



**Subject Name: DISASTER MANAGEMENT**

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**Year and Sem, Department: III/I MECH**

**Unit-I: (understanding disasters- hazards and vulnerable)**

**Important points / Definitions:**

- **Risk:** Risk is the possibility or chance of loss, danger or injury.
- **Disaster:** A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's.
- **disaster risk** is defined as “the potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, and capacity”.
- **Hazard** is any substance, phenomenon or situation, which has the potential to cause disruption or damage to people, their property, their services and their environment.
- **Vulnerability** is a concept which describes factors or constraints of an economic, social, physical or geographic nature, which reduce the ability to prepare for and cope with the impact of hazards.
- **Frequency:** This investigation aims at finding the seasonality of the occurrence of hazards like how frequent and in which seasons which kinds of hazards are expected. For instance Monsoon Rainfall.
- **A vulnerability assessment** is the process of defining, identifying, classifying and prioritizing **vulnerabilities** in computer systems, applications and network infrastructures and providing the organization doing the **assessment** with the necessary knowledge, awareness and risk background to understand the threats to its.
- **Natural disasters:** When disasters occur due to natural forces they are called natural disasters, over which man has hardly any control.
- **Man-made disasters:** When the disasters are due to carelessness of human or mishandling of dangerous equipment's they are called man-made disasters.
- **Local disasters:** These are small-scale disasters such as train accidents, plane crashes and shipwrecks



**I.SHORT ANSWER QUESTIONS[2M]**

1. list different types of environmental disasters? [OCT/NOV 2016]
2. list planetary disaster? [OCT/NOV 2016]
3. what cause of earthquake? [OCT/NOV 2016]
4. Define hazard? [MAY 2016]
5. What is a disaster?
6. Define physical hazards with an example? [MAY 2016]
7. Write a note on environmental hazards?
8. What is risk transfer? [OCT/NOV 2016]

**II.LONG ANSWER QUESTIONS [5M]**

1. What is earthquake? Explain how earthquake is measured and also the basic terminology involved behind the earthquake and neat sketch? [OCT/NOV 2016]
2. Define vulnerability and discuss the process of vulnerability analysis? [OCT/NOV 2016]
3. Write about levels of disaster and give factors affecting disaster? [OCT/NOV 2016]
4. Define environmental stress. Write a note on the stressors of environment? [MAY 2016]
5. Explain natural and manmade disaster? [MAY 2016]
6. Explain the various types of environmental hazards? [MAY 2016]
7. Explain the different types of man induced disasters effecting the environment?
8. Explain the forewarning levels of different hazards?
9. Write about assessment of Dimensions of vulnerability factor?
10. Explain about Characteristics and damage potential of natural hazard?
11. Describe manmade (anthropogenic disaster) disaster and list out the natural disaster?
12. Explain about frequency and forewarning levels of different hazards?



13. How is environmental hazard linked to ecology? Explain with respect to Drought?
14. What are the environmental impacts of volcanic eruptions? Explain?
15. Write a detailed note on Natural hazard briefly

**CHOOSE THE CORRECT ANSWER**

**1. Which of the following is not part of geological disaster? [sea surge]**

- A. Volcanoes
- B. Earthquakes
- C. Tsunami
- D. Sea Surge

**2. What is the rank of India in the world for natural disasters after China as per UNISDR?**

- A. Third
- B. Second
- C. Seventh
- D. Eighth

**Ans: B**

**3. Which of the following types of volcanic eruptions associated with Lacroix?**

- A. Hawaii Eruption
- B. Strombolian Eruption
- C. Vulcanian
- D. All of the above

**Ans: D**

**4. The volcanic eruption in Iceland falls under which volcanic belt in the World?**

- A. Belts of Convergent boundaries
- B. Divergent Plate Boundaries
- C. Hot Spot
- D. None of the above

