



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF SPATIAL PLANNING
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF ARTS IN
SPATIAL PLANNING AND BACHELOR OF SCIENCE IN WATER RESOURCES
AND ENVIRONMENTAL MANAGEMENT
SEMESTER 2022/2023 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: PNB 1405

COURSE TITLE: DISASTER PREPAREDNESS AND RESPONSE

EXAM VENUE:

STREAM: SPATIAL PLANNING

DATE:

EXAM SESSION:

TIME: 2 HOURS

Instructions:

- 1. Answer question 1 (compulsory) and ANY other 2 questions.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

Question one

Heat waves and wildfires have been common in Europe in the recent past. These damaged properties and took several lives. The heatwaves proved fatal for those with chronic conditions such as high blood pressure, diabetes and cardiac conditions. Use this information to answer the following questions

- a) Which types of disasters were the two in terms speed of onset? (4 marks)
- b) Name any **two** vulnerabilities that made people susceptible to heatwaves. (2 marks)
- c) Write and explain the formula for disaster risk. (6 marks)
- d) Explain any **four** objectives of triage. (8 marks)
- e) Discuss with examples any **two** types of vulnerability. (10 marks)

Question two

The eruption of the Hunga-Tonga-Hunga-Ha'apai volcano on 15 January 2022 was the largest recorded since the eruption of Krakatoa in 1883. The eruption triggered tsunami waves of up to 15m which struck the west coast of Tongatapu, 'Eua and Ha'apai. Ashfall covered an area of at least five square kilometres.

Damage to the international and domestic undersea telecommunications meant little information was available from Tonga following the eruption. However, New Zealand Defence Force and Australian Defence Forces surveillance flights on 17 January showed significant damage to houses, roads, water tanks and other infrastructure on the west coast of Tongatapu, the Ha'apai island group and the west coast of 'Eua. On 18 January, the Prime Minister of Tonga declared a state of emergency effective from 16 January. The Tongan Government and TRCS requested international assistance.

Only three direct and one indirect fatality have been officially attributed to the volcano and tsunami. Early government estimates were that 84,176 people (84 per cent of the population) on Tongatapu, Ha'apai and 'Eua) were affected, particularly by ashfall. Around 3,000 people were displaced in the immediate aftermath, including some evacuated from seriously affected islands off the coast of Tongatapu and in the Ha'apai island group. Most subsequently returned to their communities, although some families evacuated from badly affected islands remain on Tongatapu. (IFRC, 2 Aug 2022) Available at: <https://reliefweb.int/disaster/vol-2022-000005>

ton#:~:text=The%20eruption%20of%20the%20Hunga,at%20least%20five%20square%20kilometres.

Use the above information to answer the following questions:

- a) Classify the disaster according to Centre for Research on the Epidemiology of Disasters (CRED) under the following subheadings:
 - i. Disaster group. (2 marks)
 - ii. Disaster subgroup. (2 marks)
- b) Identify the hazards in the case presented. (8 marks)
- c) Identify **one** response activity after the earthquake and explain how it could have helped reduce loss from the disaster. (4 marks)

- d) The Tongan Government and TRCS requested for international assistance. If you were in charge of infrastructural, which **two** key infrastructures in the case would you give priority and why? (4 marks)

Question three

Discuss with examples the **four** theories of disaster. (20 marks)

Question four

- a) Discuss **two** major differences between disaster relief logistics and commercial logistics. (5 marks)
- b) Discuss any five challenges with disaster relief logistics. (15 marks)

Question five

In 2007/8, Kenya experienced violence following the disputed presidential elections. The ensuing violence led to the loss of many lives, destruction of property and transport infrastructure. It took the mediation of the late United Nations Secretary General Kofi Annan to broker a peace deal between the two leading presidential contestants.

Use this information to answer the following questions.

- a) Explain **two** early warning signs for a potential civil unrest/conflict in a nation? (4 marks)
- b) Discuss **two** advantages and disadvantages of the strategy the late Kofi Annan used to quench the post-election violence in Kenya. (12 marks)
- c) In the presented case, which disaster relief services had the most work and why? (4 marks)