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Topic Break Down

Topic	No. of Questions
Topic 1, Creating AV Solutions	144
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QUESTION NO: 1

When selling rental or staging services, which is the MOST effective way to showcase a company's services and expertise?

- A. Invite the client to a similar event.
- B. Provide videos of a similar event for the client.
- C. Present photos and drawings of similar events.
- D. Organize brochures and data sheets for all proposed equipment.

ANSWER: A

Explanation:

Invite the client to a similar event. A live visit gives the prospective client direct, multisensory evidence of the company's capabilities in a real operating environment. They can see the finished system, observe how it supports the event, assess presentation quality and professionalism, and experience the crew's coordination, setup practices, and on-site responsiveness. This makes the service offering tangible in a way that is especially important for rental and staging work, where successful delivery depends not only on individual products but also on planning, integration, logistics, operation, and client support. A comparable event also helps the salesperson connect the demonstrated outcome to the client's own requirements and build confidence through a credible proof of performance. AVIXA describes CTS professionals as applying AV technology solutions through the full project lifecycle and delivering an effective customer experience; a live reference event visibly demonstrates that practical competence. See [AVIXA CTS certification information](#) and AVIXA's overview of [AV industry topics](#).

QUESTION NO: 2

One MAIN benefit of multicast over unicast in a network AV solution is it

- A. supports multi-channel audio.
- B. supports higher video resolutions.
- C. reduces network bandwidth when using multiple encoders.
- D. reduces network bandwidth when using multiple decoders.

ANSWER: D

Explanation:

"reduces network bandwidth when using multiple decoders." is correct because multicast enables one AV stream from a source to be delivered efficiently to many subscribed receiving endpoints. Rather than the encoder transmitting a separate copy of identical video and audio to every decoder, it sends a single multicast stream addressed to a multicast group. Network switches with multicast-management features, commonly Internet Group Management Protocol snooping, forward that stream only to switch ports where receivers have joined the relevant group. This makes multicast especially valuable for one-to-many AV-over-IP applications such as distributing a presentation, live event feed, IPTV channel, or digital-signage content to numerous displays. The source-facing network link and encoder do not need bandwidth to carry duplicate copies for every decoder; bandwidth use is therefore much more scalable as additional decoders subscribe to the same content. Successful deployment requires compatible network infrastructure and appropriate multicast configuration, including multicast group management and routing where streams cross network subnets. AVIXA describes multicast as a distribution method for sending content from one source to multiple destinations, while the Internet Engineering Task Force defines the multicast listener-management mechanisms used by receiving hosts. See [AVIXA Standards](#) and [RFC 4541: IGMP and MLD Snooping Switches](#).

QUESTION NO: 3 - (SIMULATION)

Identify the cable which is LEAST susceptible to electromagnetic interference. Select the appropriate cable by clicking anywhere on the correct cable.



ANSWER: See the explanation for the answer

Explanation:

Select the third cable from the left, the orange fiber-optic cable.

Fiber-optic cable carries signals as light through glass or plastic fiber rather than as electrical current. Therefore, it is effectively immune to electromagnetic interference (EMI), making it the least susceptible cable shown. The black coaxial cable has shielding and good EMI resistance, but it still carries an electrical signal and is not as immune as fiber.

QUESTION NO: 4

Which of the following is a MAJOR consideration for implementing AVoIP?

- A. it requires the use of a fiber backbone
- B. it prohibits virtual architecture rearrangement
- C. it restricts sources from being accessed from anywhere
- D. it requires an understanding of compression, image quality, and latency

ANSWER: D

Explanation:

"it requires an understanding of compression, image quality, and latency" is a major consideration because an AV-over-IP system transports audiovisual content as network data, and the chosen transport method directly affects the user experience. Compression reduces the bandwidth required to distribute video, which can make large deployments more practical on available network infrastructure. However, compression choices can also affect image fidelity, particularly with detailed content such as small text, spreadsheets, graphics, and fast motion. The system designer must therefore match the codec and compression ratio to the application's visual-quality requirements.

