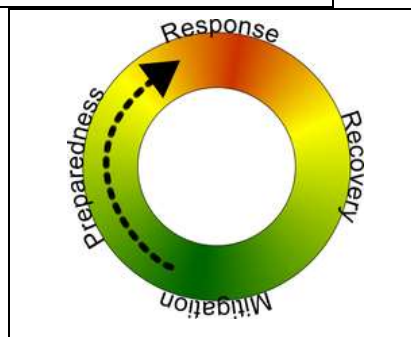
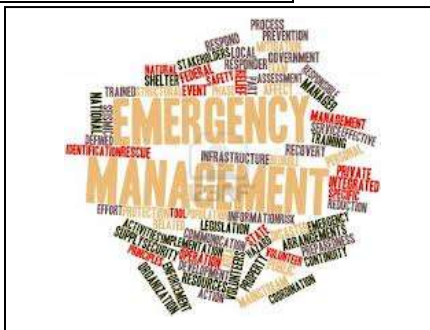


Private Security

NVEQ Level 2 – Class IX

SS202-NQ2012- Disaster Management and Emergency Response (Advanced)

Student's Workbook



प.सु.श.केन्द्रीय व्यावसायिक शिक्षा संस्थान, श्यामला हिल्स, भोपाल
PSS Central Institute of Vocational Education, Shyamla Hills, Bhopal

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Preface

The National Curriculum Framework, 2005, recommends that children’s life at school must be linked to their life outside the school. This principle makes a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home, community and the workplace.

The student workbook on “**Disaster Management and Emergency Response (Advanced)**” is a part of the qualification package developed for the implementation of National Vocational Education Qualification Framework (NVEQF), an initiative of Ministry of Human Resource Development (MHRD), Government of India to set common principles and guidelines for a nationally recognized qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities. It is envisaged that the NVEQF will promote transparency of qualifications, cross-sectoral learning, student-centred learning and facilitate learner’s mobility between different qualifications, thus encouraging lifelong learning.

This student workbook, which forms a part of vocational qualification package for students who have passed Class IX or equivalent examination, was created by a group of experts. The Security Knowledge and Skill Development Council (SKSDC) approved by the National Skill Development Corporation (NSDC) for the Private Security Industry developed the National Occupation Standards (NOS). The National Occupation Standards are a set of competency standards and guidelines endorsed by the representatives of Private Security Industry for recognizing and assessing skills and knowledge needed to perform effectively in the workplace.

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent of National Council of Educational Research and Training (NCERT) in association with SKSDC has developed modular curricula and learning materials (Units) for the vocational qualification package in Private Security sector for NVEQ levels 1 to 4; level 1 is equivalent to Class IX. Based on NOS, occupation related core competencies (knowledge, skills, and abilities) were identified for development of curricula and learning modules (Units).

This student workbook attempts to discourage rote learning and to bring about necessary flexibility in offering of courses, necessary for breaking the sharp boundaries between different subject areas. The workbook attempts to enhance these endeavours by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups and activities requiring

hands-on-experience. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy of Education (1986).

The success of this effort depends on the steps that school Principals and Teachers will take to encourage children to reflect their own learning and to pursue imaginative and on-the-job activities and questions. Participation of learners in skill development exercises and inculcation of values and creativity is possible if we involve children as participants in learning, and not as receiver of information. These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table would be a necessity to maintain the rigour in implementing the activities and the required number of teaching days will have to be increased for teaching and training.

About Your Workbook

This workbook is to assist you with completing the Unit of Competency **SS202-NQ2012: Disaster Management and Emergency Response (Advanced)**. You should work through the workbook in the classroom, at the workplace or in your own time under the guidance and supervision of your teacher or trainer. This workbook contains sessions which will help you to acquire relevant knowledge and skills (soft and hard) on various aspects of the unit of competency. Each session is small enough to be easily tackled and digested by you before you move on to the next session. Animated pictures and photographs have been included to bring about visual appeal and to make the text lively and interactive for you. You can also try to create your own illustrations using your imagination or taking the help of your teacher. Let us now see what the sections in the sessions have for you.

Section1: Introduction

This section introduces you to the topic of the Unit. It also tells you what you will learn through the various sessions covered in the Unit.

Section 2: Relevant Knowledge

This section provides you with the relevant information on the topic (s) covered in the session. The knowledge developed through this section will enable you to perform certain activities. You should read through the information to develop an understanding on the various aspects of the topic before you complete the exercise (s).

Section 3: Exercise

Each session has exercises, which you should complete on time. You will perform the activities in the classroom, at home or at the workplace. The activities included in this section will help you to develop necessary knowledge, skills and attitude that you need for becoming competent in performing the tasks at workplace. The activities should be done under the supervision of your teacher or trainer who will guide you in completing the tasks and also provide feedback to you for improving your performance. To achieve this, prepare a timetable in consultation with your teacher or trainer and strictly adhere to the stipulated norms or standards. Do not hesitate to ask your teacher or trainer to explain anything that you do not understand.

Section 4: Assessment

The review questions included in this section will help you to check your progress. You must be able to answer all the questions before you proceed to the next session.

Vulnerability is the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt.

Capacity is a combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster.

Disasters are as old as human history but the dramatic increase and the damage caused by them in the recent past have become a cause of national and international concern. In India, the super cyclone of Orissa in 1999, the Gujarat earthquake in 2001, the Tsunami in 2004 affected millions across the country leaving behind a trail of heavy loss of life, property and livelihood.

After the flood in Vadodra district in Gujarat in 2005, it was seen that the villages with Disaster Management Teams (DMTs) and Disaster Management Committees (DMCs) responded well to the situation by rescuing people to pre-identified safe areas. It indicated that if we are well prepared to respond to any emergency or disaster, then we can effectively mitigate or cope up with hazards and disasters. Emergency preparedness is therefore, an important aspect in disaster management.

In this Unit you will learn about the various aspects of disaster management, including the importance of Disaster Management Teams or Emergency Response Team in mitigating and dealing effectively with disasters.

SESSION 1: DISASTER MANAGEMENT AND EMERGENCY RESPONSE

RELEVANT KNOWLEDGE

When hazards are met by vulnerabilities or pressures which are seen as rooted in socio-economic and political processes, a **disaster** occurs. We have learnt earlier that a disaster results from the combination of hazard, vulnerability and insufficient capacity or measures to reduce the potential chances of risk. A disaster happens when a hazard impacts on a vulnerable population and causes damage, casualties and disruption. Any natural hazard such as flood, earthquake or cyclone which is a triggering event along with greater vulnerability would lead to disaster causing greater loss to life and property. Vulnerability includes inadequate access to resources, sick and old people, lack of awareness, lack of training, etc. Vulnerability and risk to disaster will depend on certain conditions, for example, an earthquake in an uninhabited desert cannot be considered a disaster, no matter how strong it is. The hilly regions, on the other hand, are vulnerable to various kinds of disasters such as avalanches, landslides, hailstorms or cloudbursts.

