	COLLEGE OF COMPUTING AND INFORMATION SCIENCES		
	Mid-Term Assessment Summer 2020 Semester		
Class Id	104594, 104595	**Course Title**	DCN
Program	BSCS	**Campus / Shift**	Main Campus / Morning
Date	7th – July 2020	**Total points**	50
Duration	02 hours	**Faculty Name**	Kashif Bashir, Hira Beenish
Student Id	9827	**Student Name**	Hasan Noor Soomro

Instructions:

- Fill out your Student ID and Student Name in above header.
- Do not remove or change any part question paper.
- Write down your answers with title "Answer for Question# 00".
- Handwritten text or image should be on A4 size page with clear visibility of contents.
- In case of CHEATING, COPIED material or any unfair means would result in negative marking or ZERO.
- **Caution:** Duration to perform Mid-Term Assessment is **02 hours only**. Extra 3 hours are given to cater all kinds of odds in submission of Answer-sheet. **Therefore, if you failed to upload answer sheet on LMS (in PDF format) within 5 hours limit, you would be considered as ABSENT/FAILED.**
- The answer script is uploaded as "ID_Name.PDF" file by 4:30 PM on KIET LMS.
- You have to solve all the questions in sequence order. Otherwise there will be negative marking.
- Attempt all questions.

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1. Determine if the address/subnet pair is legal or not. If it's legal, determine the network number and the range of the host addresses for that network. Also determine for the mask given, the number of available subnets and available hosts per network. [10]

