PassQueen
a.k.a dumpsqueen.com

Certified Technology SpecialistDesign

AVIXA CTS-D

Version Demo

Total Demo Questions: 18

Total Premium Questions: 182

Buy Premium PDF

https://passqueen.com

support@passqueen.com

Topic Break Down

Topic	No. of Questions
Topic 1, Needs Analysis	8
Topic 2, System Design	135
Topic 3, Documentation	21
Topic 4, Project Management	15
Topic 5, Mix Questions	3
Total	182

QUESTION NO: 1

A bidder proposes replacing a specified display with a less expensive model. The proposed model has the same screen size and resolution but lower brightness than the specified display. The room has significant daylight, and the display is required to remain readable during normal daytime use. How should the designer evaluate the substitution?

A. Reject it unless daylight readability requirements are demonstrated

B. Accept it because screen size and resolution are unchanged

C. Accept it if the bidder provides a longer warranty

D. Reject it because substitutions are never permitted in AV projects

ANSWER: A

Explanation:

The substitution should be rejected unless the bidder demonstrates that the lower-brightness display meets the documented daytime readability requirement. Matching size and resolution does not establish equivalent performance in a high-ambient-light environment. The relevant comparison is whether the substitute satisfies the specified functional and performance criteria under the intended operating conditions. Lower cost alone is not a basis for accepting a product that may compromise image visibility.

QUESTION NO: 2

What is the purpose of a project scope statement in AV design?

A. To define the goals, deliverables, and boundaries of the project

B. To list all equipment brands

C. To schedule daily meetings

D. To specify color schemes

ANSWER: A

Explanation:

To define the goals, deliverables, and boundaries of the project is correct because the scope statement establishes the agreed definition of what the AV design project is intended to accomplish and what work is included. In practice, it documents the project objectives, required outcomes and deliverables, assumptions, constraints, acceptance criteria, and key exclusions or boundaries. This common understanding gives the AV designer, client, project manager, consultants, and integrators a basis for design decisions, estimating, coordination, and change control throughout the project lifecycle. In AV projects, a well-defined scope might identify the spaces covered, functional requirements for each space, expected system capabilities, documentation deliverables, integration responsibilities, and interfaces with other building systems. Defining these items early helps align stakeholder expectations and provides a baseline against which requested changes can be assessed. AVIXA's project-management guidance emphasizes clearly defining project requirements and deliverables as part of planning and managing audiovisual projects. The Project Management Institute likewise defines project scope as the work required to deliver a product, service, or result with specified features and functions. See PMI's project scope management overview and AVIXA Standards.

QUESTION NO: 3

What does the acronym â€œDSPâ€□ stand for in AV systems?

A. Digital Signal Processor

B. Direct Sound Projection

C. Digital Speaker Power

D. Dynamic Signal Path

ANSWER: A

Explanation:

Digital Signal Processor is correct. In audiovisual systems, a DSP is a hardware device or software-based processing platform that performs mathematical operations on digital audio signals. Designers use DSP functions to implement routing and mixing, equalization, filtering, compression, limiting, automatic mixing, delay, feedback suppression, and signal-level control. These capabilities allow the system to adapt audio to the acoustics of a room, align loudspeaker zones in time, manage multiple microphones and program sources, and deliver intelligible, consistent sound to listeners. DSPs are fundamental to AV system design because their channel count, available processing blocks, input/output connectivity, control integration, latency, and audio-network compatibility must be considered during equipment selection and signal-flow design. AVIXA describes digital signal processing as the manipulation of audio signals in the digital domain and includes DSP among core audio-system technologies. Manufacturers likewise identify DSP products as digital audio processors that provide configurable signal processing and routing. See AVIXA's audio resources at AVIXA and an example of professional DSP functionality from Q-SYS DSP.

QUESTION NO: 4

Which of the following best describes â€œgain structureâ€□ in audio system design?

