as per the problem statement the distances of every node from the given source

	A	B	C	D	E
d[v]	0	∞	∞	∞	∞
π[v]	A	-	-	-	-

- As per the Dijkstras Algorithm It is necessary to visit node with minimum distance.
- By referring the above table we come to know A is the node with shortest distance
- Identify neighbours of node A & add A to solution

$S = \{A\}$

$V = \{C\}$

- Let us calculate the distance
- if [(d[c] > d[A] + w(A,c)]

{

d[c] ← d[A] + w[Ac] ——— formula (1)

π[c] ← A

}

- if [∞ > 0+7]

{ d[c] ← 0+7

π[c] ← A

}

So updated table is

	A	B	C	D	E
d[v]	0	∞	7	∞	∞
π[v]	A	-	A	-	-

Next scan the table & identify the node with minimum value & add to solution except A which is visited earlier

$S = \{A, C\}$ $V = \{B, E\}$

By using the formula-① from above

	A	B	C	D	E
d[v]	0	8	7	∞	∞
π[v]	A	C	A	—	—

~~Next node to be visited ⇒ B because A & C already visited & B ⇒ having min~~

By using the formula-① from above

	A	B	C	D	E
d[v]	0	8	7	∞	9
π[v]	A	C	A	—	C

Next node to be selected ⇒ B because A & C already visited & node B ⇒ having min. distance among B, D, E

$S = \{A, C, B\}$ $V = \{A\}$

No change in the distance of A ⇒ already visited

Now next node with minimum distance ⇒ E

$S = \{A, C, B, E\}$ $V = \{D\}$

As per the formula-①

	A	B	C	D	E
d[v]	0	8	7	12	9
π[v]	A	C	A	E	C

Now next node remains in the table ⇒ D

$S = \{A, C, B, E, D\}$ $V = \{B, C\}$

No change in B via D.

No change in C via D.

So, Possible shortest paths are from A

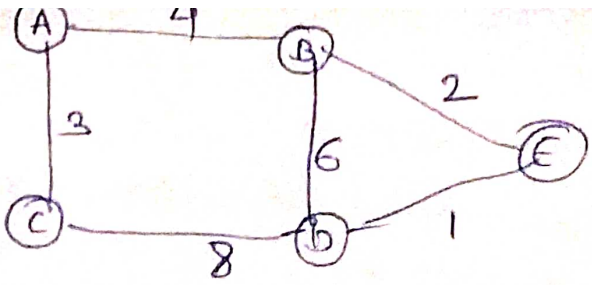
A ← A

B ← C ← A

C ← A

D ← E ← C ← A

E ← C ← A



(A)

Dest	Distance	Next Hop
A	0	A
B	4	B
C	3	C
D	∞	–
E	∞	–

(B)

Dest	Distance	Next Hop
A	4	A
B	0	B
C	∞	–
D	6	D
E	2	E

(C)

Dest	Distance	Next Hop
A	3	A
B	∞	–
C	0	C
D	8	D
E	∞	–

(D)

Dest	Distance	Next Hop
A	∞	–
B	6	B
C	8	C
D	0	D
E	1	E

(E)

Dest	Distance	Next Hop
A	∞	–
B	2	B
C	∞	–
D	1	D
E	0	E

Updated (A)

cost of reaching B from A = min{4+0, ∞, 3+∞} = 4 via B

cost of reaching C from A = min{3+0, 4+∞} = 3 via C

cost of reaching D from A = min{4+6, 3+8} = 10 via B

cost of reaching E from A = min{4+2, 3+∞} = 6 via B

Dest	Distance	Next Hop
A	0	A
B	4	B
C	3	C
D	10	B
E	6	B

Updated (B)

cost of reaching A from B = min{4+0, 2+∞, 6+∞} = 4 via A

cost of reaching C from B = min{4+3, 8+6, ∞+2} = 7 via A

cost of reaching D from B = min{6+0, ∞+4, 1+2} = 3 via E

cost of reaching E from B = min{2+0, 1+6, ∞+4} = 2 via E

Dest	Distance	Next Hop
A	4	A
B	0	B
C	7	A
D	3	E
E	2	E

Updated (C)

cost of reach A from C = min{3+0, 8+0} = 3 via A

cost of reach B from C = min{4+3, 6+8} = 7 via A

cost of reach D from C = min{8+0, ∞+3} = 8 via D

cost of reach E from C = min{∞+3, 1+8} = 9 via D

Dest	Distance	Next Hop
A	3	A
B	7	A
C	0	C
D	8	D
E	9	D

Updated (D)

cost of reaching A from D
= min{4+6, 3+8, ∞+1} = 10 via B

cost of reaching B from D
= min{6+0, 2+1, ∞+8} = 3 via E

cost of reaching C from D
= min{6+∞, 8+0, ∞+1} = 8 via C

cost of reaching E from D
= min{1+0, 2+6, ∞+8} = 1 via E

Dest	Distance	Next Hop
A	10	B
B	3	E
C	8	C
D	0	D
E	1	E

Kolhapur

Department : COMPUTER SCIENCE AND ENGINEERING
Section : Division B
Course Code : UCSE0332
Max IA Marks : 25

