Paper V

Communication and Equipment Handling

Unit - I ❑ Communication System

Structure

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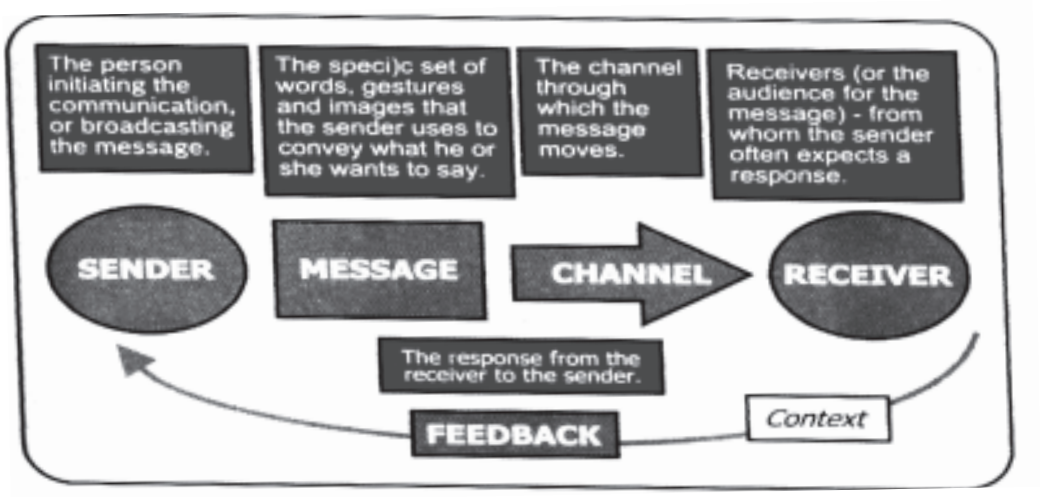
1.1 Introduction

Communication is sending and receiving ideas, thoughts or feelings from one person to one or more person in such a way that the person receiving it understands it in the same way the sender wants him/her to understand.

Communication Skills



- ❖ Know the overview of effective communication.
- ❖ Understand significance of body language
- ❖ Understand non-verbal communication
- ❖ Understand listening skills
- ❖ Know 10 commandments of Human Relation.

Types of Communication : It is of two types

- ❖ Verbal Communication - Refers to expression of one's self language in the form of spoken words
    1. Ensure it fits the purpose
    2. ABC : Accuracy, Brevity, Clarity
    3. KISS : Keep it Short & Simple
    4. Deliver information in 3 stages :
        - o Introduction
        - o Main body of the content
        - o Summary
- ❖ Non Verbal Communication - It includes facial tones of voice, gesture, eye-contact, spatial arrangements and pattern of touch, expressive movements, cultural differences and other "non-verbal" acts.

1.2 Communication Ideas (K - P - A - C - A - I) Method

K — Know the purpose

P — Prepare the material

A — Analyze your audience

C — Choicest selection of expression (words)

A — Appropriate use of medium

I — Identifying possible barriers to effective communication

1.3 Means of Communication

According to the way of expression the communication may be of 2 types:

A. ORAL COMMUNICATION - Is direct face to face communication between 2

individuals. In this, both the … exchange their ideas through oral words either face to face conversation or through mechanical/ electrical devices such as telephone, mobile, etc.

Ex: Meeting, Conference, Lectures and Interviews are important media of such communication.

B. WRITTEN COMMUNICATION - When communication is reduced into writing is called Written Communication. This includes written words, graphs, diagrams, pictures. Some common forms of written communication are circular, notes, magazines, manuals, letters, etc. written communication are extensively used in modern offices.

Speaking like a STAR

S — Situation

T — Task

A — Action

R — Result

7 C's of communication = So your audience gets message.

1. **C**lear
2. **C**oncise
3. **C**oncrete
4. **C**orrect
5. **C**oherent- logical
6. **C**omplete
7. **C**ourteous

1.4 Handing and operation of wireless communication equipments

Radio Communications

Types of Radio Sets

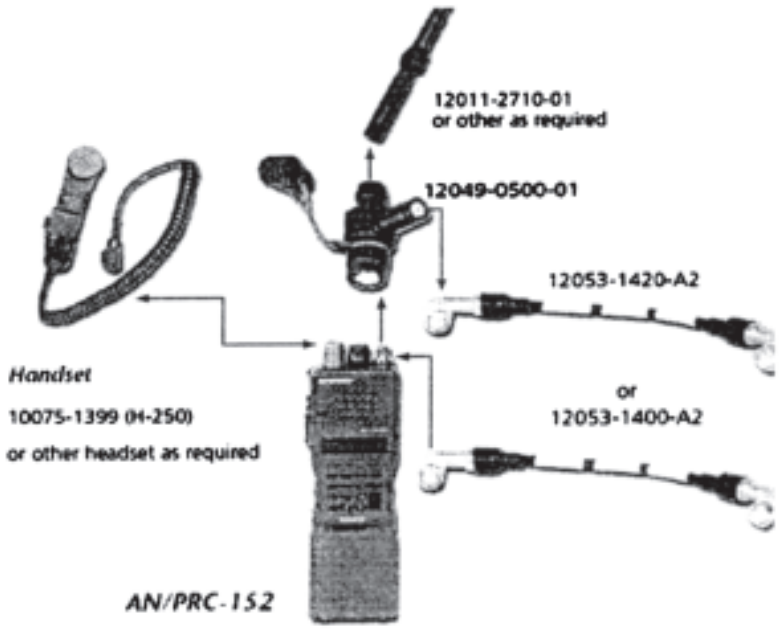
- **Handheld:** Wireless radio sets that can be carried in the hand. It is also called a walkie-talkie.
- **Fixed or Base Station:** Wireless radio sets that ate stationery or fixed in nature. It has a long and elevated antenna to enable wider reach and range.

