COMMUNICATION

1. ***Communication*** is the easy transmission of the thoughts and ideas from one individual to another.
2. What are the ***various forms of communication***?
    - Sign language
    - Voice
    - Written script
    - Line transmission
    - Radio wave
    - Space wave
    - Highly complex digital communication
3. The telephone is invented by ***Graham Bell.***
4. ***Advantages of line communication:-***
    - Reliable and practically free from electrical interference
    - Relatively secure
    - Number of circuits and message carrying capacity is more but limited only by availability of material and man power
5. ***Disadvantages of line communication:-***
    - Vulnerable to physical interference and enemy interception along the entire length of the route
    - Takes time to construct
    - Inflexible once it is laid
    - Expensive in men and material

Radio communication

1. ***Radio*** is the technology to using radio waves carry information as sound.
2. ***Wave***

   A disturbance that travels through a medium from one location to another location.

   Types of waves
    - Mechanical waves
    - Electromagnetic waves

- Propagation waves

Mechanical waves

A mechanical wave is a wave that is ***an oscillation of matter and therefore transfers energy through a medium.***

Electromagnetic waves

These waves are waves which ***can travel through the vaccum of outer space.***

Propagation waves

The mode of propagation of electromagnetic waves from ***transmitter to receive depends upon the frequency employed***. These can be of the following types

- Sky wave propagation
- Space wave propagation
- Ground wave propagation
- Tropospheric scatter

3. Radio communication involves ***net radio*** and ***radio relay***.
4. ***Net radio*** is the basic mean of signal communication for any mobile force.
5. ***Net radio facilities***
    - Radio telephony - simple one way voice communication
    - Radio telegraphy - for transmission of message and key conversation
    - Tele printers - over radio transmission
6. ***Radio relay***

    It implies that a series of radio transmitters and receives spaced between 20-35kms apart and are used to provide point signal communication.

Characterestics of wireless technology

7. ***Features of Wi-fi technology***

    Wireless operations permit services such as a long range communications, which are impossible (or) impractical to implement with the use of wires, information is transferred in this manner over both short and long distances.
8. Some of the ***benefits of a Wi – fi network:-***
    - Unmatched mobility and elasticity

- Fortress technology
- Support an entire age bracket
- Convenient and available everywhere
- Faster and secure
- Wi –fi with no limitation
- Extension of wi- fi technology
- Cost reduction
- Flexibility

Terminal equipment and limitations of Wi – fi

9. ***Mobile phone*** is the example of wireless technology.
10. ***Wi – fi technology demerits***
    - Security
    - Wireless reception
    - Interference
    - Compatibility issue
11. ***Walkie \ Talkie*** formally known as had held ***transceives.***
12. ***Walkie talkie*** development credit goes to ***Donald L Hings***, radio engineer ***Alfred J Gross*** and engineering teams at ***Motorola.***
13. ***Radioset facilities***
    - It is portable and light in weight
    - Can be operated easily
    - It can be operate in VMF\UMF and 2 way simpler mode
    - 128 channel of this radio set can be present in **+ 8 zone**
    - option of selective call facilities available
    - call alert can be given to receiver station
    - call apart can be given to receiver station
    - can select required zone
    - short\stop facilities of scan operation available
    - add\delete from scan list facilities available

14. ***Nickel metal*** battery is used in walkie talkie
15. Frequency of the radio set is ***136 MHZ to 174 MHZ*** on VHF mode.
16. Communication range of radio set is ***4 to 5 km and 20 to 40 km repeater.***
17. Power supply can be provided to radio set by the high capacity ***7.2 volt batteries.***
18. What are ***the four portion of radio set?***
    - Top panel
    - Side panel
    - Front panel
    - Back panel

Latest trends and development in communication

19. The ***lower layer of the atmosphere below 15 km height*** is called ***tropospheric region.***
20. UHF expansion- Ultra High Frequency
21. SMF expansion- Super High Frequency
22. Radio communication over the horizon covering a range between ***70 km to 1000 km***
23. MODEM- Modulator-Demodulator