**Ans: B**

**5. A geophysicist who studies earthquakes and the mechanical characteristics of the Earth is called \_\_\_\_\_.**



- A. Seismologist
- B. Geologist
- C. Geographer
- D. Archaeologist

**Ans: A**

**6. What causes Tsunami?**

- A. Sudden vertical movement of the Earth
- B. Convergence of destructive plates in the ocean floor
- C. Explosive volcanic eruptions in the seas/oceans.
- D. All of the above

**Ans: D**

**7. Instrument used to measure earthquake is known as**

- A. quake meter
- B. quake graph
- C. seismograph
- D. typanicgraph

**Answer C**

**8. What is a tsunami?**

- a) a type of fish
- b) a series of huge waves
- c) a kind of volcano
- d) Earthquake

**Answer: a series of huge waves**

**9. What does the acronym ISDR stand for?**

- A. International Significant Disaster Resources
- B. International Sustainable Development Report
- C. International Strategy for Disaster Reduction
- D. Intergovernmental Strategy for Developing Recreation

**Answer: International Strategy for Disaster Reduction**

**Unit-II: (Disaster management mechanism)**



**Important points / Definitions:**

1. Risk can also be defined as the intentional interaction with uncertainty.
2. Disaster management is very important to national policy. Natural disaster management mechanisms can include strategies for disaster prevention, early warning (prediction) systems.
3. Risk Management: Disaster Risk Management is the application of disaster risk reduction policies and strategies, to prevent new disaster risks, reduce existing disaster risks.
4. Crisis can be defined as an emergency situation of discomfort, which emerges suddenly and threatens the ordinary functioning of the organization.
5. Mitigation: any activity that reduces either the chance of a hazard taking place or a hazard turning into disaster.
6. Risk reduction: anticipatory measures and actions that seek to avoid future risks as a result of a disaster
7. Prevention: avoiding a disaster even at the eleventh hour.
8. Preparedness: plans or preparations made to save lives or property, and help the response and rescue service operations.
9. Response: includes actions taken to save lives and prevent property damage, and to preserve the environment during emergencies or disasters. The response phase is the implementation of action plans.
10. Recovery: includes actions that assist a community to return to a sense of normalcy after a disaster.

**SHORT ANSWER QUESTIONS [2M]**

1. How to prevent natural disasters? [OCT/NOV 2018]
2. What is a disaster? Give an example from a real incident?
3. List out some deadliest disasters occurred in past?
4. What are the different types of disaster ? write short note? [OCT/NOV 2018]
5. What are steps involved in risk communication?
6. What are cyclones? Describe?
7. Write a short note on effect of cyclones? [OCT/NOV 2018]
8. Discuss the flood-prone regions in India?
9. What is mitigation?
10. Write a note on disaster cycle? [OCT/NOV 2018]
11. Define total management cycle? [OCT/NOV 2018]

**LONG ANSWER QUESTIONS[5M]**

1. Write an account on the impact of disasters to life and environment.
2. Write a brief note on the emergency stage of a disaster.
3. Write the methods to predict natural disasters.
4. Discuss the role of technology in disaster management?
5. Discuss the various measures that should be taken for disaster management and prevention?
6. Write in brief on the post-disaster stage?



7. Explain the phases of disaster management?
8. Enlist the different stages of disaster management. Write in detail about pre-disaster stage?
9. Explain natural disasters and its mitigation strategies
10. State the guidelines for mitigation of disasters?
11. Explain in detail the mitigation planning?
12. Bring out the importance of people as the first responders in disaster Management?
13. Can you suggest some guidelines for achieving sustainable development?
14. Write are the provisions of immediate relief measure to disaster affected People?
15. Explain briefly about pre-disaster stages?
16. What are the pre-disaster measures are taken to prevent loss of life due to this hazard?
17. What are the pre disaster measures taken to manage earthquake disaster?
18. Discuss the different aspects of disaster mitigation through advanced technology?
19. Write short notes on emergency stage in disaster management?
20. How the mitigation and perception of earthquake is done in India? Explain?

