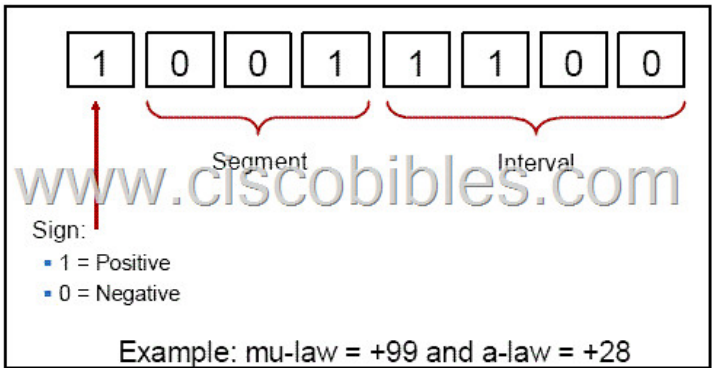
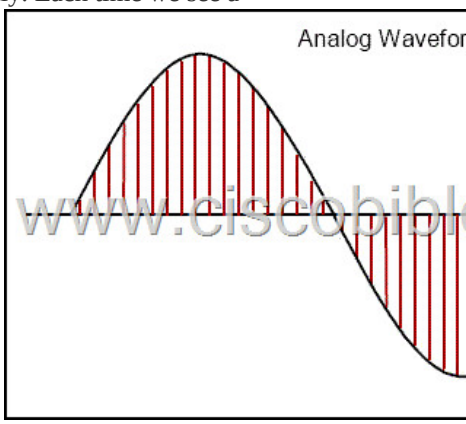
CCNA Voice Bible (640-460) - Voice Fundamentals

Question 1 Which is the best description of time-division multiplexing? A. A channel is assigned an exclusive slice of the overall frequency of the circuit for the entire time of its operation. B. All sources get an interleaved slice of time, which offers the entire frequency range allocated for that timeslot. C. Individual source signals are combined into a composite signal, which allows a capacity equal to or greater than the sum of the component signals. D. Technology that increases the transmission capabilities by dividing the medium into multiple channels that are each assigned a wavelength based on statistical analysis. E. On a T1 circuit, this is the process where 24 DS-1 signals are multiplexed into a single DS-0 channel, while on a T3 circuit 24 DS-0 signals are multiplexed into a single DS-3 signal. Answer: B Question 2 Which type of voice port will allow the gateway to terminate 23 or 30 circuits from the PSTN or a PBX? A. FXO B. FXS C. PRI T1/E1 D. E&M E. BRI Answer: C **Explanation:** The ISDN E1 PRI has 32 timeslots (channels). Each timeslot is 8 bits and has a data rate of 64,000 bits/second. Timeslot 0 is used for frame synchronization and alarms. Timeslot 16 is used for signaling so we can use 30 timeslots to carry calls. The T1 PRI only has 24 timeslots (channels). Timeslot 0 is used for frame synchronization. Unlike E1 (which uses a dedicated timeslot for signaling) T1 Channel Associated Signaling (CAS) ?steals? the 8th bit of the sixth frame for signaling information so we can use 23 timeslots for voice. Question 3 Refer to the exhibit.



Which step of digitizing analog signals does this represent? A. Encoding B. Quantization C. Signal sample D. Signal compression Answer: A Explanation: There are many definitions about voice encoding but I would like to refer it as **the process of translating digital numbers into binary values**. It makes us remember the concept more easily. Each time we see a binary-conversion process, we can say it is the encoding step . Questions 4 Refer to the exhibit.



Which step of digitizing analog signal does this represent? A. Signal sample B. Signal compression C. Sample quantization D. 8-bit digital encoding Answer: A Explanation: As you can see in the picture, an analog waveform is sampled to covert into a numeric value by a device described in question 2's explanation. This process is called Pulse-Amplitude-Modulation (PAM). The results of this step are often decimal numbers. Later, these decimal numbers are converted to binary numbers by the encoding process. Question 5 What is a numbering plan? A. It describes the path from one endpoint to another. B. It describes the calling privileges of an endpoint. C. It describes how digits are manipulated in processing a call. D. It describes call coverage in a dial plan. E. It describes the endpoint addressing used in a voice system. Answer: E Explanation A numbering plan is a world-wide standard to organize and locate telephones all around the world. In CCNA Voice, you often read about E.164 standard. Question 6 Which three of these are part of the e.164 number in the ITU-T numbering plan for geographic areas? (Choose three) A. SANC.SPID B. Station code C. Country code D. Subscriber number E. Numbering plan area F. National destination code

Answer: C D F Question 7 Which statement is true concerning time-division multiplexing? A. Time-division multiplexing transmits one voice signal at a time over a four-wire path. B. Time-division multiplexing consecutively transmits multiple voice signals across four separate communication mediums. C. Time-division multiplexing simultaneously transmits multiple separate voice signals over one communication medium by quickly interleaving pieces of each signal, one after another. D. Time-division multiplexing consecutively transmits one voice signal at a time over one or more communication mediums by quickly dividing pieces of each signal into equal bandwidth sizes and sending them in the order they are received. Information from each data channel is allocated bandwidth based on the current bandwidth needed for each time slot. This is determined by whether or not there is data that needs to be transmitted. Answer: C Question 8 The Point North Company has a few slow links in its voice and data network. Which two techniques can be used to reduce delay in voice transmission? (Choose two) A. FIFO queuing B. Buffering voice packets C. Fragmentation of large packets D. Compression of IP, RTP, and UDP headers E. Increasing priority queue sizes Answer: C D Question 9 What is required to convert a G711ulaw call to G729? A. Voice Termination resources B. Conferencing resources C. Converter resources D. Transcoding resources Answer: D **Explanation:** Transcoding compresses and decompresses voice streams to match endpoint-device capabilities. Transcoding is required when an incoming voice stream is digitized and compressed (by means of a codec) to save bandwidth, and the local device does not support that type of compression -> D is the correct answer. Question 10 Which codec is less processor intensive? A. G729 B. G729a Answer: B Question 11 A PRI (Primary Rate Interface) is a telecommunication standard used in the Integrated Services Digital Network or ISDN, for carrying multiple DS0 voice and data transmissions between two physical locations. PRI was developed specifically for industrial or large quantity users. PRI is an industrial ISDN line while the Basic Rate Interface, or BRI, is used to cater to home and small enterprises. Which three characteristics apply to ISDN PRI? (Choose three) A. PRI offers 20 B channels and 1 D channel B. the D channel is 64 kbps C. can carry data, voice, or video D. can carry vendor-specific PBX features Answer: B C D