- **Mobile Radio Sets :** Wireless radio sets when installed in a vehicle or man pack sets are called mobile radio sets.

Benefits of Wireless Radio Sets :

- **Instant :** The message is reached immediately.
- **Wireless :** As the radio set comes without a wire, easy to carry. The hassles of requiring plug points, sockets, power availability, etc., are eliminated.
- **Closed Conferencing :** On an open squelch mode all the stations will be able to hear the message, instructions, etc. Generally, the radio sets are kept on an open squelch mode.
- **Wider Reach / Range :** Covers large area and distance and can transfer the message easily, for example, message can reach beyond the city and town.
- **Portable :** Can be carried around, but within its range.

Main Parts of a Handheld Radio set



Base Station Radio Set

Any radio set can be utilized as a base station. It is also not unusual to ensure radio sets used as base stations have longer range by virtue of their power or antenna length or both.

PHONETICS			
A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUBEEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VGICTOR
J	JULIET	W	WHISKY
K	KILO	X	X-RAY
L	LIMA	Y	YANKY
M	MIKE	Z	ZULU

1.5 Basics of computer

Definition of Computer: A computer is an electronic device that manipulates information, or data. It has the ability to store, retrieve, and process data. It solves problems according to instructions given to it by the computer user. It is a digital machine used in all fields.

Parts of the Computer :

Computer is initially divided in two section—Software and Hardware

Hardware: It is any part of the computer that has a physical structure, such as the computer monitor, keyboard, mouse, etc.

Software: it the application that accomplishes the set of task given to the computer. Examples: web browser, games or word processors such as Microsoft word, Excel, Power Point, page maker, Corel draw, etc.

Hardware components of the Computer:

1. **Monitor :** Display screen

2. **CPU:** The central processing unit is the main computer that holds all the components and executes all the functions.

3. **Keyboard:** It is an input device that allows a person to enter symbols like letters and numbers into a computer.

4. **Mouse:** A computer mouse is an input device that is most often used with a personal computer. Moving a mouse along a flat surface can move the on-screen cursor

to different items on the screen. Items can be moved or selected by pressing the mouse buttons (called clicking).

5. Speaker: Computer speaker is an external device to the computer. This is one of the output device of a computer

6. Printer: it is a peripheral device that produces hard copy of documents stored in electronic form.

Input/Output device in a computer:

An input device sends information to a computer system for processing, and an output device reproduces or displays the results of that processing.

INPUT DEVICE	OUTPUT DEVICE
1. Mouse	1. Monitor
2. Keyboard	2. Printer
3. Microphone	3. Projector
4. Webcam	4. Speaker
5. Joystick	
6. Pen drive	

Advantages of Computer:

1. Helps us prepare proper documents
2. Helps us prepare good presentation
3. Helps us prepare reports with graphs and tabular sheet
4. Helps us prepare and keep updated database
5. Helps us to store files, pictures, songs, movies, presentations etc. in an organized way
6. Sending emails

Use of computer technology:

Today computer is used in every sector of the industry. Major places where computer is being used intensively (apart from the software industry) are -

1. Medical
2. Railways
3. Banks
4. Educational Institutes
5. Stock Market

Note: Computer understands only BINARY LANGUAGE (1, 0)

Memory size in computer : The size of any file in a computer is calculated in bytes

8bits = 1 byte

1024 bytes = 1 Kilobytes (KB)

1024 KB = 1 Megabytes (MB)

1024 MB = 1 Gigabytes (GB)

1024 GB = 1 Terabytes (TB)

1.6 Working on the computer

1. **Turning on/off the Computer:**
   - Plug the monitor and CPU to a socket and turn on the switch
   - Press and hold the CPU power button for 5 to 10 seconds. If an external power backup is connected to the computer, first press and hold the power button of the external back system and then turn the CPU on.
   - The computer will automatically boot up.
   - To turn the computer off, we first have to click on the "Shut Down" option which will come on the screen
   - For Windows 7 and lower, go to start menu →click on Turn Off →Press Shut Down
   - For Windows 8, first save and close all the files, applications or programs that were running. Together press ALT+F4. A window will appear. Choose the option "Shutdown" and click "OK"
2. **Hardware and Software properties:**
   - **View all the hardware and it's properties**

     Step 1: Right click on the computer icon

     Step 2: Click on properties

     Step 3: Click on device manager. All the hardware's connected to the computer will be displayed

     Step 4: Again right click and select properties.
   - View software on the computer:

     Step 1: Right click on the computer icon

Step 2: Click on properties

Step 3: Click on Control panel Home and select programs

Step 4: Go to Programs and Features to view all the softwares installed on the computer.

3. **How to change the desktop background**

Step 1: Right click on the desktop screen

Step 2: Click on personalized/ properties

Step 3: Go to desktop background. A new window will appear.

Step 4: Browse the picture or select a picture from the option. Position the picture and click on ok.

4. **How to create a screen saver**

Step 1: Right click on the desktop screen

Step 2: Click on personalized/ properties

Step 3: Go to screen saver. Choose a screen saver style from the dropdown menu.

For 3D text.

Choose screen saver style as 3D text and go to settings. Type in the text and do the necessary formatting. Click ok

Step 4: Click on apply and then OK.

5. **How to change taskbar/ title bar color**

Step 1: Right click on the screen and go to personalize/ properties

Step 2: Go to Color and select any color of your choice.

Step 3: Click on OK.

6. **How to hide, re-position and resize buttons on the taskbar**

Step 1: Right click on the taskbar and go to properties

Step 2: Choose the location from the "taskbar location on screen" dropdown

Step 3: To make the taskbar buttons smaller and hide the taskbar, tick on the check boxes.

Step 4: Click ok to apply

7. **How to create, rename, delete a folder**

Step 1: Right click on the screen and go to New

Step 2: From the options click on Folder.

