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Que3)
Ans 3,

Given link capacity = 1 mbps.

1) . TDMA → 0.1 second each slot.

2) "Taking turns" : adds a latency of 0.05 second.
before taking the turn.

a) A, B and C transmit 40 KB file for every one
seconds.

Ans →

TDMA. (Time Division multiple Access) is
used because,

Each of the user generates a load of
40 KB/sec = 0.32 megabits/sec,

which can be fully transmitted given the
share of 0.33 megabits/sec available per user
when partioning the channel with TDMA.

Taking turns on the otherhand.
doesnot offer enough capacity for all the files
to be transmitted.

$$3 * 0.32 + 3 * 0.05 = 1.11 \, sec > 1 \, sec.$$

this will create extra overhead.

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(b). A transmits 80KB file for every one second, which B and C transmit 10KB file for every one seconds

Ans $\Rightarrow$ option second "taking turns".

because,

using TDMA A cannot transmit 80KB,

as $80KB/s = 0.640$ megabits/sec > 0.33 Megabits/seco.

other reason is that using TDMA. B & C waste 3 out of 4 slots.

By using turns and adding latency of 0.05 sec before taking turn.

have enough capacity to transmit.

all data

time taken

$= 0.64 + 0.05 + 0.08 + 0.05 + 0.08 + 0.05 -$

latency

$= 0.95$ sec

$10KB/sec = 0.08$ megabits/sec