   a) 180.32.116.170 255.255.255.224
   b) 99.63.165.159 255.255.255.240

9827 Hassan Noor Soomro

Q1

a) 180.32.116.170
252.255.255.224

Street

Valid

180 . 32 . 116 . 170
10110100 . 00100000 . 01110100 . 10101010

255 . 255 . 255 . 224
11111111 . 11111111 . 11111111 . 11100000

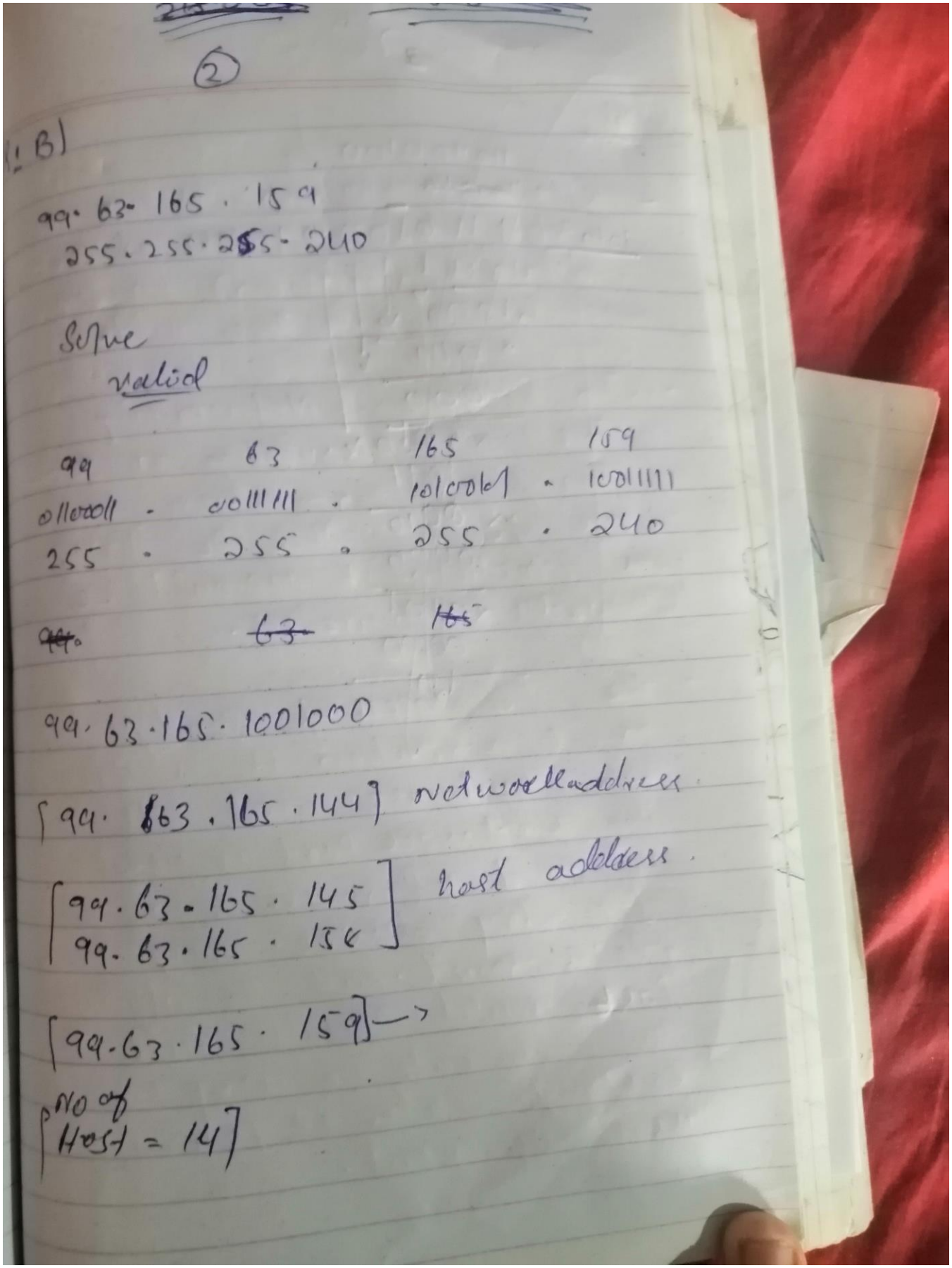
180.32.116.10100000

[180.32.116.160.] Network address.

[180.32.116.161
⋮
180.32.116.190] Host address

[180.32.116.190] → Braodcast address

Total Host = 30



2. Use a 28-bit mask to derive the available subnets of 192.168.147.0. Derive the available host addresses of each subnet. [10]

9.2

NS

142 . 168 . 147 . 62

" " " 63] host
75

" " " . 767 Bread.

(8)

28 bit mask 14 host $2^4 - 2$

Network 1

192.168.147.0 - Network

192.168.147.0 - Network

192.168.147.1 } host valid.
192.168.147.14 }

192.168.147.15 Broad cast

Network 2

192.164.147.16 — Net

{192.168.147.17 } host
{192.168.147.30 }

{192.168.147.31} Bro.

(9)

N7

192. 168. 147. 92 → network

[192. 168. 147. 93
  192. 168. 147. 105] host

192. 168. 147. 106 Broad.

N8

192. 168. 147. 107 net
" " " . 108]
" " " . 120] host
" " " 121 broad

N9

192. 168. 147. 122
" " " 123]
" " " 135] host
" " " 136] Broad

N10

192. 168. 147. 137 → network

" " " 136 } host
" " " 180 }

" " " 181 Broad

" " "

N11

192. 168. 147. 182

" " " 183 } host
" " " 185 }

" " " 186 Brod.

N12

192. 168. 147. 187

. 185 } host
180 }

181 Brod cast.

11

N 13

192.168.147.192
193
195] hosts

196 Brd.

N14

192.168.147.197 -> Net
198
210] hosts

211 brd.

N 15

192.168.147.212 net
213
225] hosts

226 Broad.

(12)