Disaster Management covers a broad range of interventions before, during and after a disaster to prevent, minimize the loss of life and property and to accelerate recovery. The manner in which human beings deal with disasters improved as technology developed and our approach to risk assessment and mitigation measures became more and more scientific. Earlier, disaster management was reactionary and we could not prevent or mitigate the damage. But now we have developed pre-disaster mitigation measures to avoid or reduce the impact of disasters. Pre-disaster measures to prevent or mitigate disasters are called '**Risk Management**' or **Disaster Management**.

Goals of Disaster Management

The goals of disaster management are to:

1. Reduce, or avoid, losses from hazards;
2. Assure prompt assistance to victims; and
3. Achieve rapid and effective recovery.

Disaster Management Cycle

The disaster management cycle illustrates the ongoing process by which governments, businesses, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster has occurred. Appropriate actions at all points in the cycle lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next iteration of the cycle. The complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property and infrastructure.

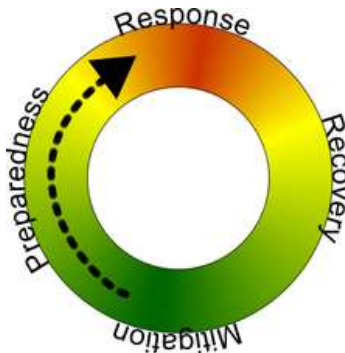


Figure 1: Disaster Management Cycle

The mitigation and preparedness phases occur as disaster management improvements are made in anticipation of a disaster event. As disaster occurs, key personnel in disaster management, especially humanitarian organisations, become involved in the immediate **response** and long-term **recovery** phases.

Phases in Disaster Management

The four disaster management phases are as follows:

1. **Mitigation** - It includes steps taken to minimise the effects of disaster. Examples include building

codes, vulnerability analysis, zoning and land use management, preventive health care and public education. Let us look at some of these mitigation measures in detail.

(a) Building codes: A building code or building control are a set of rules that specify the minimum acceptable level of safety for constructed objects such as buildings and non-building structures. The main purpose of building codes are to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. Unless a building is being renovated, the building code usually does not apply to existing buildings. The building code becomes law of a particular jurisdiction when formally enacted by the appropriate **authority**. An example of a building code is an ancient building code that has come down from Biblical times, which specifies that a **parapet** must be made for the roof to prevent someone falling from it.

Building codes generally include:

- Rules regarding parking and traffic impact.
- Fire code rules to ensure safe evacuation in the event of a fire.
- Requirements for earthquake, hurricane, tornado, flood, and tsunami resistance, especially in disaster prone areas or for very large buildings where a failure in following the norms would be catastrophic.
- Requirements for specific building uses (for example, storage of flammable substances, or housing a large number of people).
- Energy provisions and consumption.
- Specifications on components like size, windows, ventilations, basements, etc.
- Allowable installation methodologies.

- Minimum and maximum room and exit sizes and location.
- Ensuring exterior restrictions, such as setbacks.
- Qualification of individuals or corporations doing the work.
- Anti-collision markers for high structures for the benefit of aircraft.

(b) Vulnerability Analysis: Assessing vulnerabilities of a megacity are fundamental to enabling counteractive measures before an expected earthquake disaster as well as preparing for the post-earthquake response. An example of vulnerability analysis is of a remote sensing system set up to assess the vulnerability of a megacity and to assess the risk of a hazard turning into a disaster in that megacity. The data from the remote sensing provide information on population growth, housing in hazardous areas, etc. Substantial and up-to-date, area-wide data are the basis for effective crisis management.

(c) Zoning and Land use Management: Zoning is a method of land use planning done by local governments. The word is derived from the practice of designating permitted uses of land based on mapped zones which separate one set of land uses from another. Zoning regulates land use, such as for residential, commercial, green belts, ecological protection areas, etc., or it may regulate building height, parking lot coverage, etc. The primary purpose of zoning is to segregate uses.

To understand zoning think of how space is organised in a home. The different rooms of the house are situated in a way that it is both convenient and safe for people of the house.

Water faucets, drains, electrical fittings are placed in the bathrooms in such a way that they can be hygienically and safely used. Space in the rooms are demarcated for sitting, sleeping, watching TV, etc. keeping in mind the movement as well as convenience and safety. Zonal regulations means zoning of land use and regulations prepared under the Town and Country Planning Act, prescribing the uses permissible in different land use zones, the open spaces around buildings, plot coverage, floor area ratio, height of the building, building lines, parking, etc.

Mitigation will depend on the incorporation of appropriate measures in national and regional development planning. Its effectiveness will also depend on the availability of information on hazards, emergency risks, and the countermeasures to be taken. The mitigation phase, and indeed the whole disaster management cycle, includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

2. Preparedness

It involves planning to respond to disaster. It includes preparedness plans, emergency exercises or training, and warning systems.

The goal of emergency preparedness programmes is to achieve a satisfactory level of readiness to respond to any emergency situation through programmes that strengthen the technical and managerial capacity of governments, organisations, and communities. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems.

Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes. During the preparedness phase, governments, organisations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations.

Preparedness measures include, (i) preparedness plans; (ii) emergency exercises/ training; (iii) warning systems; (iv) emergency communication systems; (v) evacuation plans and training; (vi) resource inventories; (vii) emergency personnel/contact lists; (viii) mutual aid agreements; and (ix) public information and education. As with mitigation efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional development plans. In addition, their effectiveness depends on the availability of information on hazards, emergency risks and the counter measures to be taken, and on the degree to which government agencies, non-governmental organisations and the general public are able to use the information.

4. Response

Response includes efforts to minimize the hazards created by a disaster. It includes search and rescue, and emergency relief.

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food to establishing semi-permanent settlement in camps and other locations. It may also involve initial repairs to damaged infrastructure. The focus in the response phase is on

meeting the basic needs of the people until more permanent sustainable solutions can be found.

5. Recovery

Recovery includes measures taken to generate resource for returning the community to normal. These measures may include temporary housing, grants, and medical care.

As the situation after a disaster is brought under control, steps are undertaken to enable the affected population of undertaking a number of activities aimed at restoring the infrastructure and other resources. There is no distinct point at which immediate relief changes translate into recovery and then into long-term sustainable development.

It depends on the pace of recovery and recurrence of the disaster. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability.

Recovery measures, both short and long-term include returning vital life-support systems to minimum operating standards, temporary housing, public information, health and safety education, reconstruction, counselling programmes, and economic impact studies. Information resources and services include data collection related to rebuilding, and documentation of lessons learned. Recovery activities continue until all systems return to normal or better.