Latency is equally important because encoding, packet transport, buffering, decoding, and display processing all contribute delay. The acceptable end-to-end delay depends on the use case: interactive presentations, camera image magnification,

and systems involving live audio generally require particularly careful latency management. CTS-level planning should document source types, display requirements, expected viewing conditions, synchronization needs, and network capacity so that the AVoIP design delivers suitable quality and responsiveness. AVIXA identifies networked AV as a core area of audiovisual technology practice, and its AV-over-IP resources emphasize the relationship between network design and AV performance. See [AVIXA Standards](#) and [AVIXA AV-over-IP resources](#).

QUESTION NO: 5

When a presenter is using a headworn wireless microphone, the sound technician notices a great deal of plosives and breath noise. To correct this problem, the technician should:

- A. Ask the speaker to talk more quietly
- B. Adjust the microphone wireless transmitter gain
- C. Change from an omnidirectional to a cardioid capsule
- D. Adjust the position of the microphone and use a windscreen

ANSWER: D

Explanation:

Adjust the position of the microphone and use a windscreen is correct because plosives and breath noise result primarily from fast-moving air striking the microphone capsule. With a headworn microphone, the capsule should be positioned close enough to maintain a strong, consistent spoken-word signal, but placed slightly to the side of the mouth rather than directly in front of it. This off-axis placement prevents bursts of air from consonants such as “p,” “b,” and “t” from impacting the capsule while preserving intelligibility and stable gain before feedback. A properly fitted foam windscreen provides an additional physical layer that diffuses air movement before it reaches the diaphragm, further reducing breath blasts and plosive energy. These are source-level acoustic remedies: they address the cause before the signal enters the wireless system, mixer, or loudspeaker system. In professional AV practice, correct microphone selection, placement, and accessory use are foundational steps for achieving clear speech reinforcement. Shure’s guidance on headset and lavalier microphone placement likewise recommends positioning headset microphones at the corner of the mouth, rather than directly in front of it, to minimize breath and plosive noise. See [Shure: Headset Microphone Placement](#) and [Shure: Microphone Techniques for Live Sound Reinforcement](#).

QUESTION NO: 6

A schedule is being created for a project. Which of these factors will have the MOST impact on the calculations?

- A. labor hours
- B. inventory
- C. blueprints
- D. cost of materials

ANSWER: A

Explanation:

labor hours has the most direct impact on schedule calculations because the work estimate for each activity is a primary input used to establish its duration. A schedule must account for how much installation, programming, testing, documentation, and commissioning effort is required, then relate that effort to the number of suitably qualified people available and their working time. For example, an activity estimated at many labor hours will require a longer duration when only one technician is available than when an appropriately staffed crew can perform the work in parallel. Those calculated activity durations establish sequencing, critical-path analysis, milestones, resource loading, and the forecast completion date. Accurate labor-hour estimates therefore allow an AV project team to create a schedule that is achievable, coordinate trades and site access, and identify whether additional staffing or a revised completion date is necessary. AVIXA identifies

project management as a core CTS knowledge area, including planning and coordinating AV work: [AVIXA CTS certification](#). The Project Management Institute also describes schedule development as using activity durations and resource considerations to produce the project schedule: [PMI schedule development guidance](#).

QUESTION NO: 7

During a site survey, a client states that there will be no acoustical treatment to their new council chamber and they want a voice lifting (reinforcement) system. Which loudspeaker should be recommended to achieve optimal speech intelligibility?

