



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## MECHANICAL ENGINEERING

### DEFINITIONS AND TERMINOLOGY QUESTION BANK

<b>Course Name</b>	: <b>DISASTER MANAGEMENT</b>
<b>Course Code</b>	: <b>ACE551</b>
<b>Program</b>	: <b>B.Tech</b>
<b>Semester</b>	: <b>VI</b>
<b>Branch</b>	: <b>CSE / IT / ECE / EEE / ME</b>
<b>Course Faculty</b>	: <b>Mr. Gude Ramakrishna, Associate Professor, CE Mr. S Siva Rama krishna, Assistant Professor, CE Mr. S Selva Prakash, Assistant Professor, CE Mr. G N V Sai Teja, Assistant Professor, CE Ms. N Sri Ramya, Assistant Professor, CE Mr. J Tirupathi, Assistant Professor, CSE</b>

#### COURSE OBJECTIVES:

<b>The course should enable the students to:</b>	
I	Identify the major disaster types and develop an understanding of modern disaster management.
II	Recognize and develop awareness of the chronological phases of natural disaster response and refugee relief operations.
III	Understand the key concepts of disaster management related to development and the relationship of different disaster management activities.
IV	Categorize the organizations that are involved in natural disaster assistance and relief system.

#### DEFINITIONS AND TERMINOLOGY QUESTION BANK

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
<b>UNIT - I</b>						
1	What are the phases of disaster?	Phases of disaster 1. Pre-impact phase 2. Impact phase 3. Post-impact phase.	Remember	CO1	CLO1	ACE551.01
2	Principles of disaster management.	• Disaster management should use resources that exist for a day-to-day purpose. • Individuals are responsible for their own safety.	Understand	CO1	CLO2	ACE551.02
3	What are the rehabilitation phase?	• Water supply • Food safety • Basic sanitation and personal hygiene • Housing.	Remember	CO1	CLO1	ACE551.01
4	What are the extra tropical cyclones?	Extra tropical cyclones, sometimes called mid-latitude cyclones, are a group of cyclones defined as synoptic scale low pressure weather systems that	Remember	CO1	CLO1	AEE503.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		occur in the middle latitudes of the earth.				
5	Name the types of environmental disasters.	1. Geo-hydrological disasters 2. Chemical accidents / disasters 3. Industrial environmental disasters 4. Climate Change & Disasters	Understand	CO1	CLO3	ACE551.03
6	Explain about cyclones.	Cyclone is the term used globally to cover tropical weather systems in which winds equal or exceed ale force (62 kmph). These are intense low pressure areas of the earth atmosphere coupled system and are extreme weather events of the tropics.	Remember	CO1	CLO2	ACE551.02
7	Explain about windstorms	Windstorm, a wind that is strong enough to cause at least light damage to trees and buildings and may or may not be accompanied by precipitation. Wind damage can be attributed to gusts (short bursts of high-speed winds) or longer periods of stronger sustained winds.	Remember	CO1	CLO1	ACE551.02
8	What is need of energy management?	Energy management is the means to controlling and reducing your organizations energyconsumption.	Remember	CO1	CLO1	ACE551.02
9	Explain about National emergency management organization.	A national emergency management organization that is separate from other government agencies is preferable. Responsibility should also be decentralized to rovincial government.	Remember	CO1	CLO1	ACE551.01
10	List any four environmental disasters.	<ul style="list-style-type: none"> <li>• Bhopal: the Union Carbide gas leak</li> <li>• Chernobyl: Russian nuclear power plant explosion</li> <li>• Seveso: Italian dioxin crisi</li> <li>• The 1952 London smog disaster.</li> </ul>	Understand	CO1	CLO2	ACE551.02
11	Draw the disaster-cycle.		Remember	CO1	CLO2	ACE551.02
12	What are factor of avalanche possibility?	The biggest factor of avalanche possibility is the accumulation snow over the winter season – More snow = bigger avalanche.	Understand	CO1	CLO3	ACE551.03
13	Explain about Earthquakes.	Earthquakes are caused by the release of built up pressure caused by the shifting of tectonicplates <ul style="list-style-type: none"> <li>• Earthquakes usually occur on fault lines, or areas where tectonic plates meet.</li> </ul>	Remember	CO1	CLO2	ACE551.03