One of the major considerations of a disaster management plan is to reduce the vulnerability of a population to a risk or a hazard. This leads to plans for sustainable development. Measures of sustainable development include the promotion of sustainable livelihood and their protection and recovery during

disasters and emergencies. Where this goal is achieved, people have a greater capacity to deal with disasters and their recovery is more rapid and long lasting.

National Disaster Management Act, 2005

The Disaster Management Act 2005 defines disaster as “a catastrophe, mishap, calamity or grave occurrence affecting any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature magnitude as beyond the coping capacity of the community of the affected area”. It defines disaster management as a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for (1) prevention of danger or threat of any disaster (2) mitigation or reduction of risk of any disaster or its severity or consequences (3) capacity building (4) preparedness to deal with any disaster (5) prompt response to any threatening disaster situation or disaster (6) assessing severity or magnitude of effects of any disaster (7) evacuation rescue and relief and (8) rehabilitation and reconstruction.

National Disaster Management Act, 2005

The Disaster Management Act passed in 2005 provides for a detailed action plan right from the central government to the district and local levels to draw, implement and execute disaster management plans. The Act comprising 79 sections and 11 chapters is capable of effectively managing the disaster and matters related to it. According to the Act, “Disaster Management” is defined as a continuous and integrated process of planning, organizing, coordinating and implementing measures which are

necessary or expedient to prevent danger or threat of any disaster, mitigation or reduce the risk or severity or consequences of any disaster, capacity-building and preparedness to deal with any disaster, prompt response to any threatening disaster situation or disaster, assessing the severity or magnitude of effects of any disaster, evacuation, rescue and relief, rehabilitation and reconstruction. The Act empowers the Central Government to appoint the National Disaster Management Authority with the Prime Minister of India as the Chairperson and such number of other members, not exceeding nine. The other provisions in the Act include the establishment of National, State and District level disaster management Authorities, Institutes and Committees.

EXERCISE

Assignment

1. Visit the local Bureau of Indian Standards (BIS) to study the building codes. Record your observations and submit them as part of your portfolio.
2. Visit the local office of the Town and Country Planning to study the zoning laws and regulations of your town/city especially from the point of view of disaster mitigation and preparedness. Discuss the meaning of the following terms and note your observations in your diary.
 - (a) Municipality
 - (b) Land use
 - (c) Master plan
 - (d) Layout
 - (e) Residential
 - (f) Commercial (retail and wholesale)
 - (g) Industrial (light, medium, heavy and service)
 - (h) Public and semi-public
 - (i) Public utilities
 - (j) Open spaces, parks, playgrounds
 - (k) Transport and Communication
 - (l) Agriculture use

3. From local newspaper archives in the school library/ local public library find the disasters that have occurred as a result of violation of zoning laws or building regulations. Prepare a write up and include in your portfolio.
4. Visit the local Fire Station and Disaster Management Institute/ Agency and discuss with the concerned officers about the mitigation and preparedness measures.
Record your observations and submit them as part of your portfolio.
5. Using the key words such as disaster, disaster management cycle and disaster management browse through the websites and note the meaning of these terms and the website address.

ASSESSMENT

A. Short Answer Questions



1. Define disaster.

2. List the phases of disaster management.

3. State two preparedness measures that should be taken to avoid a fire disaster in a multi-storey residential building.

4. Write the full form of the following abbreviations:

(i) DMT: _____

(ii) DMC: _____

5. Write short note (about 200 words) on the following:

- Natural and man-made disasters.
- Myths about disasters and rumours to be destroyed.
- Gender issues in disaster management.

B. Fill in the blanks

1. In French, the term disaster means e_____ star.
 2. The two types of disasters are manmade and n_____.
 3. Disaster results from a combination of h_____ conditions of v_____ and insufficient capacity or measures to reduce potential negative consequences of risk.
 4. _____include measures taken to generate resource for returning the community to normal.
 5. _____ includes efforts to minimize the hazards created by a disaster.
 6. Emergency exercise or training for disaster management is part of the p_____.
 7. Given below are some of the disaster management measures. What type of measures are these?
 - (a) Drainage correction
 - (b) Proper land use measures
 - (c) Reforestation of the areas occupied by degraded vegetation
 - (d) Creation of awareness among local population.
-

CHECKLIST FOR ASSESSMENT ACTIVITY

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between hazard and disaster.
- (b) Differentiated between manmade and natural disasters.
- (c) Differentiated between mitigation and preparedness.
- (d) Differentiated between response and recovery.

Part B

Discussed in class the following:

- (a) What is the importance of disaster management?
- (b) What are the goals of disaster management?
- (c) What is disaster management cycle?
- (d) What are the phases in disaster management?

Part C

Performance standards

The performance standards may include, but not limited to:

Performance standards	Yes	No
Identify hazards and risks in a given situation		
Identify the phases in disaster management		
Read terms and signages for disaster management		
Identify the sections of the society who are vulnerable to disasters		

SESSION 2: ROLE AND RESPONSIBILITIES OF EMERGENCY RESPONSE TEAM

RELEVANT KNOWLEDGE

Emergency Response Team (ERT) or Emergency Response Unit (ERU) is established to provide relief from suffering and distress to persons affected by hazards, emergencies and disasters. It is a team of trained technical specialists ready to be deployed at short notice. They use pre-packed sets of standardized equipment and materials to deal with the emergency.

Structure, roles and responsibilities of an ERT

The structure of an ERT is a functional team. In the United States of America (USA), the standard is a ten-person team comprising of the following:

- 1. ERT Team Leader:** Generally, the first ERT team member arriving on the scene becomes team leader, and is the designated Incident Commander (IC) until the arrival of someone more competent. He/she makes the initial assessment of the scene and determines the appropriate course of action for team members; assumes role of Safety Officer until assigned to another team member; assigns team member roles if not already assigned; designates triage area, treatment area, morgue, and vehicle traffic routes; coordinates and directs team operations; determines logistical needs (water, food, medical supplies, transportation, equipment, and so on) and determines ways to meet those needs through team members or citizen volunteers on the scene; collects and writes reports on the operation and victims; and communicate and coordinates with the incident commander, local authorities, and other ERT team leaders.

2. Safety Officer: The Safety Officer checks team members prior to deployment to ensure that they are safe and equipped for the operation. He/she determines whether the working environment is safe or unsafe and ensures team accountability. He/she supervises operations (when possible) where team members and victims are at direct physical risk, and alerts team members when unsafe conditions arise.

3. Fire Suppression Team (2 people): The team suppress small fires in designated work areas and assist the search and rescue team or triage team.

4. Search and Rescue Team (2 people): The team search and provide for rescue of victims, as is prudent under the conditions and assist the Fire Suppression Team.