- A. coaxial loudspeaker
- B. broad beam loudspeaker
- C. narrow beam loudspeaker
- D. ceiling mount loudspeaker

ANSWER: C

Explanation:

narrow beam loudspeaker is the appropriate recommendation because an untreated council chamber is likely to have significant hard, reflective surfaces and therefore excessive reverberant energy. For voice reinforcement, speech intelligibility depends on maximizing useful direct sound at listeners while limiting sound sent toward reflective walls, ceilings, and other surfaces. A narrow, controlled coverage pattern concentrates the loudspeaker's output on the seating area and reduces excitation of the room outside that listening zone. This improves the direct-to-reverberant sound ratio, helping preserve consonant definition and speech clarity. Controlled directivity also supports a more even and purposeful coverage design, allowing the system designer to aim loudspeakers away from reflective boundaries and toward the audience. This is especially important in civic spaces, where clear spoken communication is the primary program requirement and acoustical treatment is unavailable. AVIXA's guidance on intelligibility identifies room acoustics, reverberation, and the ratio of direct to reverberant sound as key design considerations. See [AVIXA Standards](#) and Shure's [speech intelligibility guidance](#).

QUESTION NO: 8

When specifying a paging system for a large building, what kind of speaker system should be recommended?

- A. near field
- B. line array
- C. direct coupled
- D. constant voltage

ANSWER: D

Explanation:

Constant voltage is the appropriate speaker-system type for a paging system serving a large building. In this approach, a power amplifier feeds a distributed loudspeaker line through matching transformers, conventionally designated as 70.7 V in North America or 100 V in many other regions. Each loudspeaker transformer provides a selectable power tap, allowing the designer to set the output level in individual areas and to calculate the total amplifier load by adding the selected tap wattages, with appropriate headroom. This architecture is particularly well suited to paging because it supports many loudspeakers over long cable runs while simplifying wiring, load calculation, zoning, expansion, and level adjustment. The system can distribute intelligible voice announcements to offices, corridors, common spaces, and other separated areas without requiring a dedicated low-impedance amplifier channel and home-run cable for every loudspeaker. Proper design still requires verification of amplifier power, transformer compatibility, cable ratings, loudspeaker coverage, and speech intelligibility at listener locations. AVIXA describes distributed loudspeaker systems and their application in professional AV audio design; see [AVIXA Standards](#). For a technical overview of constant-voltage distributed audio principles, see [AtlasIED's 70 V/100 V distributed-audio overview](#).

QUESTION NO: 9

What is the MAIN benefit of carrying out regular software updates provided by the device manufacturer?

- A. increasing the bandwidth
- B. providing a higher data throughput
- C. enhancing the data security of the system
- D. providing a better understanding of the system

ANSWER: C

Explanation:

Regular manufacturer-provided software updates primarily enhance the data security of the system. Manufacturers issue updates to correct discovered vulnerabilities, patch security defects, and address weaknesses that could permit unauthorized access, malware installation, data exposure, or disruption of AV services. In an AV environment, this applies not only to computers but also to networked endpoints, control processors, DSPs, codecs, displays, cameras, and other devices whose firmware or software may communicate across the organization's network. Maintaining supported software versions is therefore a core part of a secure operational lifecycle. Updates can also include reliability or feature improvements, but the principal benefit is reducing known security risk through timely remediation. AVIXA's guidance on networked AV systems emphasizes that connected AV devices must be managed as IT assets, including maintaining current firmware and security patches. A sound update process should use manufacturer-approved releases, confirm compatibility with the deployed system, schedule appropriate maintenance windows, and retain a recovery plan or backed-up configuration before deployment. This minimizes exposure while preserving the availability and intended operation of the installed AV system. See the [CISA Known Exploited Vulnerabilities Catalog](#) and [NIST Cybersecurity Framework](#) for authoritative guidance on vulnerability remediation and system maintenance.

QUESTION NO: 10

The integrator gets an urgent service call from the client's AV engineer that there is no power indication on the HDMI switcher in the rack. What is the BEST workaround that the integrator can suggest?