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
14	What is Global warming?	<ul style="list-style-type: none"> <li>Global warming is the rise in the average temperature of Earth's atmosphere and oceans since the late 19th century and its projected continuation. Since the early 20th century,</li> <li>Earth's mean surface temperature has increased by about 0.8 °C (1.4 °F), with about two-thirds of the increase occurring since 1980.</li> </ul>	Remember	CO1	CLO2	ACE551.03
15	What are the major forms of pollution?	The release of chemicals and particulates into the atmosphere. Common gaseous pollutants include carbon monoxide, sulfur dioxide, chlorofluorocarbons (CFCs) and nitrogen oxides produced by industry and motor vehicles. Photochemical ozone and smog are created as nitrogen oxides and hydrocarbons react to sunlight.	Remember	CO1	CLO3	ACE551.03

## UNIT – II

1	What is Environmental Degradation?	Environmental degradation is the disintegration of the earth or deterioration of the environment through consumption of assets, for example, air, water and soil; the destruction of environments and the eradication of wildlife.	Remember	CO2	CLO6	ACE551.06
2	Causes of environmental degradation.	<ol style="list-style-type: none"> <li>Land Disturbance</li> <li>Pollution</li> <li>Overpopulation</li> <li>Landfills</li> <li>Deforestation</li> </ol>	Remember	CO2	CLO6	ACE551.06
3	Types of damage due to avalanches.	<ul style="list-style-type: none"> <li>Traffic blocked by snow deposited on road surface.</li> <li>Roads damaged by avalanches.</li> <li>Road structures, such as retaining walls, overturned.</li> </ul>	Remember	CO2	CLO6	ACE551.06
4	Differentiate between global and local taxes.	Local taxes are established in an element. Since it is in the element level, they change with the change in orientation of the element. The direction differs from element to element. Global taxes are defined for the entire system.	Remember	CO2	CLO8	ACE551.08
5	What are the types of natural disaster?	types of disasters include: <ul style="list-style-type: none"> <li>Tornadoes and Severe Storms.</li> <li>Hurricanes and Tropical Storms.</li> <li>Floods.</li> <li>Wildfires.</li> <li>Earthquakes.</li> <li>Drought.</li> </ul>	Understand	CO2	CLO6	ACE551.06
6	What are the prevention of	prevention of biological disasters <ol style="list-style-type: none"> <li>Environmental Management.</li> <li>Post-disaster Epidemics</li> </ol>	Understand	CO2	CLO8	ACE551.08

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	biological disasters?	Prevention 3.Detection and Containment of Outbreaks.				
7	What are the classification of natural disasters?	<ul style="list-style-type: none"> <li>• Atmospheric</li> <li>• Terrestrial</li> <li>• Aquatic</li> <li>• Biological.</li> </ul>	Remember	CO2	CLO6	ACE551.06
8	What are the types of droughts?	<ul style="list-style-type: none"> <li>• Meteorological Drought</li> <li>• Agricultural Drought</li> <li>• Hydrological Drought</li> <li>• Ecological Drought.</li> </ul>	Understand	CO2	CLO6	ACE551.06
9	Explain about hydrological drought.	It results when the availability of water in different storages and reservoirs like aquifers, lakes, reservoirs, etc. falls below what the precipitation can replenish.	Remember	CO2	CLO6	ACE551.06
10	Explain about ecological drought.	When the productivity of a natural ecosystem fails due to shortage of water and as a consequence of ecological distress, damages are induced in the ecosystem.	Understand	CO2	CLO8	ACE551.08
11	Explain about coldwave.	Occurrences of extreme low temperature in association with incursion of dry coldwinds from north into the sub-continent are known as cold waves. The northern parts of India, specially the hilly regions and the adjoining plains, are influenced by transient disturbances.	Understand	CO2	CLO8	ACE551.08
12	What are the types of droughts?	Various heat transfer mechanisms are convection, conduction, radiation and evaporate cooling.	Remember	CO2	CLO6	ACE551.06
13	What are the cause of drought?	The primary cause of any drought is deficiency of rainfall and in particular, the timing, distribution and intensity of this deficiency in relation to existing reserves.	Remember	CO2	CLO4	ACE503.06
14	Explain about ecological drought.	When the productivity of a natural ecosystem fails due to shortage of water and as a consequence of ecological distress, damages are induced in the ecosystem.	Understand	CO2	CLO8	ACE551.08
15	What are the cause of drought?	The primary cause of any drought is deficiency of rainfall and in particular, the timing, distribution and intensity of this deficiency in relation to existing reserves.	Understand	CO2	CLO8	ACE551.08
<b>UNIT – III</b>						
1	What are the surface cause of an earthquake?	Great explosions, landslides, slips on steep coasts, dashing of sea waves, avalanches, railway trains,	Understand	CO3	CLO10	ACE551.10