N16

192 . 168 . 147 . 227 . Net

228 } host
240

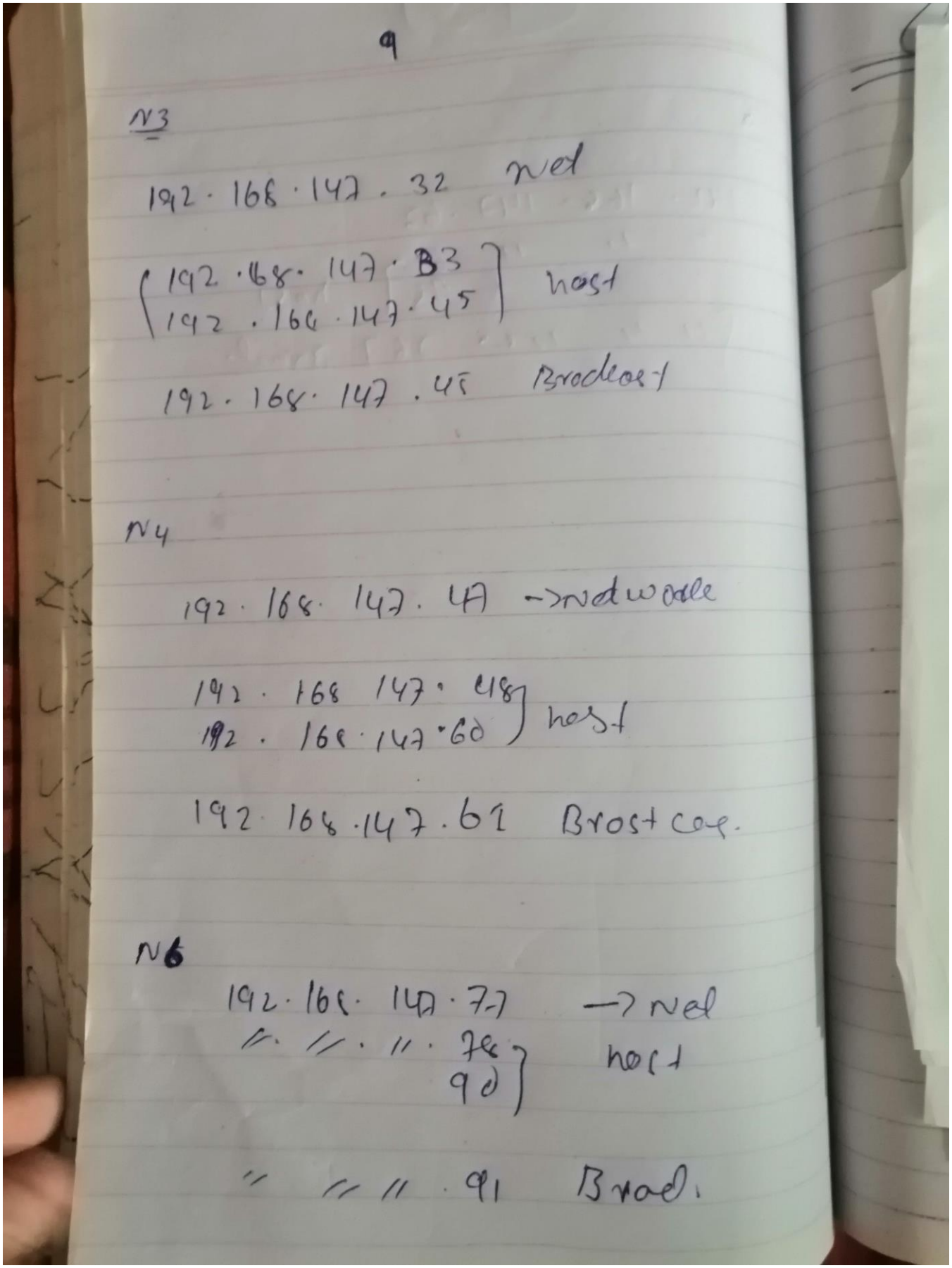
241 } brd.