Step 3: A new folder is created. Name the folder and press Enter button. The folder opens

Step 4: To rename the folder. Right click on the folder and select rename. Rename and press Enter to complete

Step 5: To open an existing folder. Double-click on the folder.

Step 6: To delete the folder, Right click on the folder and select delete. Click ok to confirm.

1.7 Important short-cut keys

I. Using the Clipboard

1. Ctrl+ C Copy what's selected
2. Ctrl+X Cut what's selected
3. Ctrl+V Paste what you last copied or cut
4. Ctrl+A Select all
5. Ctrl + Z Undo an action

II. Windows

6. Alt+F4 Exit the active window
7. Alt+Tab Switch to the previous active window
8. Alt+Esc Cycle through all open windows
9. +D Show desktop (hit it again to show windows)
10. + L Lock the computer
11. Alt + Enter Displays the properties of the selected object.
12. F5 Refresh the active window.

III. Documents and Files

13. Ctrl +N Create a new document
14. Ctrl+O Open an existing document
15. Ctrl+W Close the current document
16. Ctrl+S Saves the current document
17. Ctrl+P Print the current document

1.7.1 Internet

❖ Definition of Internet:

The Internet, sometimes called simply "the Net," is a worldwide system of computer networks. It is a means of connecting a computer to any other computer anywhere in the world via dedicated routers and servers. When two computers are connected over the Internet, they can send and receive all kinds of information such as text, graphics, voice, video, and computer programs.

❖ What is a website?

A website, also written as web site, or simply site, is a set of related web pages typically served from a single web domain. A website is hosted on at least one web server, accessible via a network such as the Internetor a private local area network through an Internet address known as a uniform resource locator (URL). All publicly accessible websites collectively constitute the World Wide Web (WWW).

❖ Web Browser

A web browser (commonly referred to as a browser) is a software application for retrieving, presenting and traversing information resources on the World Wide Web. An information resource is identified by a Uniform Resource Identifier (URI/URL) and may be a web page, image, video or other piece of content.

Examples:

1. Google Chrome
2. Mozilla Firefox
3. Internet Explorer
4. Opera Mini
5. Safari
6. Net Scape

❖ What is a webcam?

A webcam - short for 'web camera' - is a digital camera that's connected to a computer. It can send live pictures from wherever it's sited to another location by means of the internet. Many desktop computer screens and laptops come with a built-in camera and microphone, but if yours doesn't, you can add a separate webcam at any time.

There are various types. Some are plugged into computers through USB ports, but others are wireless (wifi). Other features might include:

- an integral microphone
- the ability to pan and tilt

- ❖ in-built sensors that can detect movement and start recording
- ❖ a light that, when on, will let you know that the camera is in use.

There's a wide range of things that you can do with a webcam. The most common is to video chat over the internet using Skype - see our Skype guides for all the information you need to get going.

And always remember, and remind your children, that any images you make available to others via your webcam could remain on the internet forever.

1.8 Access Control

Introduction: Access Control is defined as restriction or denial of access to a place or other resources involving physical as well as informational security. Access Control gives organization the ability to monitor, restrict, exercise control and protect resource availability, integrity and confidentiality within.

Sum up:

A. Allow to gain entry of authorized/ Right Person/ Vehicles/ Materials

B. Deny the entry of unauthorized Person/ Vehicles/ Materials

Access control operation

Access Control operations are carried out through physical and electronica method.

a. Physical Access Control - can be achieved by the interaction of human such as security guard, security staff, receptionists, front office personals, etc., and also using mechanical means like locks and keys.

In this process, a person or a vehicle is stopped by the security guard at the access-point of any premises to either let in or to let away.

In this operation the disadvantages are as follows:

i. A slow process

ii. Prone to human error

iii. Difficult to handle large volume of traffic.

b. Electronic Access Control - process involves the use of computers, electronic sensors and bio-metric devices to impose the process.

It allows access to person or vehicle based on the verification of credentials stored in the database of the system. The system also monitors access control points or doors and sounds alarm in case of forced entry or tailgating attempt detected.

Personal access control equipment

i. **Turnstiles:** form of gate which is designed to allow only one person at a time. These are extensively used in metros, malls, amusement parks, multiplex, airports, museums, etc.

Types :

Waist - High Turnstiles

Full Height Turnstiles

Flap Barrier

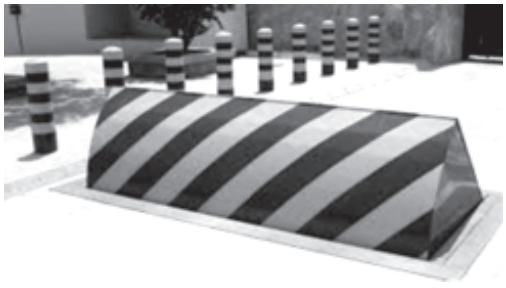
ii. Bio-metric: is the product of science & technology that Measures and analyze biological data of human body such as Finger prints, finger vein recognition, facial patterns, eye Retinas, voice patterns etc., for identification and authorization and recording purpose. The biometrics is Being used extensively in India for UID also known as AADHAR.

1.9 Vehicle access control equipment

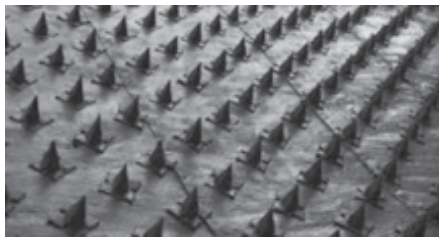
Boom Barrier

Spikes

Security bollard



Road Blocker



Surface Barrier

Situation faced during access control

Access Control operations at any premises may lead to difficult situations due to various reasons, requiring tact& professionalism from security Personnel in diffusing the situation.

a. Lost, expired and defaced ID Cards
b. Forget, tampered and unauthorized ID Cards.
c. Surreptitious entry, impersonation and forced entry
d. Tailgating, queue and crowd formation and aggressive behavior
e. Visitors expecting preferential treatment mainly for parking space, the visitors seek preferentialtreatment for parking violating the traffic management.