- A. call the manufacturer for support
- B. change the power supply of the faulty unit
- C. bring in another switcher to replace the broken one
- D. patch the Input to the output, bypassing the switcher

ANSWER: D

Explanation:

patch the Input to the output, bypassing the switcher is the best workaround because it restores the essential signal path immediately without requiring the failed HDMI switcher to be powered, repaired, configured, or replaced. In an urgent support situation, the priority is to preserve the client's ability to present content with the least possible interruption. A direct HDMI connection from the currently required source to the display, projector, or downstream destination removes the inoperative device from the path and can quickly return the room to usable operation. The integrator should confirm that the selected source and destination use compatible signal formats, HDCP requirements, connectors, and cable lengths, then verify picture and audio at the destination. This is a temporary operational workaround, not a repair: normal source-selection capability may be limited until the switcher's power issue is diagnosed and permanently corrected. AVIXA's CTS program emphasizes applying structured troubleshooting and support practices to maintain system operation and minimize user impact. See AVIXA's [CTS certification information](#) and its [AV standards resources](#).

QUESTION NO: 11

When training a new user to operate the solution that has been provided, how should the training be started?

- A. With a good joke.
- B. With the display up and running.
- C. With the system up and running.
- D. With the system shut down and at a state of rest.

ANSWER: C

Explanation:

Training should start *with the system up and running*. Beginning in a known-good, operational state lets the trainer first orient the user to the room or solution's normal condition and demonstrate the primary tasks the user needs to complete. This creates an immediate, successful experience: the user can identify the displays, sources, controls, audio behavior, and intended workflow before being asked to perform procedural tasks independently. The trainer can then use a logical sequence—demonstrate the normal use case, have the user repeat it, and progress to startup, shutdown, source changes, and any routine recovery steps. This approach supports effective user adoption because training focuses first on the outcomes the AV solution was designed to deliver, while the system is available and predictable for demonstration and hands-on practice. It also allows the trainer to verify that the delivered solution is functioning correctly before and during instruction, which is an important part of project closeout and client handover. AVIXA's CTS program includes customer service, operational support, and system-operation competencies as central technician skills; see the [AVIXA CTS certification overview](#) and the [AVIXA standards resources](#).

QUESTION NO: 12

When is the optimal time to conduct training of end users in a new AV installation?

- A. after all participants have reviewed equipment manuals
- B. when all users of the facility can be trained at the same time
- C. at the time of system handover with accompanying user guides
- D. during installation so that the system can be configured and modified in line with the user's knowledge

ANSWER: C

Explanation:

The optimal time is **at the time of system handover with accompanying user guides**. Handover is the point at which the installed system has been completed, tested, commissioned, and accepted for operational use. Training at this stage lets end users work with the actual, functioning equipment and control interfaces they will use in the facility, rather than learning from manuals alone or from a system still undergoing installation and adjustment.

Providing user guides alongside the session supports retention and gives users a practical reference after the trainer leaves. Effective handover training should address normal startup and shutdown, selecting sources, using room controls, connecting personal devices, expected operating practices, basic troubleshooting, and the process for obtaining support. It should be tailored to the distinct user roles that will operate the system, while being delivered close enough to occupancy that knowledge is fresh when the room enters service. This approach is consistent with AVIXA's emphasis on clear project closeout documentation and preparing users to operate AV systems successfully. See [AVIXA Standards](#) and [AVIXA CTS Certification](#).

QUESTION NO: 13

Which addressing scheme is used to define a fixed, routable IPv4 address that is locally assigned?

- A. static

- B. DHCP
- C. link-local
- D. DHCP reservation

ANSWER: A

Explanation:

static is correct because static addressing assigns a specific IPv4 address directly in the network settings of a device. The address remains fixed unless an administrator deliberately changes the configuration, providing a predictable and stable endpoint for communication. A static address is routable when it is configured with the appropriate subnet mask, default gateway, and—where needed—DNS settings for the local network's addressing plan. "Locally assigned" distinguishes this approach from an address that is automatically supplied by a network service: the administrator or installer enters and manages the address on the endpoint itself.

