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Section = A

Date: \_\_\_\_\_  
Q No.1 'b'

Advantages:- The advantage of combining the Session, Presentation and Application layer into a single Application layer is that

- a) Single layer to study as all the functionalities provided at this layer -
- b) Higher bandwidth as number of layer is reduced
- c) It reflects the real life separation of application from the TCP-downward section of the OSI Model

Q No. 3

B

Given Data:-

a)  $N = 10,000$   
 $n = 1000$   
 $K = 16$

in the first stage we have

$$N/n = 10000/1000 = 10$$

cross bars, each of size is  $10 \times 16$

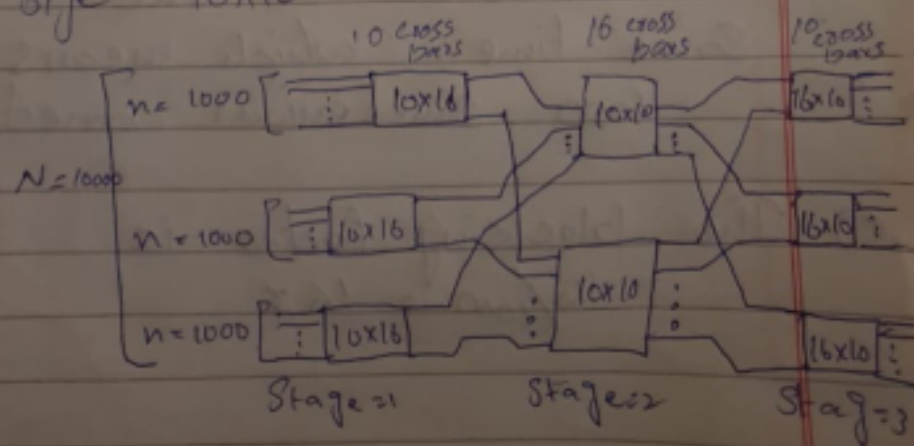
In the second stage we have

4 crossbars of size  $10 \times 10$

in third stage we have

10 cross bars, each of

size  $16 \times 10$



Date: \_\_\_\_\_  
3) Network Layer-

Network layer works for the transmission of data from one host to another located in different networks.

Transport Layer- This layer provides services to application layer. The layer is responsible for end-to-end delivery of the complete message-

Session Layer- The layer is responsible for the establishment of connection, maintenance of sessions, authentications and also ensures security.

b)

Total number of cross points

$$\begin{aligned} &= 10(10 \times 16) + 16(10 \times 10) + 10(16 \times 10) \\ &= 1600 + 1600 + 1600 \\ &= 4800 \end{aligned}$$

c) Only 16 simultaneous connections are possible for each crossbar at the 1st stage. This means that the total number of connections is

$$\begin{aligned} &\frac{16}{16} \\ &16 \times 10 = 160 \end{aligned}$$

d) If we use a crossbar (1000 x 1000) all input lines can have a connection at the same time which means 1000 simultaneous connections.

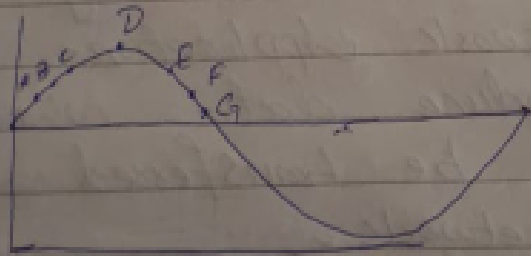
e) The blocking factor is

$$160/1000 = 16\%$$

Q No 2

Q

Ans: Phase is a specific location in a sine wave. So in this scenario we cannot plot phase of a sine wave in a time-phase plot as the wave is constantly changing.



As we can see that all the points are in different position thus we cannot explicitly plot the phase in time-phase plot.

## Disadvantages:

a) Can make reasoning about the architecture of network systems less effective

b) There will be security issues as the network security and application security will open at a single point which may expose our network open to threat

c) It makes trouble shooting hard as multiple errors may reside at a single layer



## Presentation layer

The data from the application layer is extracted here and manipulated as per the required format to transmit over the network.

## Application layer

It is implemented by the network application. They produce data which has to be transferred over the network.