1.10 Anti-Sabotage Checking

The aim of Anti Sabotage Checking (ASC) is to prevent wrongful entry of persons, Vehicles & Materials inside the premises, deny prohibital/restricted articles intended to be carried inside by wrongful means in a clandestine way.

Types of search.

a) Personal Search
b) Vehicle Search
c) Baggage Search
d) Material Search

Prohibited Items: These are generally listed items like weapons, firearms, amenities, Explosive banned chemicals, inflammable materials such as petrol, kerosene oil, gas cylinder etc.

Unauthorized /Restricted items: These items are forbidden by organization polices & instructions which may include mobile sets, laptops, Hard disc, Cigarette , lighter sharp

edges tools, property and other materials.

In ASC, our security staff should be more vigilant about their personal belongings. For saferside they should check their own baggage & belongings before start of duty. They should ensure that no one temper with their luggage boots of cars, two wheelers, cycles etc ,either personal or official should be checked and always kept lock. At all-time one should be aware of one surroundings to which anything amiss, out of context or placed in awkward/ unnecessary position. There is no hard and fast rule in the matter but underlying emphasis should be on eliminating unauthorized object. Visual ASC should be conducted Electrical points, fixture and also electric items like computers, 'Xerox' machine, fax & telephone etc.

Equipments of anti-sabotage checking are available in various shape & size are

Hand held metal detector (HHMD

Doorframe metal detector (DFMD)

Under Search mirror /trolley mirror X BIS - X Ray baggage Inspection System/ Scanner

Overhead MirrorComputer

Explosive Detector Police Dog.

1.11 Surveillance

In the modern day scenario of all round development , intense use of technology has been made to ensure full proof made the present security systems &methods more efficient and highly successful, incorporating effective use of technology based & security & surveillance equipment. It is man-mix electronic gadgets. It is important a security guard is conversant with such system.

Surveillance Equipments.

a) Closed Circuit television Video Camera (CCTV)

These are best suitable for monitoring surveillance in one as which are difficult to physically observe & monitor. These are installed in places. Such as banks, Airport, malls, traffic junction and other installations..

In industrial area, office complex etc CCTV Camera are extensively used to observe the premises from a central control room. From CCTV Cameras, the footage of past events can be retrieved. Such footage is important for detection of crime.

b) Internet Protocol Camera(IP Camera)

It is digital, video camera commonly used for surveillance which send & receive signals & data through a computer network & internet. There are two types IP Camera.

i) Centralized IP

ii) Decentralized IP

c) Spy Camera: - A Spy camera is hidden & miniature device used for spying / surveillance of public place. The camera can be hidden in any small objects, such as radio, cigarette lighter or built invisible objects like brief-case, ball point pens, etc.

d) It is a device that gives sound or vibration to indicate the occurrence of some undesirable events. Example:

i) Clock Alarm

ii) Siren

iii) Burglar/Intruder alarm

iv) Smoke Sensor

v) Fire Sensor

vi) Surveillance item:- It is RADAR (Radio Detective and raying) based surveillance_ alarm which gives direction & detection of a persons crossing premises by group radio signals.

All alarm /sensors installed as part of the early warning system are connect to a control Room for security personnel to abort the incident time.

Observation Equipment:- Binocular NVD, telescope , Magnifying glass, Zoom camera etc

Smart Card:- In security field smart card plays an important role as these are used for identification, authentication, authorized only.

Its application in security field are as follows:

i) High end security identification

ii) Access Control

iii) Attendance Recording

iv) Payment at the parking fees

v) Entry/Exit recording

Sensor/Alarm:- Both works together to make a very effective. Early warning system for prevention and protective security acting by the security guards sensor - a device that works because of light increase or decrease of temperature, pressure etc. due to this its gives signals/current to alarm to start.

1.12 Access Control/Frisking

The first question that comes to mind is why Access control / frisking required and how can it be done and what mitigation measures can be suggested?

The straightforward answer is :

Access control or frisking is required for providing :

- Security protection of facilities at offices, factories, installations and even residences
- Denial of entry or exit to unauthorized persons
- Apart from frisking, maintenance of entry or exit records in the form of Daily log books acts as a moral check and cautions persons with bad intentions as their particulars are recorded
- Access control can be done even for pedestrians inside facilities at offices, factories, installations and residences. It includes search of men and women but one has to know what to do once the weapons are discovered or persons are found to be disorderly or if they are carrying illegal items.
- Is done to prevent entry of unwanted elements or materials.

Vehicle access control and search procedures covering and search procedures covering driver identification, vehicle compartment and body frame search, truck and vendor access procedures, vehicle and cargo search, etc.

How is access control and/or frisking done:

Use of access control such as electronic body and package search equipment, personal search equipment, personal searchers, vehicle search, building search for suspected bombs, visitor control procedures like issuance of badge and visitor entry and exit monitoring are becoming normal.

Access control includes visitor control procedures such as issuance of badges and

visitor entry and exit monitoring and/or providing escorts for visitors within the premises.

Package and mail search and bomb search can be done with electrical equipments and through manual search.

Personnel identification procedure are followed for identification of staff members, their dependents,official visitors and checking their identification documents.

Access violation plus threats emerging can be handled by:

- Use of communication equipment for prompt reporting of an incident to the appropriate authorities whenever a suspicion arises is the best practice.
- US of alarm systems.
- Bomb threat emerging during frisking has to be handled by calling for bomb disposal procedures and through intimation to appropriate authorities.