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		heavy trucks, some large engineering projects cause minor tremors. Some of them are manmade, other are natural.				
2	Classification of hazards on the basis of origin of the hazards.	<ul style="list-style-type: none"> <li>• Terrestrial hazards</li> <li>• Exogenic Hazards</li> <li>• Biotic Hazards.</li> </ul>	Understand	CO3	CLO10	ACE551.10
3	Why regional sediment management?	Sediment is an essential and dynamic part of the Harbor Estuary; its quality and quantity are integral to ecosystem health and a fundamental component of the regional economy.	Understand	CO3	CLO10	ACE551.10
4	What are the causes of tropical cyclone?	A cyclone is formed over tropical seas. Winds from opposite directions meet. This air is heated by the warm seas and so evaporates moisture from the ocean. This warm air rises up rapidly, cools and condenses to form clouds and produces an area of very low pressure. When moisture and air mix, it makes a collection of thunderstorms from which a cyclone can develop.	Remember	CO3	CLO10	ACE551.10
5	Explain about toxic gases.	Toxic gases can be present in a confined space because the type of manufacturing process uses toxic substances as part of the production process, or biological and chemical "breakdown" of the product being stored in a tank, and from maintenance activities (welding) being performed in the confined space.	Remember	CO3	CLO8	AEE503.08
6	Discuss about ecology and its components?	An ecosystem is a community of living organisms in conjunction with the nonliving components of their environment, interacting as a system. These biotic and a biotic components are linked together through nutrient cycles and energy flows.	Understand	CO3	CLO8	AEE503.08
7	List out the situation during post disaster phase?	Disaster Mitigation involves lessening the likely effects of emergencies. These include depending upon the disaster, protection of vulnerable population and structure.	Remember	CO3	CLO8	AEE503.08
8	Define Disaster Drill?	It is an exercise in which people simulate the circumstances of a	Remember	CO3	CLO8	AEE503.08

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		disaster so that they have an opportunity to practice their responses.				
9	How do you mean by exogenous?	Exogenous is the opposite of endogenous. If your village traditions favor endogenous marriage, you'll marry somebody from your own village. In biology and medicine, especially psychiatry, the word exogenous is used to describe outside factors, something that originates from outside the organism.	Remember	CO3	CLO8	AEE503.08
10	What is tectonic process?	Tectonic processes mostly take place at the plate edges. A plate moves as a single entity along the surface of the Earth over a plastic mantle. There are two types of plate: Oceanic plates form at the mid-ocean ridges	Understand	CO3	CLO8	AEE503.08
11	What is volcanism and Platonism?	Platonism (or volcanism) is the geologic theory that the igneous rocks forming the Earth originated from intrusive magmatic activity, with a continuing gradual process of weathering and erosion wearing away rocks, which were then deposited on the sea bed, re-formed into layers of sedimentary rock by heat and pressure.	Remember	CO3	CLO9	AEE503.09
12	Explain the term Epicenter?	The epicenter, seismology is the point on the Earth's surface directly above a hypocenter or focus, the point where an earthquake or an underground explosion originates.	Remember	CO3	CLO9	AEE503.09
13	Explain the term Focus?	Focus-The location where the earthquake begins. The ground ruptures at this spot, then seismic waves radiate outward in all directions.	Remember	CO3	CLO9	AEE503.09
14	Explain the term Waves?	Earthquakes radiate seismic energy as both body and surface waves. Traveling through the interior of the earth, body waves arrive before the surface waves emitted by an earthquake. These waves are of a higher frequency than surface waves. The first kind of body wave is the P wave or primary wave.	Understand	CO3	CLO9	ACE503.09
15	Explain the term Tsunami?	A large wave on the ocean, usually caused by an undersea earthquake, a volcanic eruption, or coastal landslide. A tsunami can travel hundreds of miles over the open sea and cause extensive	Remember	CO3	CL14	ACE503.09

