



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2022/2023 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
PHD IN DISASTER PREPAREDNESS & ENGINEERING MANAGEMENT**

**COURSE CODE: DPE 905**

**COURSE TITLE: COMPUTER APPLICATIONS AND MODELING IN  
DISASTER MANAGEMENT**

**DATE: 19/4/2023                      TIME: 2-5 PM**

---

**INSTRUCTIONS TO CANDIDATES**

This paper contains **five (5)** questions

Question **one (1)** is compulsory {total = 30 Marks}

Attempt **any other three (3)** {total = 60 Marks} from the remaining questions

Be brief and to the point

TIME: 3 Hours

**MMUST observes ZERO tolerance to examination cheating**

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

## **SECTION 1: COMPULSORY {30 MARKS}**

### **Question ONE**

The earthquake that happened in Syria and Turkey took just 45 seconds. So far, over 41,000 people had died, and the search continued. Discuss how modelling of disasters can reduce the impact of such occurrence [10 Marks]

Discuss the role of information technology in disaster preparedness [10 Marks]

## **SECTION II: ATTEMPT ANY OTHER THREE (3) QUESTIONS {60 MARKS}**

### **Question TWO**

Discuss the importance of programming in relation to disaster management [20 Marks]

### **Question THREE**

Satellite resolution is important in the analysis of impact of disasters. Discuss the types of satellite imagery resolutions [20 Marks]

### **Question FOUR**

GIS and Remote Sensing are computer-based technologies applied in various disasters. Discuss these applications [20 Marks]

### **Question FIVE**

Describe the importance of the hydrological cycle in modelling of rainfall-runoff processes [20 Marks]