**CHOOSE THE CORRECT ANSWER**

1. Emergency operations plans (EOP) are also referred as, [C]
  - a. Contingency plans and continuity of operations plans
  - b. Emergency response plans and counter-disaster plans
  - c. Both (a) and (b)
  - d. None of the above
2. Mitigation phase is a type of. \_\_\_\_\_ [a]
  - a. Pre disaster phase
  - b. Emergency phase
  - c. Post disaster phase
  - d. None of the above
3. \_\_\_\_\_ Stage results in great damage to life , property, environment and health of living beings.[b]
  - a. Pre disaster
  - b. Emergency
  - c. Post disaster
  - d. None of the above
4. One of the following statements is UNTRUE about the disaster management code.[b]
  - a. Its aim is to reduce loss of life and property
  - b. It is useful for nuclear and chemical disaster



- c. It conveys information about post disaster events
- d. It focuses on post trauma counseling programs
5. The advanced cyclone warning center is located in.[c]
  - a. Bhubaneswar
  - b. Visakhapatnam
  - c. Kolkata
  - d. Ahmadabad
6. \_\_\_\_\_ are powerful and violent windstorms in which wind moves very fast in circular direction around low pressure area.[a]
  - a. Cyclones
  - b. Wind storms
  - c. A and b
  - d. None of the above
7. The acronym CDR s stands for [a]
  - a. Cyclone detection radars
  - b. Cyclone detection research
  - c. Cyclone disaster risk
  - d. None of the above
8. Which of the following types of volcanic eruptions associated with Lacroix? [d]
  - a. Hawaii Eruption
  - b. Strombolian Eruption
  - c. Vulcanian
  - d. All of the above
9. Soil erosion defined as
  - a. Heavy rainfall
  - b. Severe windfall
  - c. A and B
  - d. None of the above
10. Acidification of soil defined as
  - a. Discharge of sulphur dioxide from power plants
  - b. Buildup of salts in the soil
  - c. Heavy rain rain fall



d. All of the above

### **Unit-III: (Capacity Building)**

#### **Important points / Definitions:**

1. Capacity is defined as “the ability of individuals, organizations, organizational units and / or systems to perform functions effectively and in a sustainable manner.
2. Structural measures are any physical construction to reduce or avoid possible impacts of hazards, or the application of engineering techniques or technology to achieve hazard resistance and resilience in structures or systems.
3. Non-structural measures are measures not involving physical construction which use knowledge, practice or agreement to reduce disaster risks and impacts, in particular through policies and laws, public awareness raising, training and education.
4. Capacity assessment is a term for the process by which the capacity of a group is reviewed against desired goals, and the capacity gaps are identified for further action.
5. Counter disaster management is about trying to prevent disasters by being aware of the risks to collections and acting to minimize them.
6. Mainstreaming disaster risk reduction into sectoral programmes – environment, social and economic development practices, infrastructure, physical and technical measures e.g. land-use planning, urban and regional development.
7. Preparedness planning, contingency planning, early warning systems and vulnerability assessments.
8. Hazard analysis, risk assessment, impact assessment, early warning systems, risk mapping capacity and vulnerability analysis.
9. UNDP (United Nations Development Programme) defines capacity development as “the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities.
10. To design a project for capacity development for disaster risk reduction, it is important to first analyze and understand the local context, including general political, social, cultural, economic, physical and environ- mental factors.

#### **SHORT ANSWER QUESTIONS [2M]**



- What is capacity building? [OCT/NOV 2016]
2. What is risk mapping?
3. What is structural mitigation?
4. What is pre disaster? [OCT/NOV 2016]
5. What is post disaster? [OCT/NOV 2018]
6. What is non structural mitigation?
7. What is the capacity assessment?
8. Write a short note on risk reduction? [OCT/NOV 2018]
9. What are disaster management resources?
10. How mitigation helps in prevention of disasters? [OCT/NOV 2018]

### **LONG ANSWER QUESTIONS [5M]**

1. Write the methods to predict natural disasters.
11. Explain natural disasters and its mitigation strategies.
12. State the guidelines for mitigation of disasters.
13. Explain in detail the mitigation planning.
14. Explain the phases of disaster management
15. Enlist the different stages of disaster management? Write in detail about pre-disaster stage.?
16. Enlist the various institutions and national centres involved in natural disaster reduction?
17. Why should every village have a disaster management committee? Write short Notes?
18. Can you suggest some guidelines for achieving sustainable development.
19. Write are the provisions of immediate relief measure to disaster affected people
20. How do engineered structures help us to withstand like floods, earthquakes and cyclones?
21. Describe the structural mitigations and non- structural mitigations that should be restored to in case of floods?