Mitigation measures should cover:

- Training in use of physical force in self defence.
- Training in tactfully restraining of persons and use of restraining equipments.
- Skill in reading messages and pictorial reports generated by surveillance equipments like CCTVs, sensors. Etc.
- Skill in reading the body language and behaviour of persons.
- Skill in giving first aid and cardio-pulmonary resuscitation to a sick or injured person during an armed attack or in the event of violent attack.
- Use of handheld and vehicle mounted radio communication system.
- Wearing proper uniforms.
- Know the use of weather protective clothing.
- Use of flashlights
- Use of batons.
- Use of whistles and special signals for alert communication
- Use of high frequency mobile radios
- Use of walkie talkies
- Knowledge of driving vehicles

1.13 Skills for dealing with anti-sabotage checking & emerging threats

Introduction

There can be different types of threats emerging during anti sabotage checking, major civil disturbance, bomb threat, aircraft emergency, barricade or hostage situation, or other acts of terrorism. Only a few are discussed here, and these may be threatening telephone calls. Bomb threats, etc.

Threatening telephone calls

In most cases telephonic calls are hoax calls but from the security point of view, such calls should not be dismissed lightly.

Irrespective of the nature of such calls, they should be reported to the designated official.

The designated official should intimate the appropriate authority so that the identity of the caller can be established.

The contents of the call and all other details must be reported as accurately as possible so that those information and help in subsequent evaluation of the threat and correlated with incidental threats or crime related crimes.

Efforts must be made to split the telephonic call into bits such as -- the point of threat whether it is directed to an organisation or group or class of people, etc.

Threatening bomb threats in a building

The bomb threat can be to a building.

The bomb threat can be in the form of a telephonic call, or a written message, or a suspicious letter or a claimed package or parcel left behind in some premises of the building.

There must be a designated official to an act in case of such threats. Decision must be taken promptly on issues such as -- full or partial evacuation , search operations, intimation to respective authorities, etc.

Floor wardens must be appointed who will ensure that, during evacuation, no one is left behind they must be trained to know what to look for during searches of the respective areas. The floor warden must quickly assess the type of each bomb and the threat they can pose.

What to do during a perceived threat evacuation

The building may have to be quickly searched before any evacuation.

A pre-notified evacuation signal may be announced to draw attention of inmates before evacuation.

A evacuation route may be established and before that the area should be checked for any evacuation.

The doors and windows are to be left open to allow ventilation for possible fumes or gases after an explosion.

The lifts and elevators must be rendered non-operational so that people do not get trapped.

Ensure orderly evacuation takes place and people do not panic when moving away.

The sick, the disabled, the children, the females must be sent at least 100 metres away in order to prevent an injury from the impact of the blast due to flying glasses, masonry splinters, etc.

What to do after the evacuation ?

A thorough search of the building should be conducted before allowing people to re-enter. This should be done by a person from the bomb defusal squad.

In case a suspicious object is located, it must never be touched.

Arrangements may be made to inspect the same by experienced personnel before the bomb defusal squad finally arrives.

During the search, only persons familiar with the area should be sent in.

No object should be shaken or moved during the search.

If the intimated bomb threat gives out a possible Time target , the bomb search operation should themselves evacuate 30 minutes before the given threat time and they should not resume search until 30 mins after the specified time.

What to look for during an anti-sabotage checking / search?

The threat call may specify the description of the threat and therefore the searchers must look fo that type of object.

Any object that is unusual for the area may be searched.

Any object which is of exceptional shape or size or which may emit some smell or peculiar sound must be located.

An object in which wires or batteries are noticed must be checked first.

Any object marked as explosive, fire, danger, etc. must be checked seriously.

Searches may be made of unidentified bags, luggages, rates, etc.

False ceils must be given special attention as those are the easy spots for planting time bombs.

Rest rooms, wash rooms,etc. Are also places for planting bombs and those must be searched thoroughly.

Cordoning & sealing equipment handling

The fire brigade is often called where no one else knows what to do. Particularly if an incident involving hazardous materials has occured, expert knowledge and equipment are vital.

Procedures for operations involving contaminants

1. Identify risk (measuring devices)
2. Cordon off the danger zone.
3. Rescue people (observing self protection requirements)
4. Stabilize the situation (collect- seal- pump out)

Put up danger signs, indicate the presence of danger

Hazardous materials are classified into three categories according to their risk potentials:

Atomic hazards

Biological hazards

Chemical hazards

The packages are structured according to the following scheme:

- Blockage material
- Measuring devices
- Protective equipment
- Sealing materials
- Collecting containers
- Pumps
- Earthing material
- Electrical material

- Tools
- Hoses
- Other materials

Atomic hazards

Main focus : self protection (measuring devices and protective equipment)

Measuring radiation level is a vital duty

An equipment called ELECTRONIC DOSIMETER EDW 150 with alarm functions which is small and handy and simple to operate is used for measuring the gamma radiation and x-rays digital dose indication on LC- display (7digits)

Protective Equipment

Isotemp radiation protection suit is used. This is made of steel fibre, oil and water repellent fabric, flame- retardant.

Breathing Mask

Only suitable in areas where the contaminated air contains at least 20% of oxygen. Made of soft neoprene which improves comfort and facial seal. Comes with an inner mask with non-return valves as well as separate inhalation and exhalation channels.

Electronic Hands Searchlight

This searchlight is explosion- proof. It is fitted with a set of Ni- Cd sealed rechargeable batteries, which are leak- proof. The searchlight is provided with an emergency flashing device. DC complete with cables.

The Detection of Biological Hazards

Hand held biological agent detector is a portable, hand-held thermal cycler capable of detecting both bacterial and viral pathogens quickly and accurately,using polymerase chain reaction (PCR) technology.

Benefits: Portable bio detection capability, can process simultaneously process 6 divergent samples, test results available in 30 minutes or less, detects both bacterial and viral pathogens.

Protable Spectrophotometer for Water Analysis

Protective Equipment

Total Encapsulating Suit

Medium duty, gas tight and chemical proof suit for use against all common chemicals and gases.