A. The planned distribution of gain and attenuation throughout the signal chain to maintain proper operating levels and avoid distortion

B. The physical size of an amplifier

C. The number of microphones in a system

D. The type of speakers used

ANSWER: A

Explanation:

The planned distribution of gain and attenuation throughout the signal chain to maintain proper operating levels, adequate headroom, and a strong signal-to-noise ratio is the best description of gain structure. In an AV audio design, every stage—such as microphone preamplifiers, DSP input and output channels, mixers, amplifiers, and loudspeakers—has an intended operating range. Establishing gain structure means setting and documenting levels so typical program material operates near nominal level, peaks have sufficient margin before clipping, and unnecessary amplification of noise is avoided. This is a system-wide design and commissioning practice rather than merely a single input-to-output voltage ratio. Proper gain structure supports predictable level control, preserves audio quality, and helps ensure that one device does not overload a downstream device when the system is operated at normal program levels. It should be considered alongside equipment sensitivity, maximum input and output levels, DSP headroom, amplifier gain, and loudspeaker requirements. Shure's overview of gain structure discusses setting levels across connected audio devices to prevent overload and minimize noise: Shure: Gain Structure. Yamaha also explains the relationship between nominal levels, headroom, and gain staging in professional audio systems: Yamaha: Gain Staging.

QUESTION NO: 5

What is the primary role of a "mixer" in an audio system?

A. To amplify signals

B. To combine multiple audio inputs into one or more outputs

C. To convert audio to digital format

D. To route video signals

ANSWER: B

Explanation:

The correct answer is **"To combine multiple audio inputs into one or more outputs."** An audio mixer is the central device or function used to accept signals from multiple sources—such as microphones, program playback devices, wireless receivers, and conferencing sources—and combine them into appropriately controlled output mixes. For each input, the operator or DSP configuration can establish gain, level, equalization, dynamics processing, panning, muting, and routing to one or more buses. Those buses may feed loudspeaker zones, recording systems, assistive-listening feeds, broadcast outputs, or remote participants.

In AV system design, the mixing function is essential because different destinations often require different signal balances. For example, a presenter's microphone may need to be prominent in the audience loudspeaker mix while a program feed requires a separate mix-minus output that excludes the remote caller's returned audio. Mixers can be standalone analog or digital consoles, software-based systems, or functions within a digital signal processor. AVIXA's glossary describes a mixer as equipment that combines audio signals and provides control over their levels and routing. See the AVIXA AV Glossary and Shure's overview of audio mixing fundamentals.

QUESTION NO: 6

What is a common connector type for HDMI cables?

A. Type A

B. Type B

C. Type C

D. Type D

ANSWER: A

Explanation:

Type A is the common, full-size HDMI connector used for standard HDMI cable connections in most AV systems. It has 19 contacts and is the familiar connector found on typical displays, source devices, AV receivers, matrix switchers, and other professional and consumer AV equipment. In an AVIXA design context, this is the connector normally implied when documentation, equipment specifications, or cable schedules simply identify an interface as "HDMI" without qualifying it as a mini or micro implementation. Its widespread use makes it the expected selection for conventional HDMI interconnections between equipment such as media players, PCs, video conferencing codecs, and displays. HDMI specifications define the physical connector families and their intended applications, while the standard Type A interface remains the primary full-size form factor for HDMI connectivity. Designers should still verify the connector form factor on each endpoint during equipment selection and cable planning, particularly where compact devices are involved. HDMI's specifications and resources are available from the HDMI Licensing Administrator specifications page and the HDMI FAQ and resource center.

QUESTION NO: 7

What is the key benefit of a "matrix switcher" in AV systems?

A. Amplifying audio

B. Routing any input to any output independently

C. Converting analog to digital signals

D. Multiplying signal strength

ANSWER: B

Explanation:

Routing any input to any output independently is the key benefit of a matrix switcher. A matrix switcher provides multiple input ports and multiple output ports, allowing the system designer or user to select which source is sent to each destination. For example, a presentation computer can be routed to one display while a media player is simultaneously routed to another display. Depending on the matrix model and its configuration, one source may also be distributed to multiple outputs at the same time. This flexible, independent crosspoint routing is what distinguishes a matrix switcher from a simple selector switch, which generally sends one selected input to a single output, or a distribution amplifier, which sends one input to several outputs. In AV system design, matrix switching supports adaptable room operation, source sharing among displays, and control-system-driven routing presets. Signal-format conversion, amplification, and signal-level management can be included in particular products, but they are not the defining function of a matrix switcher. AVIXA's glossary describes a matrix switcher as a device that can route any input to any output or combination of outputs. See the AVIXA AV Topics Dictionary and Extron's overview of matrix switchers.

