1. Modify the following texts so that the statements will be true.

Randomization of transmitted sequence of data results brings $\left(\genfrac{}{}{0pt}{}{\textbf{lower}}{\text{higher}} \right)$ demands on the required frequency bandwidth of the transmission path.

Scrambling at the transmitting side (and descrambling at the receiving side) is intended $\left(\genfrac{}{}{0pt}{}{\textbf{to eliminate}}{\text{to insert}} \right)$ a periodic sequence $\left(\genfrac{}{}{0pt}{}{\textbf{from}}{\text{into}} \right)$ transmitted data stream.

2. Which internal circuits of VDSL2 modem is implemented for security of end user stream before its transmission in access networks?

1. Synchronization circuits

2. Scrambler

3. Convolutional coder

4. Modulator

3. There are two basic methods used for the separation of traffic directions at xDSL. Which of these two methods is used entirely at VDSL2 connections?

X   Frequency Division Duplex FDD

☐   Echo Cancellation EC

4. Which type of crosstalk is reduced due to the method of frequency division?

X   Near End Cross Talk NEXT

☐   Far End Cross Talk FEXT

5. What are the three parts which in general divide the network architecture of VDSL2 connection?

1. Customer Premises Network CPN

2. Network Access Provider NAP

3. Network Service Provider NSP

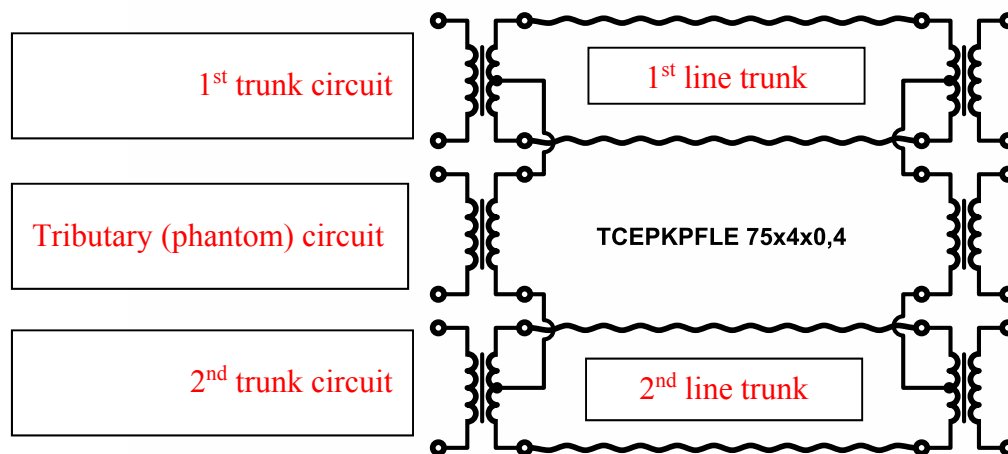**6. Modify the following texts so that the statements will be true.**

The standard G.fast is called as the $\left(\begin{array}{c}\textbf{4th generation}\\ \text{3rd generation}\end{array}\right)$ of xDSL systems.

The standard G.fast could be reach $\left(\begin{array}{c}\textbf{higher}\\ \text{lower}\end{array}\right)$ transfer rates than existing xDSL connections.

The standard G.fast could be utilize $\left(\begin{array}{c}\textbf{short}\\ \text{long}\end{array}\right)$ lengths of subscriber lines.

There is implemented on G.fast standard the $\left(\begin{array}{c}\textbf{inverse power}\\ \text{bus power}\end{array}\right)$.

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7. Transmission capacity can be increased at the G.fast connections by the help of phantom circuits. Fill in the following figure the correct labels:

1st trunk circuit

Tributary (phantom) circuit

2nd trunk circuit

1st line trunk

TCEPKPFLE 75x4x0,4

2nd line trunk

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8. Vectored DMT modulation is used at G.fast connections G.fast. What are its dominant advantages and disadvantages? Select it from the following options.

X elimination of crosstalks and achieving higher transfer rate

☐ achieving higher transfer rate

☐ high computational complexity of coordination at receiving circuits

X high computational complexity of coordination at transmitting circuits

☐ low computational complexity of coordination at transmitting circuits

☐ elimination of crosstalks