Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: Natural Hazards & Disaster Management **Semester: III**
Program: B.Sc. H (Chem/Maths/Physics) and Int-B.Sc.-M.Sc. **Time : 03 hrs**
Course Code: HSFS 2114G **Max. Marks: 100**

Instructions:
1) Mention Roll No. at the top of the question paper.
2) Attempt all the parts of a question at one place only

SECTION A
(5Qx4M=20Marks)

S. No.	Question	Marks	CO
Q 1	Discuss the different seismic wave generated during earthquake with help of suitable diagram.	**4**	**CO1**
Q 2	How the interaction between the different natural hazard takes place.	**4**	**CO2**
Q 3	Classify the different faults with help of line diagram.	**4**	**CO1**
Q 4	Enlist type of draught and explain each in brief.	**4**	**CO2**
Q 5	Explain the various indicators of landslides phenomenon.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Discuss the following in brief: a. GIS application in hazard mapping. b. Integrated disaster management	**10**	**CO3**
Q 7	Define landslide and illustrate the different Earth movement and each in brief with help of examples.	**10**	**CO1**
Q 8	What is draught and discuss the various drought indices with help their formulas.	**10**	**CO2**
Q 9	List out the different strategies involved in the disaster management and discuss in brief.	**10**	**CO3**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Discuss the hazard mapping techniques in detailed and its framework with help of line diagram with help of case study for flood hazard. **OR** Discuss the step by step procedure to carryout the hazard mapping using ArcGIS for any disaster with suitable case study.	**20**	**CO4**

Q 11	Apply your knowledge and prepare a disaster management plan for the any one disaster which happening in Kedarnath (Holly place in Uttarakhand). **OR** Based on the given data, answer the following questions.	**20**	**CO4**

Year of flood	Area affected by flood (sq km.)	No.of villages affected by flood	No.of people affected by flood	Crop area affected by flood (sq. km.)	Area affected by erosion (sq km)	No. of villag affected b erosion
1995	311	256	1,81,000	231	NA	NA
1996	285	198	2,13,214	187	8.09	17
1997	345	176	2,11,198	324	NA	NA
1998	467	134	2,41,000	432	NA	NA
1999	237	234	1,89,000	176	NA	NA
2000	327	198	1,71,012	276	NA	NA
2001	457	176	1,90,567	378	NA	NA
2002	345	154	2,16,345	278	17.02	7
2003	456	123	2,78,916	321	NA	NA
2004	590	264	2,81,987	416	22.01	9
2005	455	243	2,32,456	378	15.01	5

a. Plot the graph between years and area affected by floods and answer the following
   i. Which year has the highest area affected?
   ii. According to data, in which year did wet draught occur?
   iii. Calculate the average area affected by a flood.
   iv. How many a number of years exceeded the average area affected?
   v. As an expert of disaster management, how can you plan to minimize the influence of floods on crop area?

b. Plot the graph between years and number of people affected by floods and answer the following.
   i. Average population affected by flood during 10 years.
   ii. Which are the two consecutive years in which the high population has been affected.
   iii. In which year minimum and the maximum population was influenced by a flood?
   iv. Identify the year in which high crop area was affected but less area affected by erosion.
   v. There were some data that show the highest area affected by a flood, but no erosion was observed. What is your take on this?