    This device is used ***to convert computer generated output [digital signals] that can be transmitted on a telephone line.*** Modems are required at ***both the sending and receiving computer.***
24. Fax

    This is the common short form of ***FACSMILIE*** which is one of the memory type electronic mail and message systems with the following advantages
    - Can transmit graphics as well as alpha numeric information
    - Reduce the time and eliminates transmission error
    - Use any transmission medium eg. Telephone, line, micro radio wave
25. Abbreviation of Tax is TELE PRINTER EXCHANGE
26. Satellite

It is an artificial object which has been intentionally placed into orbit. Such object is sometimes called artificial satellite to distinguish them from natural satellites such as earth's moon.

27. What are the ***types of satellites***?
    - Military and civilian earth observation satellite
    - Communication satellite
    - Navigation satellite
    - Weather satellite
    - Space satellite
    - Space satellites and human spacecraft in orbits are also known as satellites
28. What are the ***types of satellite orbits***?
    - Low earth orbit
    - Polar orbit
    - Geostationary orbit

29. Computer means rackon or compute

30. List out the ***latest form of communication***
    - Tropo scatter
    - MODEM
    - FAX
    - Telex
    - Satellite
    - Optical fibre communication computer system
    - Computer system
    - Internet
    - Cell phone
    - Multimedia
    - Video conferencing system

31. Facilities of videophone

- Can transmit speech as well as color video
- Conduct of video conferences
- Called subscribes is seen on the monitor
- High quality of voice

- Speed of sending\receiving can be adjusted by the user
- Map over lays can be transmitted

32. WWW- World Wide Web

Basic radio telephony procedure

33. Radio telephony

The procedure laid out to communicate on the radio so as to make the conversation secure and successful which is referred to as radio telephony.

Advantages

- Easy to establish
- Flexible
- Transmission to more than one station

Disadvantages

- Easier to intercept
- Liable to atmospheric interference and interference from other stations
- Liable to be famed
- Skilled operators required

34. Principles of radio telephony procedures

BASS defines the principles of RT procedures

B- BRAVITY

A-ACCURACY

S-SECURITY

S-SPECIAL

35. Types of RT communication

- RT conversation- this is normal conversation between radio operators, which is not registered
- Unregistered message- the only record taken will be in radio operator's logs of the sender and receiver.
- Formal message- it is the written down and signed by the originator will be written on a message form

Definition

36. Radio net

Stations working on same frequency in order to communicate with each other comprise a radio net.

37. Control station

Station serving as the senior HQ in the radio net. It is responsible for the establishment of communication and maintain radio discipline on the net.

38. Link sign

It is the secret group of letters or combination of letters and figures, allotted to a station on radio net, for concealing the identity of the communicating station. It is changed daily or even earlier if required.

39. Long message

Message **that losts for more than half a minute** generally consists of more than thirty groups.

40. Code sign

It is ***three letter group allotted to HQ\ formation or unit to conceal*** their identity. These are changed daily.

41. Short message

A short message ***losts for half a minute or less.***

42. Phonetic alphabet : alpha, bravo, Charlie.

43. Code word

A code word is ***a single word used to provide security cover for reference*** to a classified matter.

44. Nick names

A nick name consists of ***two separate words that do not bear any relationship*** to each other.

45. Radio telephony procedure

- Over
- Out
- Wait out
- Wait
- Out to you
- Roger
- Wilco

46. Types of calls

- Single call
- Multiple call
- Net call
- Net call with exceptions

47. Establishment of communication

- After change of frequency
- Bad weather
- After move
- After lifting of ratio silence
- After change of link sign

48. Rules of security

- Think before you speak
- Use correct procedure
- Avoid use of jargon
- Use official codes only
- Substitute clear names by code signs
- Be brief