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		damage when it encounters land. Also called tidal waves.				
<b>UNIT – IV</b>						
1	What are the types of tropical cyclones?	<ul style="list-style-type: none"> <li>• Tropical cyclone</li> <li>• Subtropical cyclone</li> <li>• Extra tropical cyclone.</li> </ul>	Remember	CO4	CLO13	ACE551.13
2	Explain about tropical cyclone.	Tropical Cyclone Genesis is the technical term for the process of storm formation that leads ultimately to what are called hurricanes, typhoons, or tropical cyclones in various parts of the world.	Understand	CO4	CLO13	ACE551.13
3	Explain about hydro-meteorological disasters.	A flood is an excess of water (or mud) on land that's normally dry and is a situation wherein the inundation is caused by high flow, or overflow of water in an established watercourse, such as a river, stream, or drainage ditch; or ponding of water at or near the point where the rain fell. This is a duration type event. A flood can strike anywhere without warning, occurs when a large volume of rain falls within a short time.	Understand	CO4	CLO13	ACE551.13
4	What are the types of floods?	<ul style="list-style-type: none"> <li>• Flash Floods</li> <li>• River Floods</li> <li>• Coastal Floods</li> <li>• Urban and small stream flood.</li> </ul>	Remember	CO4	CLO13	ACE551.13
5	State primary causes for floods.	<ul style="list-style-type: none"> <li>• Intense rainfall when the river is flowing full. Cyclone and very intense rainfall when the EL Nino effect is on a decline.</li> <li>• Synchronization of flood peaks in the main rivers or their tributaries.</li> <li>• Landslides leading to obstruction of flow and change in the river course.</li> <li>• Poor natural drainage system.</li> <li>• Backing water in tributaries at their confluence with the main river.</li> </ul>	Remember	CO4	CLO13	ACE551.13
6	Specify the flood safety tips.	<ol style="list-style-type: none"> <li>1. All your family members should know the safe routes to nearest shelter/raised puccahouse.</li> <li>2. If your area is flood-prone, consider suitable flood resistant</li> </ol>	Understand	CO4	CLO13	ACE551.13

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		building materials. 3. Tune to your local radio/TV for warnings and advice. Have an emergency kit ready.				
7	What are the flood management Components?	(i) Critical flood control and river management works in the entire country (includes river management, flood control, anti-erosion, drainage development, anti-sea erosion, and flood proofing works besides flood prone area development Programme in critical regions and restoration of damaged flood control/ management works). (ii) The spillover works of on-going central plan schemes of Xth Plan would also be supported under this scheme during XI Plan.	Remember	CO4	CLO13	ACE551.13
8	Explain about physical hazards.	A physical hazard is defined as "A factor within the environment that can harm the body without necessarily touching it. Vibration and noise are examples of physical hazards". Physical hazards include but aren't limited to electricity, radiation, pressure, noise, heights and vibration amongst many others.	Understand	CO4	CLO14	ACE551.14
9	Define soil erosion.	The upper layer of the soil consists of fine soil particles. It is rich in minerals and has humus. Hence, humus makes the soil fertile. Sometimes heavy rain, running water and wind remove the top layer of soil. This phenomenon is soil erosion.	Understand	CO4	CLO14	ACE551.14
10	Explain about soil by water erodes.	Water erodes soil mainly in two ways: 1. By the violent splash of the falling raindrop on bare soil. 2. By the scouring action of soil-laden water moving down the slopes.	Remember	CO4	CLO13	AEE551.13
11	Explain about Wind Erosion	Wind erosion starts when bare sandy soil becomes dry and high winds roll the sand grains over each other, resulting in shifting sand dunes. During dust storms, the finer particles of silt may be picked up by the wind and carried for miles. The results are depletion of the soil, a covering up of good farmland by worthless sand, and menacing dust storms.	Remember	CO4	CLO13	AEE551.13



