THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

University Examination 2010

THIRD YEAR/FIRST SEMESTER EXAMINATION
FOR THE DEGREE IN BACHELOR OF SCIENCE IN CIVIL ENGINEERING
SUPPLEMENTARY PAPER

ECE 2302: ENGINEERING GEOLOGY

SERIES: APRIL/MAY 2010 **TIME:** 2 HOURS

Instructions:

Answer Question **ONE** and any other **TWO** questions.

QUESTION ONE (Compulsory)

(a) (i) Outline the objectives of site investigations.

(ii) Describe **TWO** stages of site investigations. (12 marks)

(b) Differentiate between the following terms:-

(i) Fault and Fold

(ii) Schist and Gneiss

(iii) Streak and Lustre

(iv) Cleavage and Parting (8 marks)

(c) (i) Describe an Earthquakes

(ii) Explain the elastic rebound theory

(iii) How are earthquakes measured and located

(iv) Explain **TWO** types of Seismic earthquake body waves and illustrate the relation between particle motion and propagation direction. (10 marks)

QUESTION TWO

(a) Describe **SIX** types of faults. (12 marks)

(b) Outline the **FOUR** types of metamorphism. (6 marks)

(c) State **FOUR** geological considerations made in Dam Constructions. (2 marks)

QUESTION THREE

(a) Explain **FOUR** prospecting methods used in identification of quarries. (8 marks)

(b) State **FOUR** observable features that may be used in making inferences on the existence of faults. (4 marks)

(c) Briefly outline seismic refraction method of ground investigations. (8 marks)

QUESTION FOUR

(a) Briefly explain **SIX** terms used to describe Tenacity. (6 marks)

(b) (i) Describe **FOUR** criteria used in selection of Building Stone. (4 marks)

(ii) Explain **FOUR** deleterious constituents that affect the strength of bonding in Natural construction materials. (6 marks)

(c) (i) Describe the term lithification (2 marks)

(ii) Differentiate an Arkose from a Greywacke. (2 marks)

QUESTION FIVE

(a) Match the following:

(p)	Prophyritic	(1)	Foliated structure	
(q)	Ripple marks	(2)	Texture of Igneous rock	
(r)	Schist	(3)	Monomineralic rock	
(s)	Pyroxenite	(4)	Sedimentary structure	(2 marks)

(b) Explain **FIVE** geological problems that may be encountered during tunneling. (10 marks)

(c) Briefly outline the Ground penetrating radar geophysical site investigation method. (8 marks)