### **CHOOSE THE CORRECT ANSWER**

1. The colour code for higher level of tsunami warning issued by the Indian tsunami early warning system at the INCOIS, Hyderabad for the coastal residents to move to safer place is,
  - a. Green
  - b. Yellow
  - c. Orange
  - d. Red
2. The I category of flood intensity issued by the central water commission refer to,
  - a. Low floods
  - b. Moderate flood
  - c. High flood
  - d. Unprecedented flood
3. The moderate resolution imaging spectro radiometer (MODIS) is used for monitoring.
  - a. Floods
  - b. Famine



- c. Fire
- d. earthquake
4. The pressure sensor and surface buoy are the main components of,
  - a. MODIS rapid response system
  - b. Famine early warning system network
  - c. Tsunami detection system
  - d. None of the above
5. The national information centre of earthquake engineering is located in \_\_\_\_\_
  - a. Hyderabad
  - b. Kanpur
  - c. Ahmedabad
  - d. Bhopal
6. Earthquakes occur when there is a sudden release of stored up energy in Earth's [c]
  - a. inner core
  - b. outer core
  - c. upper mantle
  - d. lower crust
7. Another name for Earthquakes is [b]
  - a. nektons
  - b. temblors
  - c. blusters
  - d. flickers
8. Instrument used to measure earthquake is known as [c]
  - a. quake meter
  - b. quake graph
  - c. seismograph
  - d. typanicgraph
9. Richter scale measures factors of [d]
  - a. 2
  - b. 4
  - c. 5
  - d. 10



**Important points / Definitions:**

1. A disaster of any size will cause unusual stress in people who have been directly and indirectly impacted by it.
2. Coping Strategies & Alternative Adjustment Processes Despite the far-reaching effects of natural disasters, there are steps to cope with disasters.
3. Identify local support groups or available crisis counselors to talk to. After a natural disaster, crisis counselors may be brought in to.
4. Talk about the effect of the natural disaster. Share your feelings with others or at the very least, find some way to express your emotions.
5. A disaster is a catastrophic situation in which suddenly, people are plunged into helplessness and suffering and, as a result, need protection, clothing, shelter, medical and social care and other necessities of life.
6. The Disaster Management Plan is aimed to ensure safety of life, protection of Environment, protection of installation, restoration of production and salvage operations in this same order of priorities.
7. Workplace/Industrial safety plans provide a two-fold system of ensuring employee safety.
8. Hazard assessment means a series of actions including planning and control in order to reduce the consequences of humans' harmful activities that can cause human casualties and social, economic and environmental damage.
9. The purpose of risk management is generally information assessment (collecting, classifying and analysis) of hazards in order to effectively plan and organize the needed resources for reconstruction and providing a balance in operational power of the city.
10. Media has the potential to play a major role before, during and after a disaster and this is further amplified with social media

**SHORT ANSWER QUESTIONS [2M]**

1. What is coping?
2. How can change contribute to failures? [MAY 2018]
3. Write a short notes on coping with disasters?
4. Define first responder in terms of disasters.
5. Who is the committee for disaster management[MAY 2018]
6. How mitigation helps in prevention of disasters
7. Write short notes on mitigation planning.
8. Explain the different types of damage reports? [MAY 2018]
9. Bring to light major initiatives on Disaster Preparedness in India? [MAY 2018]
10. How can search rescue team assist a village in times of a hazard?

**LONG ANSWER QUESTIONS [5M]**

1. Enlist the various institutions and national centers involved in natural disaster reduction?
2. Elucidate different skills and techniques adopted by a disaster manager?
3. Bring to light major initiatives on Disaster Preparedness in India?
4. Discuss the important steps in relief distribution?
5. Examine the problem areas during recovery phase of disaster management?