N17

192 . 168 . 147 . 242 . Net

243 } host
254

255 Brd.



3. In the figure 1, Draw a routing table of router C by using Dijkstra's algorithm. [5]

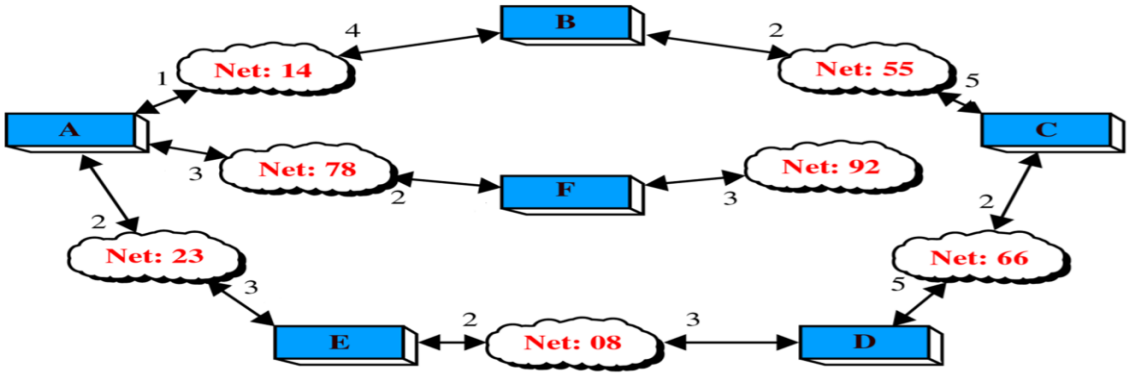
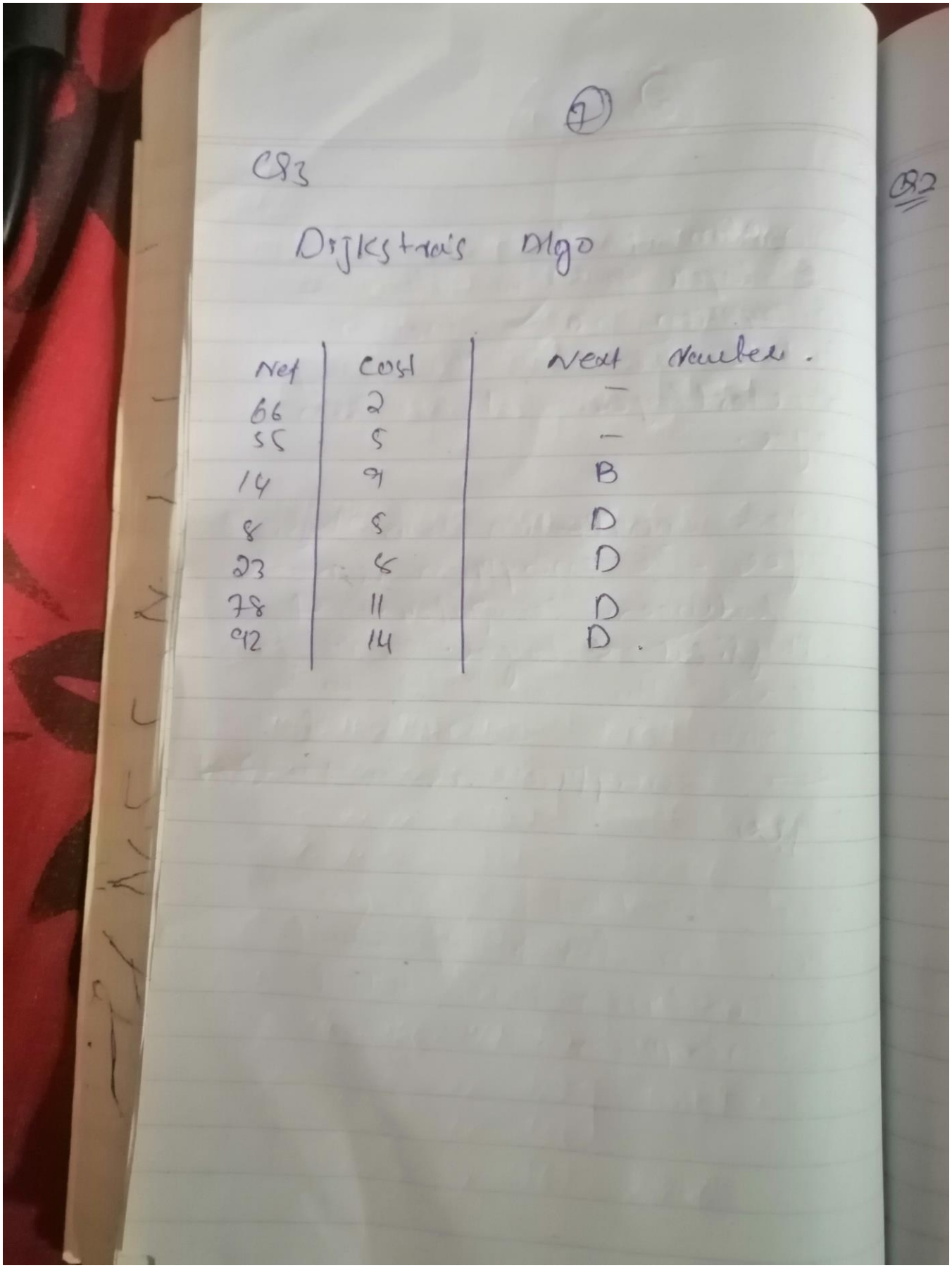
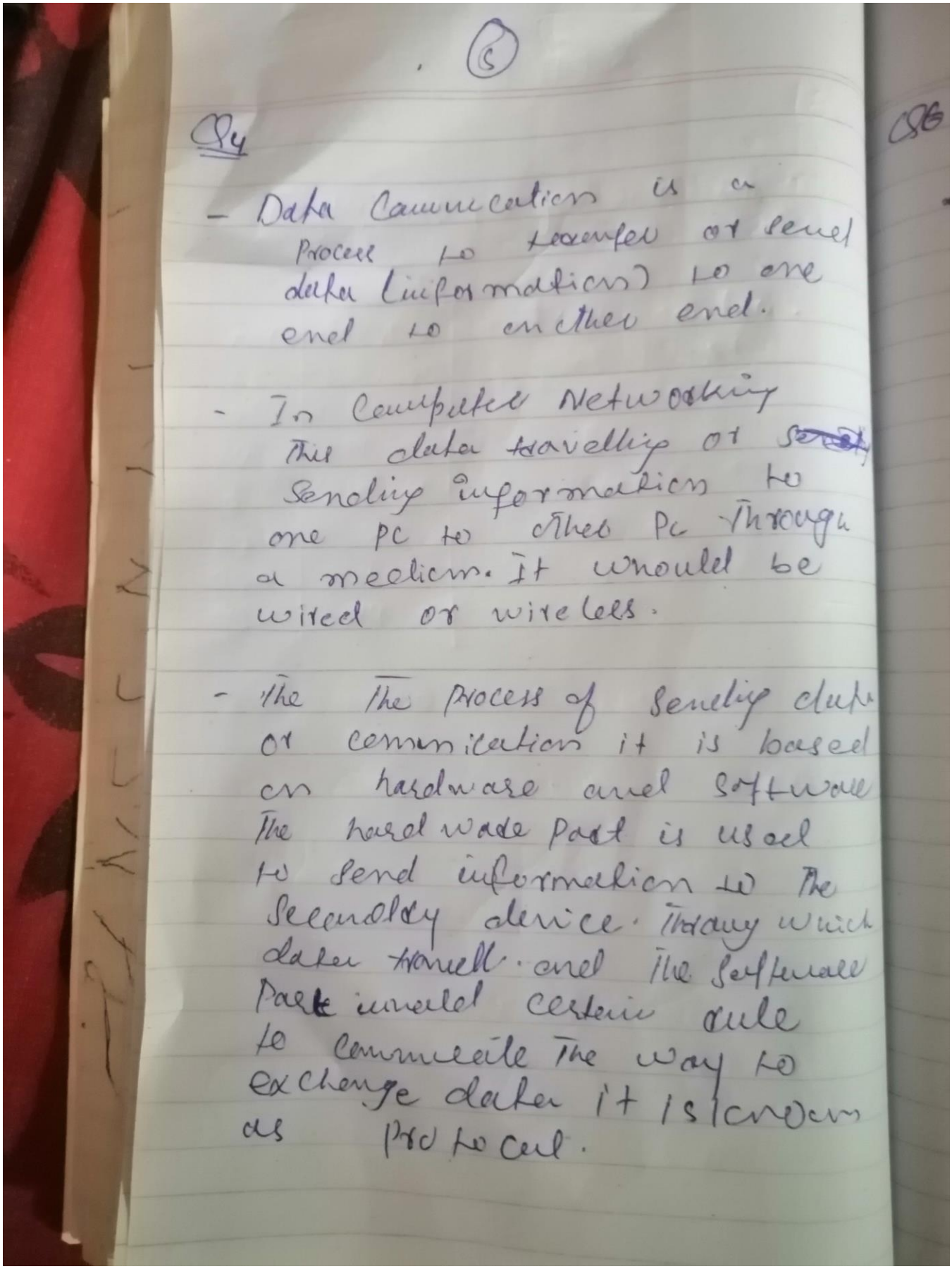

