15CS10038 15CS10055

Q 2. a)

ACTIVE MODE :

FTP messages:-

client ip : 10.105.65.40   server ip : 10.5.20.222
client port : 48210   server port : 21 for command channel connection. tcp.stream eq 23
client port : 56917   server port : 20 for data channel connection. tcp.stream eq 25

1. Frame 1950: 123 bytes on wire (984 bits), 123 bytes captured (984 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 1, Ack: 1, Len: 57
File Transfer Protocol (FTP)
   220 ProFTPD 1.3.5a Server (Debian) [::ffff:10.5.20.222]\r\n
      Response code: Service ready for new user (220)
      Response arg: ProFTPD 1.3.5a Server (Debian) [::ffff:10.5.20.222]

2. Frame 1952: 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48210, Dst Port: 21, Seq: 1, Ack: 58, Len: 16
File Transfer Protocol (FTP)
   USER anonymous\r\n
      Request command: USER
      Request arg: anonymous

3. Frame 1954: 141 bytes on wire (1128 bits), 141 bytes captured (1128 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 58, Ack: 17, Len: 75
File Transfer Protocol (FTP)
   331 Anonymous login ok, send your complete email address as your password\r\n
      Response code: User name okay, need password (331)
      Response arg: Anonymous login ok, send your complete email address as your password

4. Frame 1958: 73 bytes on wire (584 bits), 73 bytes captured (584 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48210, Dst Port: 21, Seq: 17, Ack: 133, Len: 7
File Transfer Protocol (FTP)
   PASS \r\n
      Request command: PASS

5. Frame 1959: 118 bytes on wire (944 bits), 118 bytes captured (944 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40

Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 133, Ack: 24, Len: 52
File Transfer Protocol (FTP)
   230-Welcome, archive user anonymous@10.105.65.40 !\r\n
     Response code: User logged in, proceed (230)
     Response arg: Welcome, archive user anonymous@10.105.65.40 !

6. Frame 1961: 315 bytes on wire (2520 bits), 315 bytes captured (2520 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 185, Ack: 24, Len: 249
File Transfer Protocol (FTP)
   230-\r\n
     Response code: User logged in, proceed (230)
   230-The local time is: Wed Jan 24 08:44:01 2018\r\n
   230-\r\n
   230-This is an experimental FTP server. If you have any unusual problems,\r\n
   230-please report them via e-mail to <root@localhost>.\r\n
   230-\r\n
   230 Anonymous access granted, restrictions apply\r\n

7. Frame 1963: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48210, Dst Port: 21, Seq: 24, Ack: 434, Len: 6
File Transfer Protocol (FTP)
   SYST\r\n
     Request command: SYST

8. Frame 1964: 85 bytes on wire (680 bits), 85 bytes captured (680 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 434, Ack: 30, Len: 19
File Transfer Protocol (FTP)
   215 UNIX Type: L8\r\n
     Response code: NAME system type (215)
     Response arg: UNIX Type: L8

9. Frame 2220: 92 bytes on wire (736 bits), 92 bytes captured (736 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48210, Dst Port: 21, Seq: 30, Ack: 453, Len: 26
File Transfer Protocol (FTP)
   PORT 10,105,65,40,222,85\r\n
     Request command: PORT
     Request arg: 10,105,65,40,222,85
     Active IP address: 10.105.65.40
     Active port: 56917

10.Frame 2221: 95 bytes on wire (760 bits), 95 bytes captured (760 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 453, Ack: 56, Len: 29

File Transfer Protocol (FTP)
   200 PORT command successful\r\n
      Response code: Command okay (200)
      Response arg: PORT command successful

11. Frame 2223: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48210, Dst Port: 21, Seq: 56, Ack: 482, Len: 6
File Transfer Protocol (FTP)
   LIST\r\n
      Request command: LIST

12. Frame 2227: 120 bytes on wire (960 bits), 120 bytes captured (960 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 482, Ack: 62, Len: 54
File Transfer Protocol (FTP)
   150 Opening ASCII mode data connection for file list\r\n
      Response code: File status okay; about to open data connection (150)
      Response arg: Opening ASCII mode data connection for file list

13. Frame 2227: 120 bytes on wire (960 bits), 120 bytes captured (960 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 482, Ack: 62, Len: 54
File Transfer Protocol (FTP)
   150 Opening ASCII mode data connection for file list\r\n
      Response code: File status okay; about to open data connection (150)
      Response arg: Opening ASCII mode data connection for file list

14. Frame 2232: 89 bytes on wire (712 bits), 89 bytes captured (712 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48210, Seq: 536, Ack: 62, Len: 23
File Transfer Protocol (FTP)
   226 Transfer complete\r\n
      Response code: Closing data connection (226)
      Response arg: Transfer complete

FTP-DATA protocol is used for data transfer.

PASSIVE MODE :

FTP messages :-

client ip : 10.105.65.40   server ip : 10.5.20.222
client port : 48228   server port : 21 for command channel connection. tcp.stream eq 0
client port : 51726   server port : 38075 for data channel connection. tcp.stream eq 1

1. Frame 5: 123 bytes on wire (984 bits), 123 bytes captured (984 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)

Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 1, Ack: 1, Len: 57
File Transfer Protocol (FTP)
    220 ProFTPD 1.3.5a Server (Debian) [::ffff:10.5.20.222]\r\n

2. Frame 9: 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48228, Dst Port: 21, Seq: 1, Ack: 58, Len: 16
File Transfer Protocol (FTP)
    USER anonymous\r\n
        Request command: USER
        Request arg: anonymous