6. Discuss the relationship between disaster and development with the help of examples from developed and developing countries?
7. Explain the different types of damage reports. Identify the different types of rehabilitation?
8. How does the community of a village play the most important role in times of disaster as 'first responder'?
9. Write are the provisions of immediate relief measure to disaster affected people?
10. Explain about coping with natural disasters?
11. What is the strategies for the coping ?
12. Explain about the organizational structure for disaster management?
13. How can get out the disaster situation with coping strategies?
14. Why should we concerned about disasters?
15. What are the elements of a disaster response?
16. How should health care facilities prepare for disaster response?
17. What is the role of health care providers in a disaster response?
18. Write are the provisions of immediate relief measure to disaster affected people?
19. Explain the different types of damage reports. Identify the different types of rehabilitation?

**CHOOSE THE CORRECT ANSWER**

1. The environmental protection technicians have an important role in [d]
  - a. Monitoring of seismicity in and around india
  - b. Tracking and predicting weather systems
  - c. Responds to queries pertaining to catastrophe
  - d. Monitoring environmental pollutants[a]
2. The health physics technicians have an important role in, [b]
  - a. Safety of workplace in industries that use radioactive material
  - b. Monitoring of seismicity
  - c. Tracking and predicting weather systems
  - d. Monitoring environment pollutants
3. The national disaster risk management programme (NDRMP) has been constituted by
  - a. The ministry of foreign affairs [b]
  - b. The ministry of home affairs
  - c. The ministry of defence affairs
  - d. None of the above
4. The Indian institute of architechts was established in [a]
  - a. 1917
  - b. 1915
  - c. 1913



- d. 1911
5. The town and country planning organization (TCPO) is a subordinate office of, [d]
- Ministry of agriculture and farmers welfare
  - Ministry of civil aviation
  - Ministry of commerce and industry
  - Ministry of urban development
6. \_\_\_\_\_ has an important role in disaster management for coordination, control, assessment, reporting and monitoring the disaster. [a]
- Electronic communications
  - Risk communication
  - A and B
  - None of the above
7. \_\_\_\_\_ refers to the actions taken to identify the disaster risk areas and bring down the long term risk to life and property. [b]
- Disaster planning
  - Mitigation planning
  - State disaster plan
  - None of the above
8. the irregular working hours, working in shifts, or overloaded work leads to \_\_\_\_\_. [a]
- Physical hazards
  - Chemical hazards
  - Psychosocial hazards
  - None of the above
9. The infective and parasitic pathogens at workplace can lead to \_\_\_\_\_ hazard.
- Chemical
  - Biological
  - Physical
  - All of the above
10. \_\_\_\_\_ the responsible for inspection of workplace environment equipments to ensure minimal health hazards to the work force. [a]
- Industrial hygiene techniques



- b. Industrial survival kits
- c. Industrial safety norms
- d. None of the above

### **Unit-V: (Planning For Disaster Management)**

#### **Important points / Definitions:**

1. The key to disaster management is to have a disaster plan in place before disaster strikes.
2. Optimized situational awareness. Real-time communication, data management and data transmission deliver a full picture of the situation.
3. Interoperable, collaborative environment. Responders save lives by improving information flow across all types of boundaries.
4. Disaster response organizations must systematically manage information from multiple sources and collaborate effectively to assist survivors, mitigate damage and help communities rebuild.
5. To help your locality become more sustainable and disaster resilient by selecting and prioritizing the most appropriate risk reduction actions, based on the knowledge gained in the risk assessment process.
6. The risk statement, scenario and/or map produced in the risk assessment phase illustrates the 'problems' and their causes. The planning process offers to find the best solutions to these problems.
7. It is crucial to put in place a mechanism to keep stakeholders regularly informed of their risks, and provide avenues for dialogue during the planning process.
8. India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been recurrent phenomena. Being highly vulnerable to natural disaster, 25 states out of a total of 35 states/UTs in India are considered disaster prone.
9. 68% of Indian land is draught prone, 12% to flood and 8% to cyclone. The loss in terms of private, community and public assets has been astronomical.
10. Therefore disaster management occupies an important place in this country's policy framework as it is the poor and the under-privileged who are worst affected on account of calamities/disasters.