S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
12	What are the Factors that cause landslides?	There are four main factors that contribute to a landslide: 1. Slope 2. Precipitation 3. Vegetation	Understand	CO4	CLO14	ACE551.14
13	What are the problems caused by soil erosion?	In India a total of 1 750 000 square km out of the total land area of 3 280 000 square km is prone to soil erosion. Thus about 53% of the total land area of India is prone to erosion Areas affected by soil erosion in India can be broadly grouped into two categories, representing, firstly, the Himalayan and Lower Himalayan region and, secondly, other regions.	Remember	CO4	CLO13	ACE551.13
14	Explain about sediment basins.	Basins constructed to collect and store sediment during runoff events. Also known as detention ponds. Sediment is deposited from runoff during impoundment in the sediment basin.	Remember	CO4	CLO13	ACE551.14
15	Define Sedimentation?	Sedimentation is the tendency for particles in suspension to settle out of the fluid in which they are entrained and come to rest against a barrier.	Understand	CO4	CLO14	ACE551.14

### UNIT – V

1	Explain about disaster prevention and mitigation.	Disaster prevention and mitigation refers to the activities which are undertaken to prevent or mitigate the adverse effects of a disaster in short period.	Remember	CO5	CLO16	ACE551.16
2	Explain about disaster preparedness.	The intention of Disaster preparedness is to prevent or minimize the losses and damage in case of a disaster.	Remember	CO5	CLO16	ACE551.16
3	Explain about response, recovery and reconstruction.	The response phase includes the search and rescue; fulfilling basic humanitarian needs of victims; assistance by regional, national and international bodies etc. Recovery phase starts after the immediate threat to human life has subsided. The immediate goal of the recovery phase is to bring	Understand	CO5	CLO16	ACE551.16

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		the affected area back to some degree of normalcy. During reconstruction, the location or construction material of the property is considered.				
4	What is goal of environment and disaster management?	<p>The goal of Environment and Disaster Management is the safety and sustainability of human lives</p> <ul style="list-style-type: none"> <li>• Safety is related to avoiding death and injuries to human lives during a disaster</li> <li>• Sustainability is related to livelihood, socio-economic, cultural, environmental and psychological aspects.</li> </ul>	Remember	CO5	CLO17	ACE551.17
5	Explain about coastal zone management and disaster preparedness.	<ul style="list-style-type: none"> <li>• Green belt and mangrove in the coastal zone, coral reef protection and coastal regulatory zones are considered as environment protection measures</li> <li>• However, these elements are strongly linked to tsunami protection in the coastal areas.</li> <li>• Livelihood support to the fisherman, protection of environment in the coastal area, and disaster prevention interface was lacking in most of the places.</li> </ul>	Understand	CO5	CLO17	ACE551.17
6	What is Community risk assessment?	A highly localized risk analysis is produced in this way, and local participants also discuss the appropriate response to those risks. Past disasters are recalled. Lessons of other people's experience are discussed. In this way, the locality studies itself. A core group of knowledgeable and motivated volunteers is developed, who can help to train others in the community, possibly on a paid basis.	Understand	CO5	CLO17	ACE551.17
7	Explain about risk perception.	The perception of risk is not universally the same. It can vary from culture to culture, by socioeconomic class and even by individual. For example, many farmers live on the slopes of active volcanoes or in the flood plains of rivers because they perceive the balance of benefits to risks as favor. However, some risks are not consciously chosen, but simply thrust upon people because information is not made available and there is no public discussion.	Remember	CO5	CLO16	ACE503.16