5. Medical Triage Team (2 people): They provide Simple Triage and Rapid Treatment (START) triage for victims found at the scene; marking victims with category of injury as per the standard operating procedures and assist the Fire Suppression Team or Rescue Team, if needed. The START system was developed to allow first responders to triage multiple victims in 30 seconds or less based on three primary observations: Respiration, Perfusion and Mental Status.

6. Medical Treatment Team (2 people): The team provides medical treatment to victims within the scope of their training. This task is normally accomplished in the Treatment Area; however, it may take place in the affected area as well. They may also assist the Fire Suppression Team and the Medical Triage Team as needed.

The team members have to work under the supervision of the ERT team leader, and communicate with him/her. Because every ERT member in a community receives the same core instructions, all team members have the training necessary to assume

any of these roles. Hasty teams may be formed by whichever members are responding at the time. Members may need to adjust team roles due to stress, fatigue, injury, or other circumstances.

Equipment used by ERT

The equipment used by an ERT could be sophisticated or simple, depending on the nature of the emergency and its magnitude. The list of some of the equipment used by the ERT is as follows:

- Personal Protective Equipment (PPE include hard hats, protective apparel, masks, eye protection glasses, gloves, etc.).
- HAZMAT (Hazardous Material Response Trucks).
- Frac tanks (A frac tank is used to hold water, or a proppant, when a well is being fractured)
- Vacuum trailers
- Excavators
- Bulldozers
- Tri-axle Dump Trucks
- Roll-Off Container Trucks
- Air Cushion Recovery Tools
- Mobile Incident Command Center With Satellite Communication Equipment
- Utility Vehicle
- Evacuation Megaphones
- Emergency Rescue Mat
- Emergency Eyewash and shower equipment
- Fire Extinguishers
- Medical Equipment
- Flotation Devices
- Safety Ropes

Search and Rescue Operations

Search and Rescue Operations (SAR) are a set of technical activities rendered by individual or a group of specially trained personnel who rescue and attend

to the casualties under adverse conditions, where life is at threat. It is important for the rescuers to collect information on the extent of damage, approach to the damage and understand if any further damage is likely to occur.

Search and Rescue Operations comprises the search for, and provision of aid to persons or structures which are feared to be in distress or imminent danger. It uses available personnel and facilities. It provides for their initial medical or other needs, and delivers them to a place of safety. Rescue is a team effort that needs planning and coordination amongst the members for an optimum response. The four types of search and rescue operations are as follows:

(i) Mountain rescue refers to search and rescue activities that occur in a mountainous environment. The terrain in which mountain rescue often occurs has resulted in the development of a number of specific pieces of equipment and techniques. The equipment includes mountain bike, motorcycle, protective clothing, helmet, knives, tools, compass, and sleeping bags. Helicopters are often used to quickly extract casualties, and search dogs may be used to locate casualties or survivors.

(ii) Ground search and rescue is the search for persons who are lost or in distress on land or inland waterways. Traditionally associated with wilderness zones, ground search and rescue services are increasingly required in urban and suburban areas to locate persons with Alzheimer's disease, autism, dementia, or other conditions that lead to wandering behaviour.

(iii) Urban search and rescue also referred to as Heavy Urban Search and Rescue (HUSAR), is the location and rescue of persons from collapsed buildings or other urban and industrial

entrapment. Urban SAR (USAR) in many jurisdictions refers to the location and extraction of people from collapsed buildings or other entrapments. Some ground search teams also employ search and rescue dogs. Due to the specialized nature of the work, most teams are multi-disciplinary and include personnel from police, fire and emergency medical services. Unlike traditional ground search and rescue workers, most USAR responders also have basic training in structural collapse and the dangers associated with live electrical wires, broken natural gas lines and other hazards. While earthquakes have traditionally been the cause of USAR operations, terrorist attacks and extreme weather such as tornadoes and hurricanes have also resulted in the deployment of these resources.

(iv) Combat search and rescue is search and rescue operations that are carried out during war, that are within or near combat zones. The armed forces of the country plays a vital role during disaster emergencies, providing prompt relief to the victims even in the most inaccessible and remote areas of the country. With their skills in technical and human resource management they organize effective relief measures for emergency situations.

(v) Air-sea rescue refers to the combined use of aircraft (such as flying boats, floatplanes, amphibious helicopters and non-amphibious helicopters equipped with hoists) and surface vessels to search for and recover survivors of aircraft downed at sea as well as sailors and passengers of sea vessels in distress. The rescue team should follow the following three key principles, while performing rescue operations:

- (a) **Look** physically for survivors and casualties trapped under the debris.
- (b) **Listen** to the source of information using acoustic devices.

- (c) **Feel** the gravity of danger and then respond to the situation.

Rescue and Evacuation Drills

A rescue and evacuation drill is a method or procedure of practicing the rescue or evacuation for an emergency. During any disaster, it is generally the security personnel or the police that first reaches the spot till the arrival of other emergency service personnel. The police extend all possible help and cooperation to the local authority in the rescue and evacuation operations. The security personnel should, therefore, be trained in rescue and search operations. In India, the Central Industrial Security Force (CISF) has been designated as one of the agencies to respond in the case of a disaster striking any part of the country. The Government of India has also declared the National Industrial Security Academy (NISA) as a National level institution for imparting training to the rapid response units.

In an evacuation generally the emergency system, usually an alarm is activated and the building is evacuated as though a real emergency has occurred. Usually the time it takes to evacuate is measured to ensure that it occurs within a reasonable length of time, and problems with the emergency system or evacuation procedures are identified to be remedied.

At the village level, Disaster Management Committee (DMC) and Disaster Management Teams (DMTs) are set up. The DMC consists of elected representatives, local authorities, officials from Government departments, doctors, paramedics, representatives from primary health centres, school teachers, etc. The DMT consists of the members of voluntary organizations/NGOs and trained volunteers from the village. The members of the team are imparted training in basic functions of rescue, evacuation, first aid, etc.

Drills are usually conducted in schools, offices, factories and other such facilities. The kinds of drills usually depend on the possible emergencies that could occur in those areas. The common types of drill that are usually conducted are:

1. Fire drills.
2. Drills on use of rescue equipment like ropes and knots, stretchers, fire extinguishers, and first aid kits.
3. Drills on use of flotation devices.
4. Drills on use of Personal Protection Equipment.

Benefits of drills

- Drills help develop teamwork.
- Drills help develop self confidence.
- Drills help to prepare crew for responding rapidly and effectively in an emergency situation.
- Drills can help prepare the crew to make decisions under pressure.
- Drills can help to identify how procedures might be improved.
- Drills help the crew to become familiar with the equipment and procedures and whether they are working properly.

EXERCISE

Assignment

1. Visit the local fire-station and note down the list of equipment and procedures that they use for conducting fire drill.