QUESTION NO: 8

Which design document typically includes equipment lists, drawings, and specifications?

A. System design package

B. Project charter

C. Installation checklist

D. User manual

ANSWER: A

Explanation:

The correct answer is **System design package**. In an AV-system project, the design package is the coordinated set of documents that communicates the complete technical solution to stakeholders, installers, programmers, and commissioning personnel. It typically brings together equipment lists that identify the selected products and quantities; drawings such as plans, elevations, signal-flow diagrams, rack layouts, and wiring or connectivity details; and written specifications defining required performance, installation, integration, labeling, and quality requirements. Collectively, these documents establish a clear, buildable basis for procurement, installation, verification, and project closeout. A well-developed package also helps ensure that all project participants interpret the intended system consistently and that substitutions or field changes can be evaluated against documented design intent. AVIXA's standards catalog includes design-focused standards and recommended practices that support consistent audiovisual system documentation and design processes. See the AVIXA Standards resource. For a broader overview of the documentation typically used to communicate construction and system requirements, see the U.S. General Services Administration's Building Information Modeling Guide Series.

QUESTION NO: 9

Which of the following best defines "scalability" in AV system design?

A. The system's ability to expand or upgrade in the future without major redesign

B. The initial cost of the system

C. The physical size of equipment

D. The weight of cables

ANSWER: A

Explanation:

The system's ability to expand or upgrade in the future without major redesign is the best definition of scalability in AV system design. A scalable design anticipates that an organization's needs, room usage, technology standards, or user population may change after commissioning. The designer therefore provides a practical path to add capacity, endpoints, displays, rooms, control functions, or processing resources while preserving the overall architecture. This may include selecting platforms with available input/output capacity or network expansion capability, documenting addressing and control conventions, allowing adequate rack space and power capacity, and designing cable pathways that can accommodate future infrastructure. Scalability is an architectural characteristic rather than simply a product feature: it helps the client extend the useful life of the AV system and make later changes with less disruption, cost, and rework. AVIXA's design guidance emphasizes determining current requirements while considering future needs and providing complete, coordinated documentation that supports system implementation and lifecycle changes. See AVIXA's overview of the CTS-D credential and its focus on AV design at https://www.avixa.org/certification/cts-d and AVIXA's audiovisual standards resources at https://www.avixa.org/standards.

QUESTION NO: 10

Which of the following best describes â€œsystem redundancyâ€□ in AV design?

A. Using backup components to increase system reliability

B. Increasing the number of cables

C. Adding more microphones than necessary

D. Reducing the number of control points

ANSWER: A

Explanation:

Using backup components to increase system reliability is correct because redundancy means intentionally providing an alternate component, path, or subsystem that can maintain a required function when the primary element fails or is taken out of service. In an AV system, this can include redundant power supplies, backup DSPs, duplicate network links, standby control processors, or alternate signal paths. The appropriate level of redundancy is determined during design by evaluating the operational impact of a failure, the required availability of the space, serviceability needs, budget, and the client's tolerance for downtime. Effective redundancy is more than simply having extra equipment: the backup arrangement must be engineered, integrated, and tested so that failover or recovery can occur within the project's operational requirements. This design practice supports reliability and resilience, particularly for mission-critical rooms and systems where an interruption would materially affect safety, operations, communications, or revenue. AVIXA's standards resources identify reliability and system performance as important considerations in audiovisual system design and verification. See AVIXA Standards and the AVIXA CTS-D certification overview.

QUESTION NO: 11

Which of the following is a common cause of video signal degradation?

A. Using shielded cables

B. Cable length exceeding specifications

C. Using digital signals

D. Proper grounding

ANSWER: B

Explanation:

Cable length exceeding specifications is a common cause of video signal degradation because every transmission medium has electrical and bandwidth limits. As a cable run gets longer, attenuation increases and the signal becomes more vulnerable to noise, distortion, timing errors, and loss of high-frequency content. With analog video, this can appear as a

softer image, reduced detail, color shifts, or noise. With digital video, excessive cable length can reduce the receiver's signal margin enough to cause intermittent image dropouts, sparkles, HDCP failures, or complete loss of synchronization. A CTS-D designer must verify the required resolution, refresh rate, cable type, connector performance, and manufacturer-rated distance for the intended signal format. Where the required path exceeds the supported passive-cable distance, the design should specify an appropriate extension method, such as an active cable, distribution amplifier, extender set, fiber transport, or signal conversion system. AVIXA's system-design guidance emphasizes designing signal paths around verified performance requirements and transmission limitations rather than assuming that a physically connected source and display will operate reliably. See AVIXA Standards and HDMI cable certification information from HDMI.org.