Measuring Devices

Simultaneous test set indicator substances for test of inorganic fire gases and simultaneous for test of organic fire gases.

The other equipment is a gas detector consisting of a gas detector pump and a choice of more than 150 different tubes to measure a wide range of gases and vapours.

Temperature Measurement Infrared Thermometer

This thermometer with graphical display automatically charts the last ten temperature points using maximum and minimum values to establish the range. Its purpose is to check for hot spots in electrical panels, circuit breakers, generators and gearboxes. It also monitors supply and return registers, air stratification, duct leakage and also monitors temperatures of petrol and diesel engine cylinders, railroad axles, bearings.

Other Sundry Equipments are :

Protective clothing

Chemical protection gloves

Chemical resistant safety boots

Breathing mask

Multipurpose filter with connection

Breathing apparatus contour with air cylinder

Compressed air cylinder bar with gastight valve

Chem tape for chemical protection

Chemical splash goggles comfortable to wear in

Connection with optical glasses

Disposable cover to protects against concentrated inorganic acids and bases

And against a wide range of organic chemicals.

Sealing Materials

Contains leak sealing bag basic kit which is suitable for sealing of punctured tanks, containers or large diameter pipes.

Other accessories are :

Collecting tube, cover for collecting tube, stainless steel bucket and interception, man made fibre fabric

Submersible pump, made of stainless steel. The unit is suitable for pumping chemical contaminated sewage water and acids.

Quick Acting Stop Cock

Protective clothing, reducers, sealings, etc. allow the handling of even major incidents.

Air supply system for the control room and an air supply unit compressor for breathing apparatus.

Contamination = pollution of persons, items, rooms or the environment by radioactive, biological or chemical substances

In dry decontamination the main component is towels. It facilitates the protective suits follow up treatment in the breathing apparatus workshop.

For minor contamination and wet decontaminant the main component is water.

Decontamination Starts with the Washing of Hands

A kit for personal cleaning has to be kept handy.

This set includes in a small box (fits in almost every fire fighting truck) with all necessary things for an easy and fast decontamination containing :

5mm hoses with D-couplings

Dividing breeching

Nail brush

Hand brush

Limited use of protective clothing

Paper towels

Garbage bags

Liquid soap

Identification of IED (Improvised Explosive Devices) is a skill but at the same time, the security personnel must have operating skills for handling mines, improvised explosive devices, etc.

In today's environment, security risks arise due to planting of mines, booby traps and unexploded improvised explosive devices (IED) in various areas.

The security personnel must use their common sense and intuitive precautions as defence against such explosive devices.

Another security measure is to remain alert and aware about the pesence of such dangers.

The security personnel must be properly dressed with long trousers, long sleeved shirts, cotton or woollen if possible (not nylon or polythene) .

The security personnel driving in mine infested areas must follow the following rules:

- ❖ Drive with windows open
- ❖ Drive cautiously
- ❖ Keep eye open for obvious hole on the road surface
- ❖ Never to drive with worn out trays.
- ❖ The vehicle floor must be completely covered covered with sand bags or soil in plastic bags.

Mines may be either anti personnel mines or anti tank mines. Other explosive devices may be include booby traps, grenades and IED all of which are dangerous.

Mines may be of different shapes and size . The security personnel must be taught to never disturb those. Anti-tank mines do not explode even if those are trampled by pedestrian traffic.

Personnel must be given mine awareness training and told where those could be found in that location such as:

A. Places of unrest

B. Around police or military caps

C. Slides of unused footpaths or tracks

D. On the verges of roads or rail tracks

E. In or around culverts and bridges

F. Near or inside abandoned or dilapidated housed

G. In or around water bodies or water tanks

H. In areas where people might hide

I. At crossing point of small streams

Security Personnel May be trained to use Minesweepers in Order to Trace Mines Planted Near :

1. Dead animals
2. Near small potholes
3. On the ground where small wire may peep out

4. On barbed wire fences
5. Near small serviceable roads or tracks
6. On cultivated fields
7. Small plastic bags or flag hanging around trees
8. Sticks inserted into the barks of the trees

What to do if a mine is located?

The security personnel must report immediately to the local controlling office.

The security personnel must never panic.

The security personnel must ask everybody to STOP.

The security personnel must try to find more mines.

The security personnel must retreat from the area and return with reinforcements.

The security personnel must stay alert and inform all the community members.

Equipment for Identification of Narcotic Material

Mobile field laboratories are now available as a narcotics identification system. The law enforcement professionals can quickly and easily perform presumptive drug testing in the field without destroying evidence. They simply have to place and cover the unknown material on the portable device and narcotics detecting technology rapidly scans it and creates an unique spectral fingerprint of the substance.

This unique chemical fingerprint is then compared to the embedded database of over 3600 illegal narcotics narcotics, cutting agents, and controlled prescription drugs to ensure objective and reliable identification.

Illegal narcotics include cocaine, heroin, ecstasy, and the synthetic stimulants used in bath salts.

How to Conduct Body Search of Individual’s

The following is a general procedure to be followed :

Remove the person's outer clothing.

Set aside hats, shoes, coats and accessories.

If another person is available see that he can call the police of if possible call the authorities, set the articles of clothing aside or check for weapons before returning them. If the person being searched is in a violent state of mind, think carefully about the items that could be dangerous before giving them back. Someone could use pencils, pens, combs and keys as weapons as well.

Make the person stand facing a wall, with his palms upon it and legs spread shoulder width apart so that, if the person tries to assault the person searching will be in a position to overpower him.

The searcher will start patting and searching the person's body from head (including hair) downwards including underarms and all personal areas with his palms since the palm is in a positive to sense anything inside between the clothing and the skin.

Hand-held metal detector can be used by the person searching.

Premises Search and Area Search

The entire building premises has to be quickly searched before any evacuation.