A. Short Answer Questions

1. What is an ERT?

2. Who are the members of an ERT?

3. Name any three equipment used by an ERT.

4. Write short note (about 100 words) on the following:

(a) Role of Panchayat or local authority in disaster management

(b) Role of Non-government organizations in disaster management

(c) Role of educational institutions in disaster management

B. Fill in the blanks

1. ERT stands for _____, Response _____.
2. An ERT is established to provide relief from suffering and distress to persons affected by hazards, e_____ and d_____.
3. _____ rescue refers to search and rescue activities that occur in a mountainous environment.
4. _____ search and rescue operations are carried out during war.
5. The rescue team should l_____ for survivors, listen to the source of information and f_____ the gravity of danger, before responding to the situation.

**CHECKLIST FOR ASSESSMENT
ACTIVITY**

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between the functions of Medical triage team and Medical treatment team.
- (b) Differentiated between mountain rescue and ground search and rescue.

Part B

Discussed in class the following:

- (a) What are the roles and responsibilities of people involved in emergency response team or emergency response units?
- (b) What are the different types of search and rescue operations?

Part C

Performance standards

The performance standards may include, but not limited to:

Performance standards	Yes	No
Identify personal protective equipment used by emergency response team or disaster management team		
Identify the role of various teams in responding to an emergency in a given situation or accident		
Identify the agencies responsible for disaster management		
Identify the type of search and rescue operation in a given situation		

SESSION 3: FIGHTING FIRE

RELEVANT KNOWLEDGE

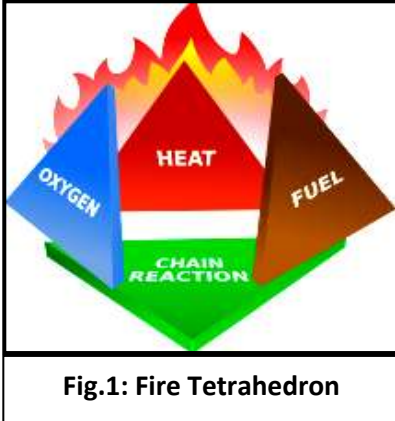


Everything in nature is made up of five basic elements: (i) earth, (ii) water, (iii) fire, (iv) air, and (v) space. Each of the five elements has a certain relationship with the other elements. These relationships form the laws of nature. An element could support or act as an enemy to the other element. For example, air (contains oxygen) support fire, but water can block the spread of fire. Therefore, in order to co-exist fire and water need to be separated. In this session, we will try to understand how to respond to fire emergencies. But before we do that, let us first understand what we mean by fire.

Fire is the rapid oxidation of a material in the chemical process of combustion, releasing heat, light and various reaction products. The **flame** is the visible portion of the fire and consists of glowing hot gases. Fire has the potential to cause physical damage through burning.

For a fire, three things are necessary - heat, oxygen and fuel. Fuel (in a non-gaseous state) does not burn directly. When you apply heat to fuel, it produces a gas. When the oxygen in the air combines with this gas, it burns. Remove one of those things (e.g., add water to eliminate heat or cover with dirt or sand to eliminate oxygen) and the fire will go out. Therefore the three elements that are necessary for a fire to ignite are:

- Heat
- Oxygen
- Fuel



- Fires start when a flammable and/or a combustible material, in combination with a sufficient quantity of oxygen gas is exposed to a source of heat that reaches above the flash point for the fuel and is able to sustain a rate of rapid oxidation that produces a chain reaction. This is commonly called the “*fire tetrahedron*” (See Figure 1).

Classification of Fires

Most fires that occur will fall into one or more of the following classes:

Class A: It comprise of fires involving ordinary combustible materials, such as paper, wood, and textile fibers. Cooling, blanketing, or wetting extinguishing agents are used for extinguishing such fires.

Class B: It comprise of fires involving flammable liquids such as gasoline, thinners, oil-based paints and greases. Extinguishers for this type of fire include carbon dioxide, dry chemical and halogenated agent types.

Class C: It comprise of fires involving energized electrical equipment. The most common type of extinguisher for this class is carbon dioxide extinguisher.

Class D: It comprise of fires involving combustible metals such as magnesium, sodium, potassium, titanium, and aluminum. Special dry powder extinguishing agents are required for this class of fire, and must be tailored to the specific hazardous material.

Class K: It comprises fires involving commercial cooking appliances with vegetable oils, animal oils, or fats at high temperatures belong to the category of class K. A wet potassium acetate, which is a low pH-based extinguishing agent, is used for extinguishing this class of fire.

Common Causes of Fire

Common causes of fire can be related to the following:

(i) Open Flames

- Negligence in conducting hot work, such as welding, cutting or grinding.
- Improper use of candles.
- Improper handling of flammable or combustible liquids or flammable gases in or near-to-potential ignition sources.
- Matches and cigarettes that are improperly disposed off or left unattended near combustibles.

(ii) Electrical

- Damaged electrical conductors, plug wires or extension cords.
- Use of faulty, modified or unapproved electrical equipment.
- Insufficient space or clearance between electrical heating equipment and combustibles.
- Short or overloaded circuits.
- Loose electrical connections.
- Lighting.

(iii) Cooking

- Deep frying in pots or pans on stove tops.
- Unattended cooking appliances.

- Combustibles located dangerously close to cooking equipment.

(iv) Spontaneous Ignition

- Improper disposal of materials susceptible to spontaneous combustion, such as oily rags from wood finishing or polishing.
- Accumulation of organic materials, such as green hay, grain or woodchips.
- Accumulation of waste combustible materials near potential sources of ignition.



Dealing with Fire Emergencies

In order to deal with fire emergencies remember the short form “RACE” i.e., Rescue, Alarm, Confine and Evacuate. Let us now learn about each of these aspects in detail.

- **R - Rescue/Remove:** Search and rescue is a team effort that needs planning, trained people and coordination amongst the members. When you discover a small fire you can rescue people in immediate danger, but this you should do without endangering your life. In case of big fires, evacuation should be done and people should calmly exit via safe **Fire Exit**.
- **A - Alarm/Alert:** Sound the alarm by pulling a fire box and call from a safe distance. Dial the fire emergency number 101.
- **C - Confine/Contain:** Close all doors, windows and other openings.
- **E - Evacuate/Extinguish:** Evacuate the building. In case it is necessary to enter the building, for example, to save people, take necessary precautions while entering the building.



Methods and Techniques of Extinguishing Fire

Small fires can be extinguished only if you are trained to use a fire extinguisher under the supervision of a trained fire fighting personnel.

To stop a fire, one of the sides of the fire tetrahedron ought to be cut off. The various methods adopted for extinguishing a fire include the following:

- **COOLING:** Lowering the temperature of the combustible material so that it falls below the ignition temperature.
- **SMOTHERING:** Cutting off supply of air/oxygen to the combustible material.
- **STARVING:** Removing of combustible material or removing air for achieving conditions below the “Limit of flammability”.