#### **SHORT ANSWER QUESTIONS [2M]**

1. Write a note on disaster management?
2. Discuss the role of technology in disaster management?
3. Write short notes on mitigation planning. [OCT/NOV 2018]
4. What is warning system
5. Define first responder in terms of disasters? [OCT/NOV 2018]
6. Write about NDMA?
7. Write about SDMA?
8. Write the measures to be taken for recovery? [OCT/NOV 2018]



9. How can change contribute to failures?
10. Write the methods to predict natural disasters?

**LONG ANSWER QUESTIONS[5M]**

1. Explain about disaster management planning?
2. Write about chapters in disaster management act policy 2005?
3. Explain about national authorities involved disaster management plan?
4. Discuss about national and international agencies in disaster management plan?
5. Write the role of NDMA in disaster management plan? [OCT/NOV 2018]
6. Write the role of SDMA in disaster management plan?
7. Write the responsibilities of disaster management plan at national and state level?
8. Explain steps involved in disaster management plan?
9. Explain the strategies to prepare disaster management planning?
10. How to prepare the NDMP? [OCT/NOV 2018]
11. Explain about SDMP?
12. Explain about DDMP?
13. Explain the organization structure for the disaster management authority?
14. Analyze and Discuss the important steps in relief distribution. Examine the problem areas during recovery phase of disaster management?
15. Enlist the different stages of disaster management plan? [OCT/NOV 2018]
16. Discuss the relationship between disaster and development with the help of examples from developed and developing countries? [OCT/NOV 2018]
17. Write are the provisions of immediate relief measure to disaster affected people? [OCT/NOV 2018]
18. Write the responsibilities of disaster management at the state level?
19. Enlist the legal provisions of disaster management planning?
20. Write about planning and policy for disaster management plan?

**CHOOSE THE CORRECT ANSWER**

1. \_\_\_\_\_ are mentioned using seismographs and strong motion sensors. [a]
  - a. Earthquakes
  - b. Tsunamis
  - c. Cyclones
  - d. None of the above
2. \_\_\_\_\_ is done by latest techniques like remote sensing, geographic information system (GIS). [b]
  - a. Hazard assessment
  - b. Hazard mapping
  - c. Risk assessment
  - d. All of the above
3. The national disaster management act was laid down in the year \_\_\_\_\_. [c]
  - a. 2008
  - b. 2006
  - c. 2005
  - d. 2001



4. \_\_\_\_\_ is a phase that includes the awareness about emergency exercises are training in various methods of safely vacating the disaster stricken areas and first aid measures. [a]
  - a. Disaster preparedness
  - b. Disaster mitigation
  - c. Disaster prevention
  - d. All of the above
5. \_\_\_\_\_ refers to all efforts that are put forth to minimize the problems created by a disaster [a]
  - a. Disaster response
  - b. Disaster recovery
  - c. Disaster mitigation
  - d. None of the above
6. The concerned nodal ministry that deals with chemical disaster is,[d]
  - a. Ministry of home affairs
  - b. Department of atomic energy
  - c. Ministry of agriculture
  - d. Ministry of environment and forests
7. The environment protect training and research institute is located in,[b]
  - a. Ahmadabad
  - b. Hyderabad
  - c. Kanpur
  - d. Bhopal
8. The national information centre for earthquake engineering is located in [a]
  - a. Kanpur
  - b. Hyderabad
  - c. Ahmadabad
  - d. Bhopal
9. The disaster management institute is located in [c]
  - a. Hyderabad
  - b. Kanpur
  - c. Bhopal
  - d. Ahmadabad
10. The disaster mitigation institute located in [a]
  - a. Ahmadabad
  - b. Hyderabad
  - c. Kanpur
  - d. kolkata



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