A pre-notified evacuation signal may be announced to draw attention of inmates before evacuation.

The doors and windows are to be left open allow ventilation for possible fumes.

The lifts and elevators must be rendered non-operational so that people do not get trapped.

Ensure that orderly evacuation takes place and people do not panic which moving away.

The sick, the disabled, the children, the females must be provided special assistance.

The electric connection must be snapped and gas lines must be disconnected in order to eliminate possibility of fire hazard.

The evacuated people must be sent at least 100 metres away in order to prevent injury from the impact of the blast due to flying glasses, masonry splinters,etc.

Working of Anti Sabotage Checking Gadgetry

The very common items are:

Electron Vapor Detector : is a portable explosives detector which detects explosive vapors and gives results in seconds.

Non Linear Junction Detector is a device that illuminates a small region of results of space with high frequency, radio frequency energy.

Probes / piercing rod are handheld pinpointing metal detectors.

Elevated / mounted mirror

Trolley mirror used to search for unwanted items undercarriage of vehicles being checked.

Deep search metal detector

Door frame metal detector

Role of Sniffer Dogs in Security Operations

Routine checks are made on containers vehicles, baggage and people at our seaports and airports. Where further investigation is deemed necessary, sniffer dogs are released by their handlers to carry out a more active search. The dogs know their job. They methodically cover every section of the area they are needed to explore.

Dogs are trained to detect specific smells above others but have the ability to identify, for example,firearms too. A sniffer dog that is trained to find drugs will seek smells related to illegal drugs but will respond if it picks up the scent of other known objects or substances. Even when illegal drugs have been deliberately covered with other strong smells, in an effort to disguise them, the dedicated working dog will not be distracted from his task.

Other work that sniffer dogs are used for security, search and rescue operations including bomb detection, and people (search and rescue as well as suspects on the run). Cadaver dogs are trained to search for dead bodies in disaster areas and missing person investigations where it is thought relevant to do so.

First Aid

First aid is the immediate aid and care offered to an injured or ill person is general related to medical treatment which may be minor or major in nature requiring deeper and longer subsequent care and attention.

It consists of a series of systematic life saving procedures by trained personnel with minimum equipment.

While first aid can also be performed on all, the term generally refers to care of other than human patients.

The key aims of first can be summarized in three key points which are-

1. To preserve life through first aid, medical care aimed at saving lives.
2. To protect and prevent further harm so that the condition does not deteriorate further after an injury or illness due to external factors. Here attention is paid to patient's breathing, bleeding and bones.
3. To promote recovery of a victim through first aid initially such as applying a plaster or a bandage to a small wound.

Some organisations teach the same order of priority using the 4Bs : Breathing, Bleeding, Brain, Bones.

Types and Techniques of Patrolling

Purpose is to prevent crimes.

There is no such thing as routine patrol.

The patrol party must familiarize itself with the assigned area viz:

A. Physical structures- building layouts

B. Streets

C. Block numbers

Types of Patrol

Automobile patrol- provides speed, mobility, ability to carry equipment, officer protection, prompt service.

Bike patrol- stealth, fairly quick, limited equipment, easy parking

Foot patrol- dense population areas with heavy traffic, provides person to person contact, opportunity to learn area, ability to sneak up on situations with less attention, but slow and inability to carry equipment.

Motor patrol- quick, use for escorts, effective traffic enforcement because of small size.

Patrol division- is backbone of department.

The basic duties are primarily: protection & service

Other objectives:

1. Preventive enforcement- prevention of crime through the noticeable presence of officers
2. By merely being seen, we stop crime.
3. If not stop, it will change the location of crime
4. Selective enforcement- being seen in areas in which there is trouble or where troublr is likely.
5. Used for both traffic and criminal problems
6. Based on officer's experience and statistics on:
   - ❖ Locations
   - ❖ Time of the day
   - ❖ Potential hazards
   - ❖ trends

Handling Mob Attack

A crowd that is unruly or hostile or notorious and can cause harm is called a mob.

Police, security personnel or any other law enforcement team must wear safety gear, helmets and protect itself with body armour, bullet proof jackets and shields of various kinds.

To control a mob, the following methods, devices, equipment may be adopted and one can see the use of:

1. Tear gas
2. Horse mounted police
3. Trained attack dogs
4. Water cannons
5. Plastic bullets
6. Rubber bullets
7. Pepper spray
8. Flexible strong batons/ canes

Handling and Operation of Wireless Communication Equipment

How does wireless communication work?

A central unit communicates wirelessly with a range of devices which connects and controls the connection with a range/ proximity

Wireless communication only uses a small amount of power, only a small bandwidth is required to provide data or messages about switching appliances on and off. Infact, power consumption is so low that one can use batteries rather than mains power, for sensors and meters. This allows considerable freedom to position the equipment where it is needed, irrespective of the power is in the vicinity or not.

Handling and operating basic fire fighting equipments-

Firefighters are expected to develop skills to fight against fire for the purpose of preventing fire from spreading, controlling fire, for rescuing people in distress due to fire and preserving property under fire or that may get engulfed in fire

For the above stated purpose, the firefighters are required to possess various equipments and they must be trained to handle those. The following are the standard equipments required (mentioned in alphabetical order):

1. **Automatic distress signal unit-** an alarm use to signal a firefighter in trouble. It is activated manually by the firefighter.