B
A
C
F
E
D
Net: 14
Net: 55
Net: 78
Net: 92
Net: 23
Net: 66
Net: 08
4
2
1
5
3
2
3
2
2
5
3
2
3

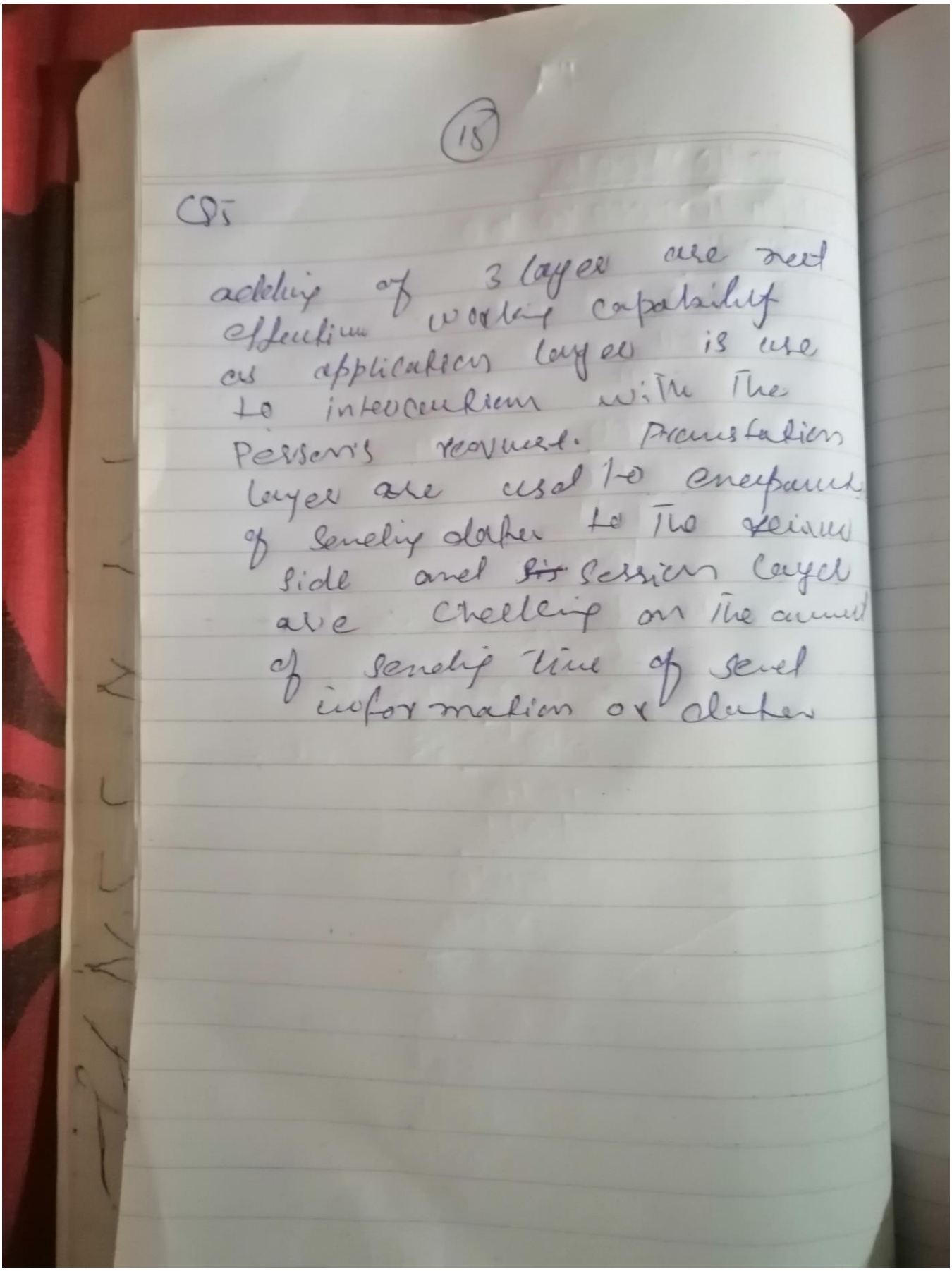
Figure 1



4. Discuss in detail, the concept of standards in data Communications and Network. [5]



5. What are the advantages and disadvantages of combining a session, presentation, and application



6. layer in the OSI model into one application layer in an Internet model.

(6)

Encryption is done in all 7 layers but in practice the encryption is used in Physical layer, Transport layer, and Presentation layer.

when encryption is in Physical layer - the encryption is made between computer and Physical layer. every bit leave the computer in the form of encrypted

~~when encryption is in transport layer~~

and every bit enter in a PC in form of decryption it is called encryption.

Q7

Presentation layer is responsible for translation encryption, ~~for~~ decryption.

7. Given a 10 bits sequence 1111010001 and a divisor of 1011,find the CRC. check your answer. [10]

(13)

Q7

```
        1101100100
1011 ) 1111010001000
        1011
        x1000
         1011
         x0111
          0000
          x1110
           1011
           x1010
            1011
            x0010
             0000
             x0101
              0000
              1010
              1011
              x1010
               1011
               0010
               0000
               x0100
                0000
                100   CRC
```

14

```
      110110010010 1
1011 ) 11 1101 000 100 100
       1011
       ----
        1000
        1011
        ----
         0111
         0000
         ----
          1110
          1011
          ----
          10100
           1011
           ----
           0010
           0000
           ----
            0101
           -----
            1010
            1011
            ----
             0010
             0000
             ----
              0100
              0000
              ----
               1001
               1011
               ----
               0100
                0000
                ----
                 1000
                 1011
                 ----
                   11
```