QUESTION NO: 12

Which type of signal transmission is least susceptible to electromagnetic interference?

A. Analog audio over unshielded cable

B. Digital video over fiber optic cable

C. Analog video over coaxial cable

D. Balanced audio over shielded cable

ANSWER: B

Explanation:

Digital video over fiber optic cable is least susceptible to electromagnetic interference because fiber carries information as pulses of light through a nonconductive glass or plastic core, rather than as electrical current through metal conductors. Electromagnetic fields from dimmers, motors, power cables, radio transmitters, or other electrical equipment cannot induce unwanted voltage or current into an optical fiber. This makes fiber particularly valuable for AV links installed near electrically noisy infrastructure, for long-distance backbone connections, and where galvanic isolation between equipment locations is beneficial. In a digital-video system, the electrical video signal is converted to an optical signal at the transmitter and converted back to electrical form at the receiver. The fiber path itself remains immune to electromagnetic and radio-frequency interference. Fiber also avoids ground-loop coupling because it does not create a conductive path between the connected endpoints. AVIXA's design guidance recognizes fiber-optic transport as an appropriate solution where long distance, electrical isolation, and resistance to electromagnetic interference are required. See AVIXA's overview of fiber optics and the Fiber Optic Association's discussion of fiber-optic transmission fundamentals.

QUESTION NO: 13

Which of the following is a common power rating unit used for AV equipment?

A. Volts (V)

B. Watts (W)

C. Amperes (A)

D. Ohms (Ω)

ANSWER: B

Explanation:

Watts (W) is the correct unit because wattage measures electrical power: the rate at which equipment consumes, delivers, or converts electrical energy. AV system designers routinely use power ratings when selecting amplifiers, loudspeakers, displays, projectors, power supplies, and uninterruptible power systems. For example, an amplifier's output may be specified in watts per channel into a stated load impedance, while a display or projector may list its operating power consumption in watts. These ratings support essential design activities such as electrical load calculations, circuit planning, heat-load estimation, and equipment selection. In AC circuits, real power in watts is related to voltage, current, and power factor; this makes wattage a practical common measure for determining the actual power demand placed on an electrical distribution

system. AVIXA's audiovisual systems performance standard recognizes power-related measurements and engineering considerations as part of professional AV system design and documentation. The U.S. Department of Energy also defines a watt as the standard unit used to measure electrical power. See the U.S. Department of Energy's overview of electricity and AVIXA standards resources.

QUESTION NO: 14

A projector lens has a throw-ratio range of 1.50:1 to 2.00:1. The available distance from the lens to a 3.0 m-wide screen is 5.4 m. Which conclusion is correct?

A. The lens cannot produce the required image width at the available location

B. The screen width must be reduced to use the lens

C. The projector must be mounted closer to the screen

D. The lens can produce the required image width at the available location

ANSWER: D

Explanation:

The required throw ratio is calculated by dividing throw distance by image width: 5.4 m ÷ 3.0 m = 1.80:1. Because 1.80:1 falls within the lens range of 1.50:1 to 2.00:1, the lens can produce the required image width at the available location.

The available distance does not require a larger screen or a different lens. A conclusion that the projector must be mounted closer would be appropriate only if the required ratio were below the lens's minimum ratio.

QUESTION NO: 15

What is the purpose of â€œequalizationâ€□ in an audio system?

A. To balance frequency response and improve sound quality

B. To increase volume

C. To reduce cable length

D. To route audio signals

ANSWER: A

Explanation:

To balance frequency response and improve sound quality is correct. Equalization (EQ) adjusts the level of selected frequency ranges in an audio signal. In an AV system, a designer or technician uses EQ to compensate for predictable acoustic effects of loudspeakers and rooms, such as excessive low-frequency buildup, reduced high-frequency energy over distance, or resonances that color speech and music. The objective is a controlled, appropriate frequency response at the listening area so program material is reproduced with improved intelligibility, tonal balance, and consistency. EQ may be implemented in DSP, a mixer, a dedicated equalizer, or loudspeaker-processing software, and it is normally informed by measurement and listening rather than used simply to make the system louder. AVIXA's audio resources describe equalization as processing that changes signal level by frequency band, while Shure's system-design guidance explains its use for correcting room and system response. Proper equalization supports the overall electroacoustic design goal: delivering clear, natural, and suitable sound to the audience. See AVIXA audio resources and Shure: What is equalization?.