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8	What are the points should Remember at the time of disaster emergency?	<ul style="list-style-type: none"> <li>• Language used should be simple and non-technical;</li> <li>• If different warning systems are used, they should not give conflicting messages, or people will tend to ignore them;</li> <li>• Messages should state clearly the exact nature of the impending threat and its implications for the target population;</li> <li>• The potential victims of a disaster should be clearly identified.</li> </ul>	Understand	CO5	CLO17	ACE551.17
9	What are the Problems with temporary emergency settlements?	<p>Inappropriate choices of settlement sites. These sites are usually forced settlement sites and the problems include: no reliable water supplies; a high water-table Random defecation. This is hard to control when populations have no experience of, or access to, latrines.</p> <p>A population that is too frightened, too hostile, or too socially fragmented to collaborate effectively.</p>	Remember	CO5	CLO17	ACE551.17
10	What are the priorities in the acute emergency phase?	<p>providing facilities for people to excrete safely and hygienically</p> <ul style="list-style-type: none"> <li>— protecting water supplies from contamination;</li> <li>— providing a minimum amount of water for drinking, cooking and personal and domestic hygiene;</li> <li>— ensuring that people have enough water containers to collect and store water cleanly;</li> <li>— ensuring that people have sufficient cooking utensils, equipment and fuel to cook and store food safely;</li> <li>— ensuring that people have the knowledge and understanding they need to avoid disease;</li> </ul>	Remember	CO5	CLO16	ACE551.16
11	What are the Facilities for emergency personnel?	<p>The facilities required by emergency personnel will vary substantially according to the customary level of basic support, the task involved and the local conditions generated by the emergency. Broadly, however, all facilities will have common requirements, including:</p> <ul style="list-style-type: none"> <li>— Basic personal needs;</li> <li>— Family support</li> <li>— Safety and security</li> <li>— Emotional support and counselling.</li> </ul>	Understand	CO5	CLO17	ACE551.17
12	Safety needs of personnel in post-disaster.	In post-disaster situations there are many other threats to the health and safety of staff. The working	Understand	CO5	CLO17	ACE551.17

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		environment tends to be unsafe, as a result of damage to buildings and roads, infectious diseases, or lack of appropriate equipment for reconstruction. In addition, the need to act fast, the great risks faced by the affected population, and the lack of close monitoring all discourage staff from applying health and safety procedures.				
13	How you can Increasing individual and institutional capacity at the time of disaster?	Increasing the capacity of people to offset risk, absorb shocks and meet contingencies is central to the goal of sustainable recovery. Reconstruction of a damaged area is not limited to the erection of new buildings. An integrated development process is required that should embrace the full redevelopment of the affected area according to the needs of its population.	Understand	CO5	CLO17	ACE551.17
14	Explain about transportation and logistics at the time of disaster.	Transportation is needed for a range of environmental health operations during emergencies, including, <ul style="list-style-type: none"> <li>— moving assessment and operational teams</li> <li>— road clearance</li> <li>— moving people affected by disaster</li> <li>— moving equipment and supplies</li> <li>— trucking water.</li> </ul>	Remember	CO5	CLO16	ACE551.16
15	What are the Special rules in areas of high potential public-health risk?	The following major risk areas must be subject to detailed control and regulation, even under extreme emergency conditions: <ul style="list-style-type: none"> <li>— the continued operation or recommissioning of large water-supply systems that have been damaged</li> <li>— the selection of sources for emergency water supply</li> <li>— the emergency disposal of toxic materials, especially soluble industrial waste</li> <li>— Large-scale feeding.</li> </ul>	Remember	CO5	CLO17	ACE551.17

**Signature of the Faculty**

**HOD, ME**