Class of Fire	Description	Method of Extinguishing	Extinguishing Medium	Extinguisher to be Used
A	Fire involving ordinary combustible material such as textiles, wood, paper, jute, etc.	Cooling	Water	Soda-Acid Type, Water, CO ₂ .
B	Fire involving flammable liquids such as petrol, oils, lubricants, solvents, paints, varnishes etc	Smothering or Blanketing effect	Foam CO ₂ Dry Chemical Powder (DCP) Halon	Foam CO ₂ , Dry Chemical Powder or Halon type.
C	Fire involving electrical installations due to overheating or short circuiting. This may finally lead to class A, B or C fire	Switch off electrical supply	Vapourising liquids, dry powders and CO ₂	CO ₂ , DCP or Halon, to be dry sand.
D	Fire involving metals such as radioactive metals Aluminum, Magnesium, Potassium, Sodium and Zinc	Smothering	Suitable dry powder	Special DCP extinguisher, dry earth, dry sand, powdered graphite, talc and asbestos, soda ash, limestone, etc.
K	Fire involving cooking oils and fats	Smothering	Powder BE	Foam, wet chemical extinguisher, Powder BE

Note:

- Do not use water jet for class B, D and E Fires.
- Do not use foam extinguishers for class A, C, D and E Fires.
- For class “E” Fire, extinguishing medium must be non-conductor of electricity and also non-damaging to equipment.

Fire Fighting Equipment and Installations

1. Personal protective equipment (PPE) designed to withstand water and high temperatures and hand tools used by fire fighters are as follows:

- (a) Bunker gear, including turnout jacket and pants
- (b) Self-contained breathing apparatus.
- (c) Helmet, facemask and/or visor.
- (d) Safety boots, gloves
- (e) Alert safety system device.
- (f) Handheld radio or other communication devices.
- (g) Thermal Imaging Camera.
- (h) Gas Meter.
- (i) Flat and pick-head axe.
- (j) Halogen bar
- (k) Chain saws.

2. Fire Water Tanks: For dealing with large fires, the entire building is installed with a system with a network of pipeline, hydrant valves, sprinkler heads, etc. The system is always kept under desired pressure with the help of respective Jockey pumps operating automatically within a range of water pressure in the pipe line. In case some hydrant is opened or sprinkler system gets activated, the respective main hydrant

pump or sprinkler pump will start automatically at a pre-set pressure for supplying water in large quantity. For supplying water to the system, the following water tanks are generally placed:

- (a) 1 Tank at the terrace: 100 KL (Kilo Litre)
- (b) 2 Underground tanks: 285 KL each
- (c) 2 Raw water tanks: 170 KL each
- (d) 2 Domestic water tanks: 155 KL each
- (e) Soft water tanks: 305 KL

3. Pumps:

- (a) Main Fire Pumps for hydrants: Capacity 4500 LPM (Litre Per Minute).
- (b) Pump for Sprinkler System: Capacity 4500 LPM.
- (c) Diesel Pump as stand by: Capacity 4500 LPM for hydrant & sprinkler system.
- (d) 2 Jockey Pumps with the capacity of 180 LPM and 450 LPM each to maintain pressure in low, medium and high pressure system.

4. Fire Hydrants: Fire hydrants are provided inside the building covering all the areas as per fire safety rules and regulations. Each hydrant box is equipped with a hose reel, two outlet valves for standard size hoses and a branch pipe.



5. Yard Hydrants: These are provided around the building for attacking the fire from outside, with the help of single outlet valve and standard size Reinforce Rubber Lined (RRL) hoses. Rubber hoses are provided with instantaneous release type couplings at each end i.e. male coupling at one end and female coupling at the other end.



(a) Use of Hose Reels in Hydrants (Rubber Hose Reel of length 35 metres): Open the fire hydrant cabinet door, tilt the hose reel outwards and start unrolling the rubber hose after opening 1 inch size hydrant valve. Open quick shut off valve on the nozzle of direct water jet at the base of fire. One person can operate the hose reel comfortably. For handling canvas hoses, 2-3 persons are sufficient.

(b) Use of RRL (Reinforced Rubber Lined) Hose (Length 15 mtr -02 in each hydrant box): Open the hydrant cabinet door, unroll the canvas hose, connect its male coupling end to hydrant valve and if required, connect additional hoses depending upon the distance between the seat of fire and hydrant box. Ensure that length of hose is not kinked. Connect water jet nozzle to female end of canvas hose and hold it firmly with both hands while keeping the hose pressed between the body and right arm. Throw of water can be adjusted by regulating the hydrant valve. Third person can assist in holding the pressurized hose or adjust length of hose or act as a messenger for regulating the hydrant valve. Drain hoses thoroughly before rolling and stowing. Do not open the hydrant valve abruptly as reactive force of water jet through nozzle may injure the person holding it.

6. Automatic Sprinkler System: A sprinkler system is an automatic fire detecting, alarm and extinguishing system that is constantly on guard to deal quickly and effectively with any outbreak of fire that may occur in relevant spaces. Water is fed to the sprinkler heads through a multi-stage composite pump applying water to low, medium and high pressure system of piping usually suspended from the ceiling with sprinklers facing upwards.

Sprinklers system also helps for gaining an easy access to seat of fire and improvement of visibility by lowering the smoke level in areas on fire.

In case of fire when temperature rises 68°C , the quartzoid bulb in the sprinkler head bursts and water under pressure starts spraying out from the sprinkler for extinguishing the fire by cooling effect.

Most of the area in the shopping mall building is well protected against risk of fire by means of automatic sprinkler system. Various areas connected to low, medium and high pressure sprinkler system are further divided zone-wise and a visual and audible alarm indication will be activated on alarm panel situated in the mall control room.

7. Fire Detection Panel and Warning System: This panel is installed in the electric control room. In case of a fire in a particular zone, we get an indication and audible alarm signal for dealing with the emergency situation. Control panel operates on 24°C supply through a rectifier circuit connected to 230 V AC supply. A stand by 24V battery backup is provided in case of failure of supply from the mains. Highly sensitive smoke and heat detectors are installed in various zones in public area, retail shops, service and machinery area on floors and corridors.

Heat detectors: These detectors have thin strips of metal that react to the presence of heat and activate an alarm when a specific temperature is reached. The thin strips of metal warp easily when heat from the air comes into contact with them. When the metal warps to a sufficient degree, contact is made with an electrical circuit activating the alarm.

Smoke detectors: When oxygen and the fuel source combine, the chemical reaction between the two products often produce other byproducts, including smoke and other toxic gases. A smoke detector works by monitoring the air for particles of smoke i.e., the minute particles produced by combustion. Smoke detectors do not detect flame, heat, or gases. There are two types of smoke detectors commonly in use: (i) Ionization Smoke Detectors, and (ii) Photoelectric Smoke Detectors

Flame detector: These systems monitor the production of certain spectrums of light produced by fire. Some of these systems monitor infrared light while others monitor ultraviolet light produced by the fire.