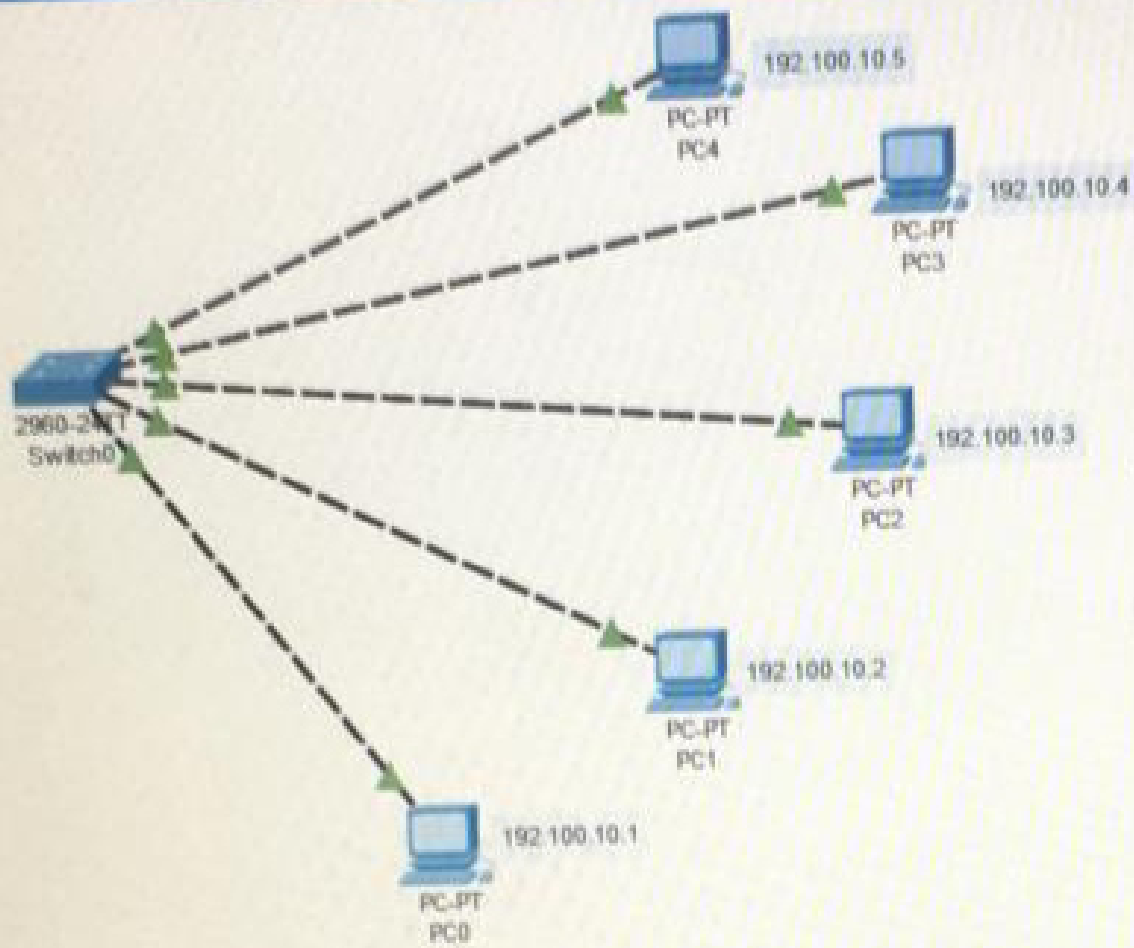
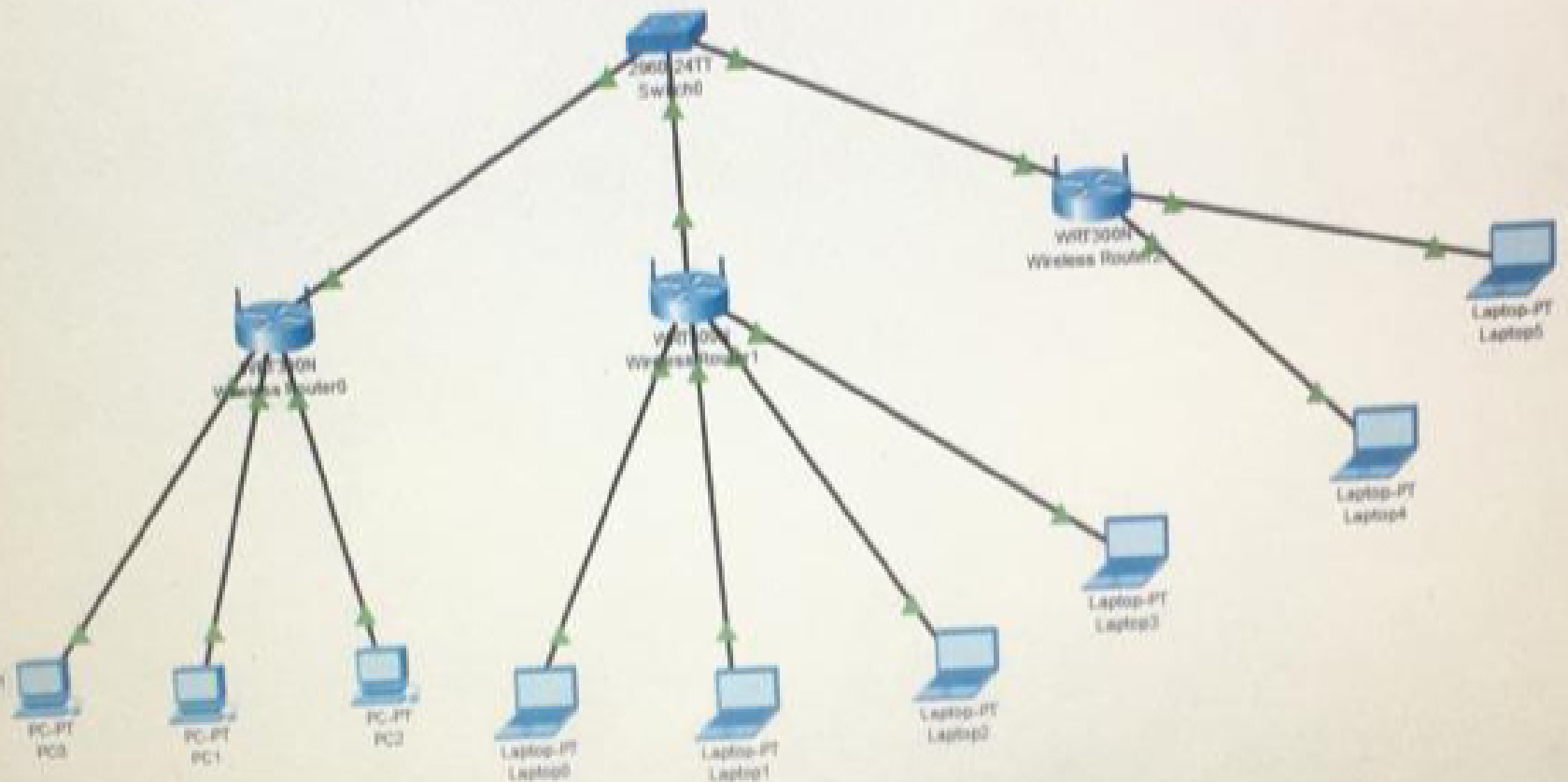
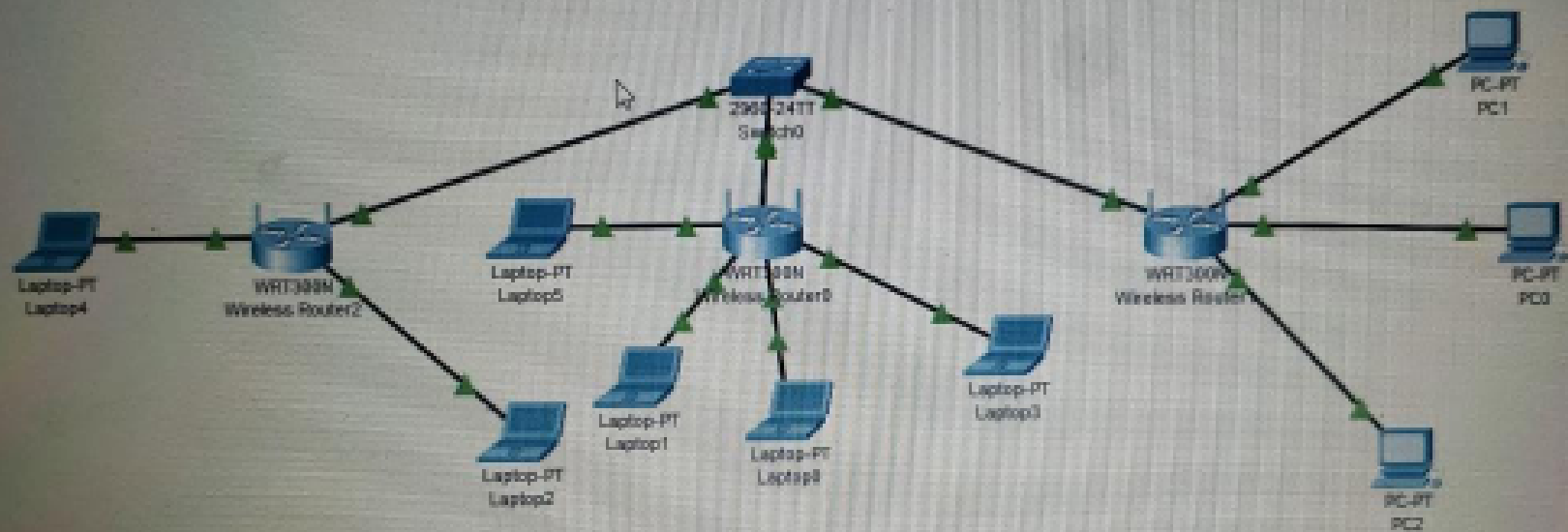


FIG. 10-1.1





Received information to the user/Application Layer is also called as Desktop Layer.

Question 3 :- (PART a):-

Answer:-

For 10kpbs Channel:-

a):- duration of 1 bit =  $\frac{1}{10\text{kpbs}}$  = 10ms.

For 100kpbs channel:-

a):- duration of 1 bit =  $\frac{1}{100\text{kpbs}}$  = 100ms.

For 1Mbps Channel:-

a) Duration of 1 bit =  $\frac{1}{1\text{Mbps}}$  = 1  $\mu$ s

For 10 Mbps Channel:-

a):- Duration of 1 bit =  $\frac{1}{10\text{Mbps}}$  = 10  $\mu$ s

b):- Rate of link = 11.11Mbps.

c):- The duration of each slot is the inverse of data rate

$$= \frac{1}{11.11\text{Mbps}} = 0.09 \mu\text{s}$$

d):- Duration of frame is always same as the duration of unit before multiplexing.