How is internal structures of the earth studied? Describe plate boundary with reference to formation of mountain. [0.5+1.5+2]
3. a) How to identify igneous rocks in the field? Describe texture of sedimentary rock. Mention structures of metamorphic rock. [0.5+1.5+0.5]
- b) Describe texture, structure and uses of quartzite, granite and limestone rock. [1.5]
- c) Define rock forming mineral and elements of crystals with diagram. Describe Moh's scale of hardness. [0.5+0.5+1]
4. a) Describe stages of deformation in rock. Define geological structures. Differentiate between primary and secondary geological structures with examples [1.5+0.5+1]
- b) How is joint formed? Describe field identification criteria of fault. What are the importances of folds in civil engineering? [0.5+1.5+1]
- c) Define geological planes. Describe attitude of bedrock. How do you calculate apparent dip amount? [0.5+1+0.5]
5. a) Describe geomorphological features developed by erosion of wind and deposition of river. [1.5+1.5]
- b) Define erosion. What are the factors for weathering of rock? Describe types of weathering. [0.5+1+1.5]
6. Define thrust. What are the tectonic boundaries between Siwalik zone, Lesser himalayan zone and higher himalayan zone? Describe rock types of the Siwalik zone and the Lesser himalaya zone. [0.5+1.5+2]

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1. Define engineering geology. Explain briefly the function of geology in the planning, design, and construction in civil engineering projects. [1+2]
2. Discuss the different types of plate boundaries. [2]
3. a) Distinguish between concordant and discordant igneous bodies. [2]
 b) Describe the physical properties, engineering properties and engineering uses of following rocks. [3×2]
 i) Marble (ii) Conglomerate (iii) Slate
4. a) Differentiate between dip amount and dip direction of any strata. Plot the orientation of a bedrock having an attitude 290°/45°/200°. [1+2]
 b) Define joint. How can we identify fold in the field? Sketch the neat diagram of a fold with its parts. [1+2+2]
5. Define geological agents. Describe the different geomorphological features produced by glaciers. [1+4]
6. What are the major discontinuities system of the Nepal Himalaya? Discuss the geology of the Lesser Himalaya. [2+2]

TRIBHUVAN UNIVERSITY
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Examination Control Division
2081 Baishakh

Exam.	Regular(New Course -2080 Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1½hrs.

Subject: - Engineering Geology I (CE 102)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt **All** questions.
- ✓ The figures in the margin indicate **Full Marks**.
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1. Define engineering geology. Briefly describe the importance of engineering geology in the context of Nepal with suitable examples. [0.5+1.5]
2. Discuss the nebular hypothesis. Differentiate between convergent and divergent plate boundary. [2+2]
3. a) Write down the physical properties of minerals. [2]
- b) How can you identify the metamorphic rock in the field? [2]
- c) Write down the classification of sedimentary rocks. [2]
4. a) Quartzite rock bed dipping towards S25°E. Find its strike direction with figure. [2]
- b) Differentiate primary sedimentary structures and secondary structures. [2]
- c) What are the field identification criteria of fault? [2]
- d) Define thrust. What is the importance of fold in civil engineering? [2]
5. a) Describe geological work of wind with landform developed in brief. [3]
- b) Define volcanism. Differentiate between straight and meandering river channel system. [1+2]
6. Provide an overview of the tectonic divisions of the Himalayas and discuss the significant engineering geological challenges present in each subdivision. [3+1]

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2081 Kartik

Exam.	Back (New Course -2080 Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1 1/2 hrs.

Subject: - Engineering Geology I (CE 102)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
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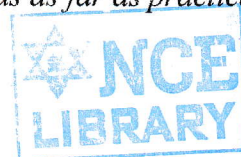
1. Differentiate between engineering geology and geology. List various disciplines within the field of geology. [3]
2. What is plate tectonics? Describe different types of plate boundaries. [0.5+1.5]
3. a) How do you identify silicate minerals and carbonate minerals in the field? [2]
b) Discuss the engineering significance of three rock types. [3]
c) Define rock texture and describe the texture of igneous rocks. [3]
4. a) Define various geological plane with suitable figures. [2]
b) Differentiate between fault and joint [2]
c) Define dip amount and strike of a geological plane. Write down the field identification criteria of fold in the field. [3]
5. a) Define geological agent and discuss the geomorphic features produced by running water. [3]
b) Discuss in brief the physical and chemical weathering process. [3]
6. Describe the major discontinuities systems and their engineering significance along with different engineering geological problems in the different tectonic sub-division of the Nepal Himalaya. [2+2]

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1. Discuss the branches of geology with their interrelationships. [2]
2. Define tidal hypothesis. Explain the mountain building process focussing on the evolution of the Himalaya. [1+2]
3. a) How do you identify three rock types in the field? [2]
b) Describe the physical properties, engineering properties and engineering uses of following rocks. [3×2]
(i) Granite (ii) Phyllite (iii) Limestone
4. a) A limestone rock bed dips towards S 55°E. Find its strike direction with figure. [2]
b) Define fold with neat sketch. What are the field identification criteria of fault? Discuss the importance of fault in civil engineering. [2+2+2]
5. a) What are various erosional and depositional features formed by a river? [3]
b) Write short notes on Karst topography and Cirque. [2]
6. Discuss engineering geological problems in different tectonic subdivision of the Nepal Himalaya. [4]