In case of fire, respective area fire detectors will activate an audible alarm signal along with visual indication showing the affected zone on a floor. A Light Emission Diode (LED) lamp glowing at the base of detector indicates that the detector has activated. The smoke detector is reset after the fire or after source of smoke is eliminated. Any fault indication also gets displayed on the panel.

Manual call boxes, installed at specific points in the corridors, service, machinery and public area, covering the entire mall building are use to activate fire alarm. Fire alarm can be activated in the main fire control panel by breaking the glass of pill box with a small hammer fixed on it. For resetting the system, pill box glass has to be refixed.

8. Public Address System: The Public Address (PA) system panel is a part of main control panel. All areas are divided in zones for making necessary

announcements or for giving FIRE ALERT alarm to various guest, service, machinery and public area. This system is supervised round the clock by an Assistant Security Officer (ASO).

9. Automatic Sprinkler Alarm Panel: This panel is installed adjoining main fire detection and warning panel. Zonal alarm signal and visual indication will get displayed on this panel in the event of water flow through the sprinklers, accidentally or due to outbreak of a fire.



10. Emergency Exits: Emergency exits on the road side outside the building are provided on every floor. Similarly, adequate arrangement is made for emergency exits from various public areas, basements, service areas and machinery areas.



11. Signages: Evacuation and safety instructions are displayed conspicuously at different prominent places. The following signages are generally displayed:



- (i) Photo luminescent signages reading “IN CASE OF FIRE, USE STAIRS UNLESS INSTRUCTED OTHERWISE” in red and white background in the entire building showing EXIT route.
- (ii) Photo luminescent signages are fixed in “EXIT” staircase indicating floor number.
- (iii) Each stairway and each elevator is given numbers as per evacuation plan e.g. S1, S2, etc. for stairways and L1, L2, etc. for elevators.
- (iv) ‘No Smoking’ signages are provided in service areas.
- (v) Kitchen safety signages are fixed in all kitchens.
- (vi) High Voltage/Danger signages are fixed on all electrical panels.

12. Emergency Power Supply: In case of power failure from the city source, generator sets each with a power output of 1500 KVA (or commensurate with requirements) come on load automatically within 5 to 10 seconds for meeting the normal supply load demand.

Prevention and Procedures

The defense against fire is viewed in two parts i.e., Fire Prevention and Fire Protection.

(i) Fire Prevention: This is a major precaution, which embodies the control of the source of heat and elimination or isolation of obviously dangerous fuels. It is considered much more important than success in the fire fighting operations. Adhering to precaution saves not only consequential losses but also helps in maintaining continuity in operations. Some of the preventive measures which are to be followed strictly have been mentioned below:

- Do not compromise on implementing norms and standards.
- Develop No Smoking discipline.
- Do not leave liquid fuel unattended.
- Prevent unauthorized electrical connections and usage of unauthorized electrical apparatus.
- Store all fuels / flammable stores in safe place.
- Establish a fire preparedness plan which takes care of prevention, response, recovery and keep it updated periodically.
- Designate an emergency coordinator and a team and assign responsibilities to employees to initiate the plan.
- Keep your housekeeping up-to-date, preventing accumulation of garbage or waste materials.
- Upgrade the facility to meet the required fire codes mentioned in National Building Code (NBC) of India.

- Ensure a preventive maintenance programme for operational equipment and make sure that the equipment meets the specifications and standards.
- Develop a mutual programme with neighbouring establishments for such emergencies.

(ii) Fire Protection

- The First Aid firefighting equipment have been provided on all floors, including basements.
- Fire fighting extinguishers have been distributed all over the building not only as per norms but also depending upon the vulnerability of the place.
- The complete building and the lawn is equipped with manual as well as automatic fire alarm system. Location of all manual call boxes is within laid down limit of 22.5 meter. The call boxes while being visible from the exit ways, do not obstruct fire exits. The call boxes are “Break Glass” Type.
- Fire exits and elevators are fitted with fire doors and shutters to provide fire protection to these areas.
- Fire extinguishers in the entire building, particularly in places identified as hazardous.
- Periodically test fire detection and suppression system as per national fire code.
- Ensure adequate water supply for hydrants and sprinklers.
- Evaluate volume, pressure and duration of water to last in an emergency.
- Provide an alert warning system for people in premises.
- Predetermine fire evacuation routes, mark them clearly and carry out periodical drills for all employees as well as guests.
- Inspect all evacuation routes daily.

- Maintain a checklist of maintenance.
- Smoke detectors and sensors have been fitted as per laid down norms.
- Adequate water storage facility.
- Gas pipe lines in kitchen areas of the food court have been checked for safety and fittings conform to Indian Standard Institution (ISI) norms.
- All exit ways are conspicuously marked by illuminated signs which remain visible even in the event of a power failure.
- To avoid the possibility of spread of toxic gases, smoke or fire due to central air conditioning, air ducts made of non-combustible and fire resistance material have been provided at appropriate places.
- Automatic dampeners have been provisioned at suitable locations inside the ducts.
- Emergency lights have been installed in the building.

Role of People in Fire Detection and Control

(i) Person Discovering Fire

The person who discovers the fire should:

- Contact telephone operator or fire station immediately.
- Give his/her name, exact location, size and type of fire.
- If phone is not working, then break the glass of nearby manual call box to activate fire alarm.
- Remove all possible combustible material from the vicinity of the fire.
- With the assistance of fellow colleagues try to control the fire in the manner he/she has been taught in the fire training or wait until the fire fighting team arrives on the scene.

(ii) Telephone Operator

In case of a report of fire or an emergency the operator shall notify the following immediately:-

1. Chief Security Officer (CSO).
2. Deputy Chief Security Officer (Dy. CSO).
3. Security Officer (SO).
4. Fire Officers.
5. Manager Operations.
6. Electrical Room.
7. General Manager (GM), Corporate Security.
8. Chief Engineer.
9. Electrician.

(iii) Fire Fighting Teams

The duty schedule of the fire fighting team is as follows:

Day	Night
(9:00 AM - 6:00 PM)	(6: 00 PM to 9:00 PM)
1. Chief Security Officer	Security Officer on Duty
2. Chief Fire and Safety Officer	Fire Officer
3. Officer	
4. Chief Engineer	Shift Engineer
5. Manager Incharge	

Support team

Day	Night
Security Officer/ Assistant Security Officer of respective areas	Security Officer/ Assistant Security Officer on duty
SA as deputed by SO/ASO	Assistant Fire Officer
Person reporting fire	Fire Marshalls
Incharge House Keeping (Day)	<ul style="list-style-type: none">▪ Shift Engineer▪ Electrician▪ Incharge Housekeeping (Night)

(iv) Duties of Leader of the Fire Fighting Team

- Acts as over all incharge.
- Assesses the intensity and magnitude of fire.
- Depute the fire fighting team to fire.
- Arrange to remove trapped persons from the scene of fire.
- Decide evacuation of guests after consulting General Manager, Corporate Security.
- Ensure sufficient water, power, fire extinguishers and necessary equipment to fight the fire are available.