2. **Aerial ladder-** a rotating ladder which is power operated mounted on self propelled fire apparatus.
3. **Air bag-** this is an inflatable device used for lifting
4. **Aqueous film forming foam-** used to spread a non- volatile film over the surface of the fuel. It is pumped through fire hose to a foam nozzle.
5. **Attic ladder-** is a collapsible ladder used to reach narrow passages.
6. **Breathing apparatus-** self contained for the firefighter
7. **Booster hose-** this is attached to a fire pump and is used for small fires
8. **Bunker gear-** are protective boots and pants for firefighters during rapid deployment
9. **Claw tool-** used for early striking and prying to get entry
10. **Carbon dioxide extinguisher**
11. **Compressed air foam system-** here water and foam are mixed with compressed air
12. **Dry chemical-** an agent used for breaking the chemical chain reaction
13. **Dry powder-** an agent used on inflammable metals
14. **Dry sprinkler-** this has pressurized air to activate water inside pipes during freezing temperatures
15. **Encapsulated suit-** this is a clothing use for protecting a firefighter
16. **Fire alarm control panel-** used to announce location of fire based on inputs from smoke, flame, heat detectors
17. **Fire streams-** this is water mixed with foam emitted at nozzle, directed at burning materials
18. **Fire grenade-** this is thrown into the fire in order to mix with air and produce non combustible mixture
19. **Fibre glass helmet-** for the firefighter
20. **Flashlights**
21. **Hydraulic platforms-** is an aerial platform for firefighters to stand on while fighting a fire
22. **Iron axe-** for forcible entry and breaking'
23. **Life net-** to catch victims falling or jumping from upper floor
24. **Light water-** used for extinguishing petroleum fires
25. **Multi gas detector-** to detect gases like oxygen, CO, volatile organic compounds, HCN

26. **Oxyacetylene cutting torch-** to cut metal
27. **Pick headed axe-** for the firefighter
28. **Pompier ladder-** to climb from one window to another
29. **Potable water tank-** to bring water by tank
30. **Ringdown (radio)-** to alert fire station or an ambulance
31. **Roof ladder-** to attach at the roof
32. **Safety boots and gloves**
33. **Shove knife-** used to open a latch or any type of spring door
34. **Smoke detector units-** to detect and signal evidence of smoke
35. Spanner wrench
36. Water mist fire suppressor
37. Water tender tanker
38. **Thermal imaging camera-** to detect hidden people, animal, heat sources i.e. sources of fire.
39. **Turnout gear-** is a protective gear used as an shield by firefighters

Musketry Handling & Firing Personal Weapons

Rifles, muskets, carbines, shotguns, revolvers, pistols and all other deadly weapons are firearms from which a bullet, ball, shot or other missile may be discharged by means of gun powder or other explosives

"Permission to carry firearm outside of residence" is to be obtained in written from the appropriate authority.

An individual may hold under license a max of only (1) low powered rifle or musket and one pistol or revolver for the purpose of self defence.

Officers and non commissioned police officers enlisted personnel in the active service and in the retired list of armed forces may hold under a license of only one low powered rifle or shotgun and one shotgun.

Commissioned officers can hold under license a max of one rifle or shotgun and on side arm.

Such weapons shall be personal weapons kept in custody for restrictive use of self defence.

Model Questions
Diploma in Safety Skills & Security Management
(One Year Diploma)
Term End Examination
Paper : II
Security Operational Skills

UNIT -1

Answer *any five* questions:

1. What are the main differences in nature of job between a security guard & a supervisor?
2. What are the points to be remembered for a security guard while on duty at Main Gate of Chemical Plant?
3. Discuss, why crowd control is necessary while strike or labour unrest in a factory?
4. What is the difference between the activities of Central Security Force and Private Security Agencies, how & where they are developed?
5. Briefly define day to day activities of Security In-charge of any public places.
6. Briefly define for planning crisis Management.
7. How to tackle Natural & Nuclear Disasters?

UNIT-II

Answer *any five* questions:-

8. What are the important duties & responsibilities of Security Personnel while developed at the following places (any five):
   a) Research Centre
   b) Commercial Places
   c) Hospital Main Gate
   d) Airport operating skill for guard force.
   e) Heritage Building
   f) Museums
   g) Factory Main gate
   h) Shopping Mall or Corporate Office Gate
   i) B.A. operating procedure

UNIT-III

Answer *any two* questions:-

9. Write a short note on sudden bomb explosion at any public places, how to tackle the situation?

10. If any advance report received by the Chief Security Officer of a factory regarding terrorist activities, what precautions should be adopted to safe the factory?
11. What type of preventive measures to be taken by the security personnel in case of criminal activities in a factory?
12. How to control coal mines explosion and other explosive devices?
13. How do you tackle for security of women & children drilling with threats?

UNIT-IV

Answer *all* the questions:-

Tick the right answers:

1. If explosive identified
   a. To inform police ☐ b. Try to remove ☐ c. To cordon the area ☐
2. Where nuclear disaster may be happen?
   a. In Nuclear Power Plant ☐ b. In Nuclear Research Plant ☐ c. Natural & nuclear disaster area. ☐
3. Security checking of women & children preferred by
   a. Male Security Staff ☐ b. Lady Security Staff ☐ c. Security Officer ☐
4. Which communication system may be preferred in factory
   a. Land Phone ☐ b. By Walkie Talkie ☐ c. Public Address System ☐
5. Red alert for security purpose
   a. For terrorist attack ☐ b. Explosion of coal mines & other explosives. ☐
   c. Sabotage & handling with hijacking situation. ☐

Answer any 10 Questions:-

1. Discuss about Operating Procedure of B.A. Set.
2. How to handle natural Disaster and nuclear disaster?
3. Write a note on Guard Force Management.
4. How to tackle drilling with threats?
5. Discuss about the crowd control management.
6. What is crisis management and media interaction?
7. Write a short note regarding coal mines & other explosive devices.
8. Discuss about trickling & protecting hostages.
9. Discuss about skill for security of women & children.
10. Write a note on security of front office & administrative management.
11. Write about India's three major disaster situations.
12. What are effective communication skills referred to radio/wireless communication?
13. Write short note on B.A. Set features with a sketch & name of the parts.
14. Discuss about survivors during hi-jack situation.
15. Why crowd control is necessary in a factory while labour unrest or strike called by political parties?