



UNIVERSITY EXAMINATIONS
FOURTH YEAR EXAMINATION FOR THE AWARD OF
THE DEGREE OF BACHELOR OF SCIENCE IN GEOPHYSICS AND
MINERALOGY

SECOND SEMESTER 2021/2022
(FEBRUARY – JUNE, 2022)

BSMN 424: ENVIRONMENTAL GEOPHYSICS

STREAM: Y4 S2

TIME: 2 HOURS

DAY: THURSDAY, 12:00 PM – 2:00 PM

DATE: 12/05/2022

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer Question ONE (Compulsory) and any other TWO Questions.***

QUESTION ONE

- Discuss the role of environmental geophysicists (4 marks)
- Discuss any recent techniques for exploration and drilling oil wells that are likely to cause less adverse environmental damage than previous development (8 marks)
- What is Environmental Impact Assessment (EIA)? Discuss its origin, objectives, and principles. (10 marks)
- Describe two examples of magmatic ore deposits and their occurrence. (8 marks)

QUESTION TWO

- a) Describe the possible hazards associated with underground mining with specific examples with regard to their occurrence. (8 marks)
- b) i) What are hydrothermal ore deposits? (2 marks)
ii) Explain briefly why hydrothermal ore deposits tend to be associated with plate boundaries. (4 marks)
- c) Explain the possible contribution of the plate-tectonic theory in searching for new ore deposits. (6 marks)

QUESTION THREE

- a) Fossils fuels are mainly energy resources harvested form the earth's geosphere. Briefly describe how oil and gas deposits form and mature. (10 marks)
- b) Fossils fuels are both environment pollutants and non-renewable. Discuss any three potential alternative energy sources in Kenya especially as espoused in the vison 2030 and in the various government sessional papers and policies (10 marks)

QUESTION FOUR

- a) Discuss any two International Convention and Protocols for Environmental Protection especially relating to geological subjects such as resources, pollution, and geologic hazards (10 marks)
- b) Discuss the mining law in Kenya under the following;
▪ Resource rights
▪ Pollution control (10 marks)

QUESTION FIVE

- a) Describe the formation of acidic rain (8 marks)
- b) i)What is EIS? (2 marks)
ii)Discus the monitoring and mitigation aspects that may have to be included in EIS on the construction of a dam in Kenya (10 marks)