



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC 2106: ENGINEERING GEOLOGY

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 22 Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

-Drawing instruments.

-Scientific calculator

This paper consists of five questions.

Attempt any THREE questions.

Do not write on the question paper.

QUESTION ONE

- (a) Briefly explain the following:
- (i) Causes of colour variation in rock forming minerals.
 - (ii) 'Streak' as applied to mineralogy and its significance. (8 Marks)
- (b) Distinguish the following:
- (i) Quartz from Gypsum based on colour
 - (ii) Quartz from Mica based on cleavage
 - (iii) Quartz from Galena based on magnetism (6Marks)
- (c) Distinguish a volcanic formation from an intrusive body if they occur on a building site. (6 Marks)

QUESTION TWO

- (a) Compare properties of quartz to properties of calcite. (4 marks)
- (b) Outline **FOUR** characteristics that make a basaltic rock suitable for road surfacing. (8 marks)
- (c) Distinguish a dyke from a sill. (8 marks)

QUESTION THREE

- (a) Briefly explain suitability of granite for finishing work on a high rise building. (8 marks)
- (b) Outline main diagenetic changes that transform loose material into a bedrock stating while considering one example. (12 marks)

QUESTION FOUR

- (a) Outline **FOUR** considerations necessary for selection of a site for dam construction. (8 marks)
- (b) Outline **FOUR** geological difficulties to be encountered when tunneling (12 marks)

QUESTION FIVE

- (a) Briefly explain the term 'unconformity' as applied to geological maps. (6 marks)
- (b) Distinguish outlier from inlier (4 marks)

(c) Use the map shown in figure 1 to answer the following:

- (i) Complete the explanation column
- (ii) Draw strike lines on the map
- (iii) Determine the direction of dip for the beds
- (iv) Find the amount of dip for the beds
- (v) If a bore hole is sited at point H will the bed S be encountered? Give reasons.

(10 marks)

To be handed in together with the answer booklet if answered

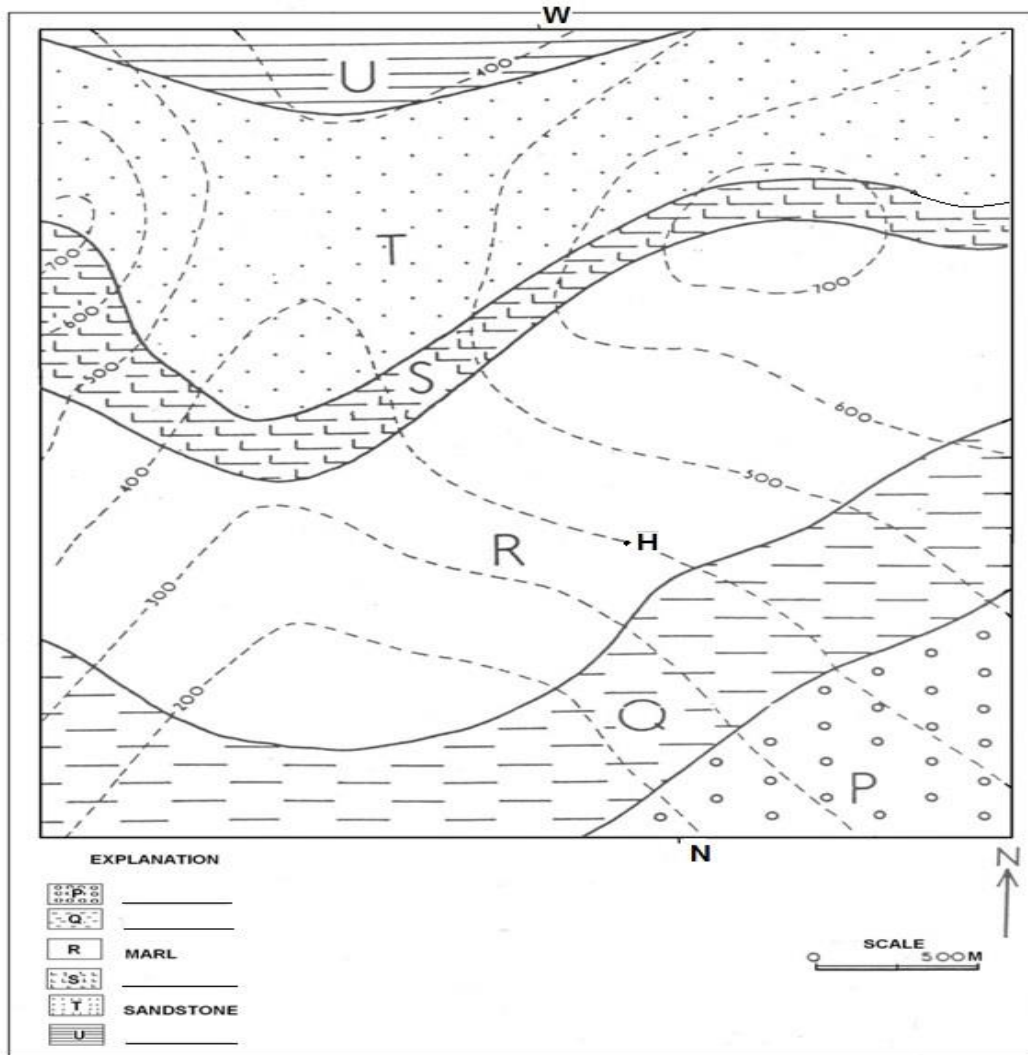


Fig.1