QUESTION NO: 16

Which of the following best describes "gain structure" in audio system design?

A. The planned gain and loss at each stage of the signal chain to maintain proper signal levels, maximize signal-to-noise ratio, and avoid clipping/distortion

B. The physical size of an amplifier

C. The number of microphones in a system

D. The type of speakers used

ANSWER: A

Explanation:

The planned gain and loss at each stage of the signal chain to maintain proper signal levels, maximize signal-to-noise ratio, and avoid clipping/distortion is the best description of gain structure. In an AV audio design, every source, preamplifier, mixer input and output, DSP block, amplifier input, and loudspeaker-processing stage has an operating level and a finite amount of headroom. Establishing the gain structure means setting and documenting these stages so normal program material remains comfortably above the equipment noise floor while transient peaks stay below clipping. This is not merely a single input-to-output voltage ratio; it is the coordinated level relationship across the entire system. Good gain structure supports intelligibility and consistent loudness, preserves dynamic range, and lets operators use controls near their intended nominal positions. During commissioning, the designer typically verifies these relationships with appropriate test signals and meters, then confirms that the designed system can reproduce expected program peaks without overload. AVIXA's professional-development resources identify audio-system design and commissioning as core CTS-D subject areas; see AVIXA CTS-D certification. For a practical discussion of gain staging, including headroom and noise considerations, see Shure's gain-staging guidance.

QUESTION NO: 17

Which of the following best describes "plenum-rated" cable?

A. Cable rated for use in air handling spaces with fire-resistant materials

B. Cable for outdoor use

C. Cable for temporary installations

D. Cable with extra shielding for audio signals

ANSWER: A

Explanation:

Plenum-rated cable is cable listed for installation in environmental-air spaces, such as the spaces above suspended ceilings or below raised floors when those spaces are used to move supply or return air for HVAC systems. Its jacket and insulation are made from materials designed to limit flame spread and, critically, reduce smoke generation and the release of hazardous combustion products if exposed to fire. This is important because an HVAC air-handling space can distribute smoke and combustion gases rapidly throughout a building. In U.S. electrical-code terminology, this is commonly identified as a Type CMP communications cable, which is permitted in ducts, plenums, and other spaces used for environmental air. The cable's listing and marking, rather than appearance alone, must be verified during design and installation; local codes and the authority having jurisdiction determine the applicable requirements. For AV-system designers, identifying air-handling pathways early helps ensure that cable types specified for signal, control, and network connections comply with the installation environment and fire-safety requirements. See the National Fire Protection Association's overview of the National Electrical Code and UL's information on wire and cable testing and certification.

QUESTION NO: 18

Which of the following best describes "RTSP" in video streaming?

A. A digital video format

B. Real-Time Streaming Protocol used for controlling streaming media servers

C. A type of camera

D. A projector specification

ANSWER: B

Explanation:

Real-Time Streaming Protocol used for controlling streaming media servers is correct. RTSP is an application-layer protocol defined by the Internet Engineering Task Force for establishing and controlling media-streaming sessions between a client and a media server. In an AV streaming workflow, a client such as a media player, control system, recorder, or video-management platform can use RTSP commands including SETUP, PLAY, PAUSE, and TEARDOWN to request and manage the delivery of a stream. RTSP is therefore primarily a session-control protocol rather than a video codec, container, or image format. The actual audio and video media are commonly carried separately, often using the Real-time Transport Protocol, while RTSP provides the signaling and controls needed to initiate, manipulate, and end the session. This distinction is important in CTS-D design because successful interoperability requires matching the endpoint capabilities, stream transport, codecs, network configuration, and control requirements—not merely identifying a device as “RTSP capable.” The protocol specification, including its purpose and supported control methods, is published in IETF RFC 7826: RFC 7826: Real-Time Streaming Protocol Version 2.0. Background on RTP, a commonly associated media transport protocol, is available in RFC 3550: RTP.