(v) Duties of Chief Fire and Safety Officer/Fire Officer on Duty

- Rush to the scene of the fire.
- Assist CSO/Dy. CSO / SO on duty to combat the fire.
- Guide fire fighting team to make optimum use of fire fighting first aids and installations.
- Take charge of fire fighting team in case CSO/ Dy. CSO/SO are not present due to some reasons.

(vi) Duties of Engineering/Electrical Control Room Incharge

On receiving the information regarding the fire, he/she should immediately inform the shift engineer and on orders should instruct the following:

1. **Electrician:** To cut off the power to affected area.
2. **A/C Technician:** To cut off A/C and ventilation supply.
3. **Fire Technician:** To ensure activation of fire fighting installations.

(vii) Duties of Chief Engineer/ Shift Engineer

- To ensure control room is manned all the times during the period of emergency.
- Ensure engineering support team is deputed for respective jobs.
- Ensure that the electrician cut off power supply of the affected quadrant.
- Check status of fire pumps and instruct the operator and plumber to open all valves and check water levels.
- Carpenter to remain stand by with tools to break open door, if need arises.
- All emergency supply such as water, torches, emergency lights, etc. should be readily available to cater to the needs during the emergency.

(viii) Duties of Chief Engineer/ Shift Engineer

- To take charge of the situation and monitor it from the Close Circuit Television (CCTV) rooms.
- To set up an emergency control room in CCTV room.
- To exercise command and control over the activities in and around the building.
- On receipt of instructions from fire fighting team about the magnitude of fire, pass on necessary orders of evacuation, calling ambulance, fire brigade, etc. in consultation with the CSO / Dy. CSO.
- Inform neighbouring establishments about the fire.
- Ensure continuous flow of information to review the situation.

(ix) Duties of SO/ASO of the Affected Area

- To bring all elevators to the lower basement by operating Fireman's switches.
- Keep concerned senior persons informed about the situation.
- Ensure that adequate number of charged walkie-talkies are available for the emergency.
- Fight the fire with available resources without panicking.
- Guide people while carrying out evacuation.
- Make available enough security guards and house-keeping personnel to help in evacuation of injured person.

(x) Duties of Neighbouring SOs/ ASOs

- Cordon off the affected area and access to persons not involved in fire fighting.
- Be ready to assist fire fighting team.
- Provide assistance to fire brigade in guiding to the scene of fire.
- Act as Incharge of Cordon and Salvage Party according to the requirement.
- Ensure that onlookers or bystanders are kept at bay for easy and unobstructed movement of the fire tenders.
- Ensure that guards at the exit route guide the people on the way to the assembly point.
- Provide First Aid to the injured.
- Remove inflammable items lying around the scene of fire.
- Carry or shift items of property to a designate safer place within the area cordoned.
- Help evacuate trapped guests or employees.
- Keep close watch on salvaged items.
- Provide help to procure additional firefighting equipment, if required.

(xi) Duties of Help Desk Staff

- Help in evacuation of persons.
- Pass suitable instructions to control room for emergency announcements on Public address (PA) system.
- Restrict movement of persons not concerned with emergency to proceed towards the scene of fire.
- Guide persons in atriums to assembly points.

(xii) Duties of Housekeeping Staff

- Ensure fire exits are not obstructed.
- Help customers to come out of the building and guide them to exit routes.
- Try and convince the guests to maintain composure while evacuation to avoid stampedes.
- Help security guards in cordoning off the fire affected area.
- Help in salvaging property from getting burnt.
- Help in evacuation of casualties.

In India municipalities are required by law to have a fire brigade and participate in a regional fire service. Each city has its own fire brigades. The main functions of firefighting services in India are provision of fire protection and of services during emergencies such as building collapses, drowning cases, gas leakage, oil spillage, road and rail accidents, bird and animal rescues, fallen trees, appropriate action during natural calamities, and so on. Industrial corporations also have their own firefighting service. Each airport and seaport has its own firefighting units.

Firefighters are trained to use communications equipment to receive alarms, give and receive commands, request assistance, and report on conditions.

Assignment

1. Visit the local fire station and enquire about the following:
 - What is the frequency of fire incidents in the jurisdiction area?
 - What are the locations that usually report a fire?
 - What are the usual causes of fires that were reported last year?
 - Is the fire station providing training to institutions? If yes, then collect the names of the institutions.
2. Acquaint yourselves with the names and uses of the fire-fighting equipment housed in the fire-station. Take pictures, if possible, and make a report of your visit.
3. Visit a hotel/multiplex/shopping mall to observe and record your observations on the following:
 - (i) Emergency exits
 - (ii) Location of fire alarms
 - (iii) Assembly points
 - (iv) Nearest alternative telephone
 - (v) Internal shelter areas
 - (vi) First Aid equipment



A. Short Answer Questions

1. Describe the following terms with respect to dealing with fire emergencies:

(a) Rescue:

(b) Alarm:

(c) Extinguish:

(d) Evacuate:

CHECKLIST FOR ASSESSMENT ACTIVITY

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between different classes of fire.
- (b) Differentiated between different methods of extinguishing fire.

Part B

Discussed in class the following:

- (a) What are the various types of fires?
- (b) What are the various fire fighting installations?
- (c) Why is it necessary to conduct fire fighting drill?
- (d) What are the implications of incorrect use of fire extinguishers on classes of fire?

Part C

Performance standards

The performance standards may include, but not limited to:

Performance standards	Yes	No
Classify the various types of fires		
Read the signages for fire safety		
Demonstrate use of personal protective equipment		
Determine the fire type and select appropriate fire extinguishers		
Perform the technique of extinguishing small fire using portable fire extinguishers		
Identify different fire fighting installations for controlling large fires.		
Demonstrate the correct use of fire hose reel		

SUGGESTED READING

WEBSITES

1. http://mha.nic.in/pdfs/DM_Act2005.pdf (Disaster Management Act, 2005).
2. http://www.gdrc.org/uem/disasters/1dm_cycle.html
3. http://en.wikipedia.org/wiki/Building_code
4. http://helmholtzeos.dlr.de/docs/Taubenboeck_et_al.pdf
5. <http://en.wikipedia.org/wiki/Zoning>
6. http://en.wikipedia.org/wiki/Building_regulations_in_the_United_Kingdom#Part_N._Glazing_-_safety_in_relation_to_impact.2C_opening_and_cleaning
7. http://en.wikipedia.org/wiki/Community_Emergency_Response_Team