Stream : B.Tech
Semester : Semester 3
Course Name : Data Communication and Networks Lab
Batch Name : Batch 3

Student Name	PRN	Roll No	EXP	IPE	IOE	Total	Signature
PATIL PRATHAMESH SANJAY	1920000420	SYB41	9.00	3.00	3.00	15.00	
SHETTI ANANYA RAVI	1920000426	SYB42	9.00	3.00	4.00	16.00	
GHORPADE YASH MAHESH	1920000428	SYB43	12.56	3.00	4.00	19.56	
CHOUGULE SARVESH ABHIJIT	1920000431	SYB44	12.56	4.00	4.00	20.56	
LADGE UTKARSH SANTOSH	1920000436	SYB45	12.56	3.00	4.00	19.56	
BAGE TUSHAR SANJAY	1920000444	SYB46	9.67	4.00	4.00	17.67	
SURYAVANSHI PRANJALI PRASHANT	1920000462	SYB47	10.89	3.00	4.00	17.89	
PATIL SHREYAS SAMBHAJI	1920000482	SYB48	9.00	2.00	3.00	14.00	
HUJARE VIVEK VIJAY	1920000498	SYB49	12.56	4.00	4.00	20.56	
PATIL RAJ IRGONDA	1920000507	SYB50	12.11	5.00	4.00	21.11	
PATIL DIPALI KRISHNA	1920000516	SYB51	12.56	4.00	4.00	20.56	
AMTE SMRUTI SANJAY	1920000540	SYB52	10.67	3.00	3.00	16.67	
KILLEDAR ABHISHEK DATTATRAY	1920000599	SYB53	9.00	4.00	4.00	17.00	
HEGDE SIDDHANTH RAJENDRA	1920000616	SYB54	9.00	3.00	4.00	16.00	
BHUSANUR AMISHA GAJANAN	1920000634	SYB55	10.33	3.00	4.00	17.33	
PAWAR AKASH BHAGWAN	1920000637	SYB56	9.33	4.00	4.00	17.33	
LOTAKE VIPUL DIPAK	1920000654	SYB57	10.89	2.00	4.00	16.89	
THAKUR KHUSHBOO RAVAIL SINGH	1920000674	SYB58	12.67	2.00	2.00	16.67	
MASTI SMITA SURESH	1920000692	SYB59	12.67	3.00	3.00	18.67	
DHONDUGADE SAMRUDDHI RAMCHANDRA	1920000707	SYB60	11.89	2.00	4.00	17.89	

updated (E)

cost of reaching A from E = min{4+2, ∞+1} = 6 via B

cost of reaching B from E = min{2+0, 6+1} = 2 via B

cost of reaching C from E = min{∞+2, 8+1} = 9 via D

cost of reaching D from E = min{1+0, 6+2} = 1 via D

Destn	Distance	Next Hop
A	6	B
B	2	B
C	9	D
D	1	D
E	0	E

Signature of Staff Member:

Verified By:

Head of Department:
Date: 20-Dec-2020 02:07:05

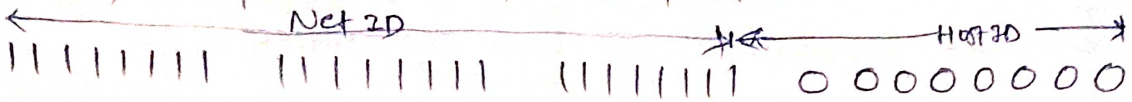
Site Address for TCS 192.168.98.0

→ class of IP address is Class C

→ Default mask for class C IP address is

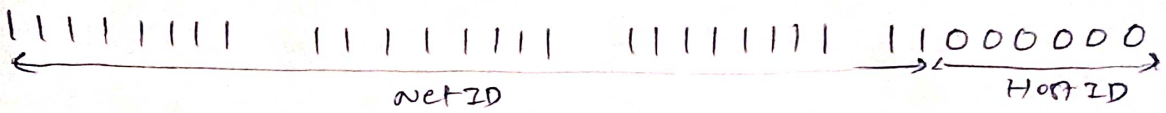
255 . 255 . 255 . 0

→ Binary equivalent of default mask is



→ As per the requirement 3 subnets are required. So, to fulfill the requirement it is necessary to borrow 2 bits from Host ID part