3. Frame 11: 141 bytes on wire (1128 bits), 141 bytes captured (1128 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 58, Ack: 17, Len: 75
File Transfer Protocol (FTP)
    331 Anonymous login ok, send your complete email address as your password\r\n
        Response code: User name okay, need password (331)
        Response arg: Anonymous login ok, send your complete email address as your password

4. Frame 13: 73 bytes on wire (584 bits), 73 bytes captured (584 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48228, Dst Port: 21, Seq: 17, Ack: 133, Len: 7
File Transfer Protocol (FTP)
    PASS \r\n
        Request command: PASS

5. Frame 14: 118 bytes on wire (944 bits), 118 bytes captured (944 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 133, Ack: 24, Len: 52
File Transfer Protocol (FTP)
    230-Welcome, archive user anonymous@10.105.65.40 !\r\n
        Response code: User logged in, proceed (230)
        Response arg: Welcome, archive user anonymous@10.105.65.40 !

6. Frame 16: 315 bytes on wire (2520 bits), 315 bytes captured (2520 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 185, Ack: 24, Len: 249
File Transfer Protocol (FTP)
    230-\r\n
        Response code: User logged in, proceed (230)
    230-The local time is: Wed Jan 24 09:26:40 2018\r\n
    230-\r\n
    230-This is an experimental FTP server. If you have any unusual problems,\r\n
    230-please report them via e-mail to <root@localhost>.\r\n
    230-\r\n

230 Anonymous access granted, restrictions apply\r\n

7. Frame 18: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48228, Dst Port: 21, Seq: 24, Ack: 434, Len: 6
File Transfer Protocol (FTP)
    SYST\r\n
        Request command: SYST

8. Frame 19: 85 bytes on wire (680 bits), 85 bytes captured (680 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 434, Ack: 30, Len: 19
File Transfer Protocol (FTP)
    215 UNIX Type: L8\r\n
        Response code: NAME system type (215)
        Response arg: UNIX Type: L8

9. Frame 26: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48228, Dst Port: 21, Seq: 30, Ack: 453, Len: 6
File Transfer Protocol (FTP)
    PASV\r\n
        Request command: PASV

10. Frame 27: 116 bytes on wire (928 bits), 116 bytes captured (928 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 453, Ack: 36, Len: 50
File Transfer Protocol (FTP)
    227 Entering Passive Mode (10,5,20,222,148,187).\r\n
        Response code: Entering Passive Mode (227)
        Response arg: Entering Passive Mode (10,5,20,222,148,187).
        Passive IP address: 10.5.20.222
        Passive port: 38075

11. Frame 32: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48228, Dst Port: 21, Seq: 36, Ack: 503, Len: 6
File Transfer Protocol (FTP)
    LIST\r\n
        Request command: LIST

12. Frame 33: 120 bytes on wire (960 bits), 120 bytes captured (960 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 503, Ack: 42, Len: 54
File Transfer Protocol (FTP)
    150 Opening ASCII mode data connection for file list\r\n

Response code: File status okay; about to open data connection (150)
Response arg: Opening ASCII mode data connection for file list

13. Frame 38: 89 bytes on wire (712 bits), 89 bytes captured (712 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 557, Ack: 42, Len: 23
File Transfer Protocol (FTP)
    226 Transfer complete\r\n
        Response code: Closing data connection (226)
        Response arg: Transfer complete

14. Frame 43: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 0
Ethernet II, Src: Dell_35:01:6d (74:e6:e2:35:01:6d), Dst: Cisco_93:09:ff (c8:9c:1d:93:09:ff)
Internet Protocol Version 4, Src: 10.105.65.40, Dst: 10.5.20.222
Transmission Control Protocol, Src Port: 48228, Dst Port: 21, Seq: 42, Ack: 580, Len: 6
File Transfer Protocol (FTP)
    QUIT\r\n
        Request command: QUIT

15. Frame 44: 80 bytes on wire (640 bits), 80 bytes captured (640 bits) on interface 0
Ethernet II, Src: Cisco_93:09:ff (c8:9c:1d:93:09:ff), Dst: Dell_35:01:6d (74:e6:e2:35:01:6d)
Internet Protocol Version 4, Src: 10.5.20.222, Dst: 10.105.65.40
Transmission Control Protocol, Src Port: 21, Dst Port: 48228, Seq: 580, Ack: 48, Len: 14
File Transfer Protocol (FTP)
    221 Goodbye.\r\n
        Response code: Service closing control connection (221)
        Response arg: Goodbye.

Q 2. b)

Active mode:Client informs the port number where it is listening, and the server initiates the TCP connection to that port (TCP server is running at the client side).
Passive mode:The server selects a random port, and the client initiates a TCP connection to that server port.
for command channel in both active and passive , the client initiates a TCP connection from some port no. to port 21(always) of the server.
for data channel connection , a new port no. is used on the client side and port 20 on server side and the server initiates the TCP connection in case of active mode .
for data channel connection , a new port no. is used on the client side and a new port is assigned in the server side and client initiates the TCP connection in case of passive mode.

note: IN 1 TCP CONNECTION OF DATA CHANNEL ONLY 1 FILE IS TRANSFERRED AND A NEW DATA CHANNEL CONNECTION NEEDS TO BE ESTABLISHED FOR FURTHER TRANSFER.

Q 2. c)

client port : 56917   server port : 20 for data channel connection. (ACTIVE MODE)

for data channel connection , a new port no. is used on the client side and port 20 on server side and the server initiates the TCP connection in case of active mode .

client port : 51726   server port : 38075 for data channel connection. (PASSIVE MODE)
for data channel connection , a new port no. is used on the client side and a new port is assigned in the server side and client initiates the TCP connection in case of passive mode.