→ So the subnet mask becomes

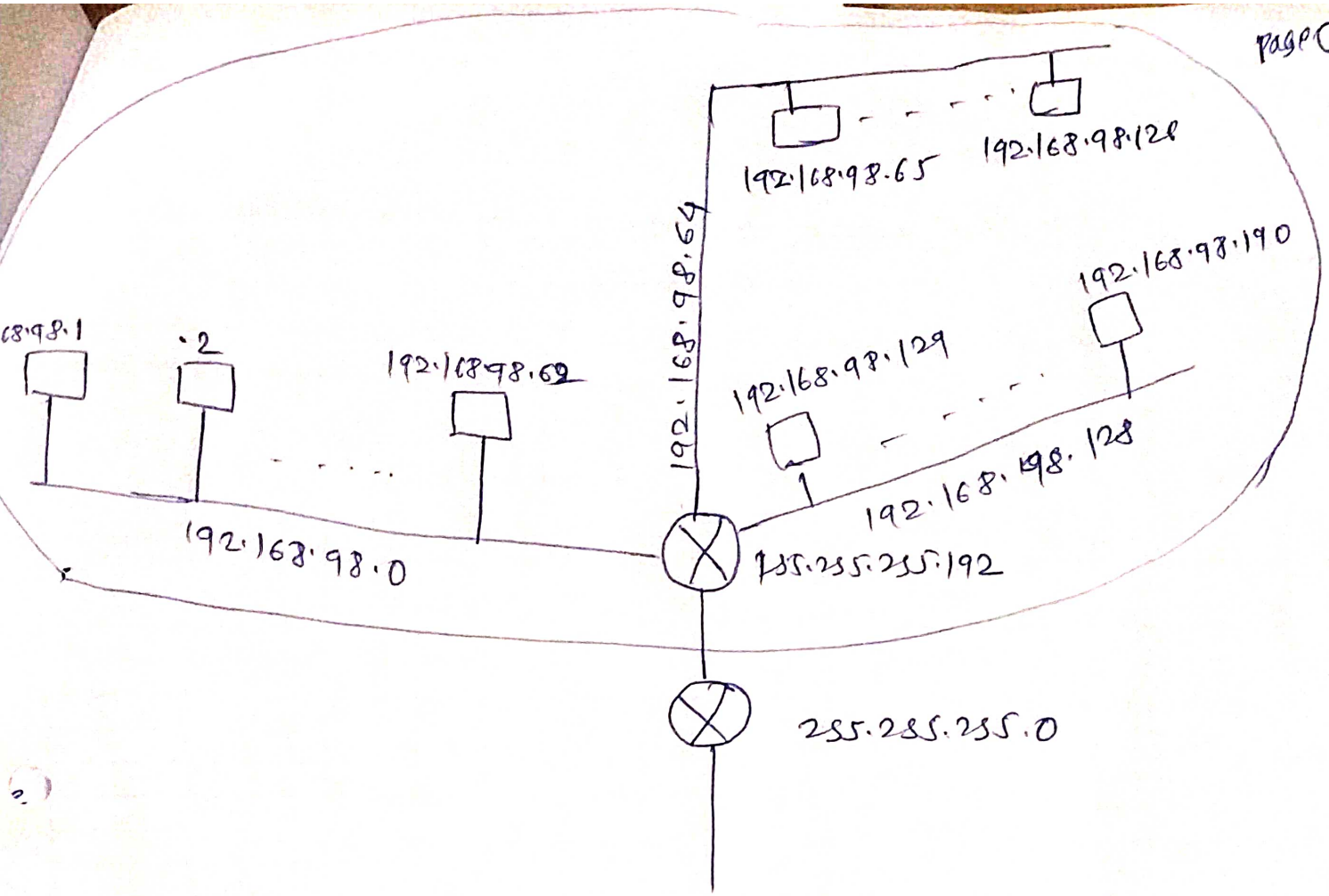


→ 255. 255. 255. 192

→ Block size of subnet = 256 − 192 = 64 − 2 = 62 Hosts in every subnet one can connect

→ Subnets are

Subnet Add	192.168.98.0	192.168.98.64	192.168.98.128	192.168.98.192
First IP	192.168.98.1	192.168.98.65	192.168.98.129	192.168.98.193
	192.168.98.2			
	⋮	⋮	⋮	⋮
Last IP	192.168.98.62	192.168.98.126	192.168.98.190	192.168.98.254
Broadcast Add	192.168.98.63	192.168.98.127	192.168.98.191	192.168.98.255


192.168.98.65
192.168.98.128
192.168.98.64
192.168.98.190
192.168.98.129
192.168.98.128
68.98.1
.2
192.168.98.62
192.168.98.0
255.255.255.192
255.255.255.0

5 solve (Class B)

i) 20.57.60.2 00010100 00111001 00111100 00000010

ii) 172.16.57.66 10101100 00010000 00111001 01000010

iii) 10110101 00110111 11000101 10001100
181 55 197 140

iv) 11110011 11001001 10111100 00010010
243 201 188 18