In AV systems, static addresses are commonly appropriate for infrastructure and endpoints that must be reached consistently, such as control processors, managed switches, AV-over-IP encoders and decoders, DSPs, and equipment interfaces. Stable addressing supports control-system programming, documentation, remote management, monitoring, and troubleshooting because the device's network location is known in advance. To work reliably, the selected address must be unique within its subnet and coordinated with the organization's IP address plan so it does not conflict with addresses allocated elsewhere. IPv4 addressing and the function of subnet masks and gateways are described in [RFC 1812](#); practical static IPv4 configuration guidance is available in [Microsoft DHCP documentation](#).

QUESTION NO: 14

In an audiovisual system where a touch panel is to be connected to the control system via the LAN, the designer may choose to use a

- A. MAC address.
- B. host IP address.
- C. static IP address.
- D. shared IP address.

ANSWER: C

Explanation:

A **static IP address** is appropriate when a LAN-connected touch panel must reliably communicate with an AV control system. Control processors, touch panels, and other managed endpoints commonly need stable network addressing so that configured connections, control-program references, monitoring tools, and support documentation consistently identify the device at the same address. A static address prevents the endpoint's address from changing unexpectedly after a reboot, lease expiration, or network change, which helps preserve dependable operation of the user interface and its communications with the control processor.

Static addressing should be planned as part of the customer's network design. The assigned address must be unique, use the correct subnet mask and default gateway for the applicable VLAN or subnet, and be coordinated with the network administrator so it does not conflict with addresses issued by DHCP. In some managed environments, the same predictable result can be achieved through a DHCP reservation based on the device's MAC address; however, the addressing choice named here is a static IP address. AVIXA's network guidance emphasizes the importance of correctly configured IP parameters for networked AV endpoints. See [AVIXA Standards](#) and [RFC 1918: Address Allocation for Private Internets](#).

QUESTION NO: 15

The goal of initial AV design meetings is to determine:

- A. Fabricators
- B. Finances
- C. Frequencies
- D. Functionality

ANSWER: D

Explanation:

Functionality is the correct determination for initial AV design meetings because the design process must begin with a clear understanding of what the audiovisual system needs to enable users to do. Early discussions identify the client's objectives, the activities that will occur in the space, user groups, room types, operational workflows, content sources, collaboration needs, presentation methods, accessibility expectations, and desired levels of control. Those functional requirements establish the basis for the system's performance criteria and scope. Once functionality is understood and documented, the AV professional can develop an appropriate solution, including signal flows, equipment categories, infrastructure needs, interfaces, and support considerations. This requirements-focused approach helps ensure that later technical and commercial decisions serve the intended user experience rather than driving it. AVIXA describes the CTS credential as covering the creation of AV solutions that meet client needs, including the ability to gather requirements and develop solutions: [AVIXA CTS Certification](#). AVIXA's standards resources also support a structured design process based on defined owner and user needs: [AVIXA Standards](#).

QUESTION NO: 16

What is defined by a work breakdown structure (WBS)?

- A. Project scope
- B. Project budget
- C. Project schedule
- D. Project resources

ANSWER: A

Explanation:

Project scope is defined by a work breakdown structure (WBS). A WBS is a deliverable-oriented, hierarchical decomposition of all work required to complete a project. Starting with the overall project, it organizes the required deliverables into progressively smaller, manageable elements, commonly ending in work packages that can be estimated, assigned, monitored, and controlled. This structure establishes a shared understanding of the complete project boundary: what must be delivered and the work necessary to produce those deliverables. In AV project delivery, a WBS can organize the work associated with items such as system design, equipment procurement, infrastructure preparation, installation, programming, testing, commissioning, documentation, and client training. Because it captures the total authorized work, the WBS provides the foundation from which planning activities such as cost estimating, resource planning, and schedule development can proceed. It is therefore fundamentally a scope-definition and scope-management tool. AVIXA's CTS credential covers the project-management knowledge needed to plan and execute technology-system projects; see [AVIXA CTS Certification](#). The Project Management Institute also describes the WBS as a hierarchical decomposition of project scope into manageable components: [PMI: Work Breakdown Structure Purpose and Benefits](#).

QUESTION NO: 17

According to AVIXA Standards, what is the MINIMUM load rating for truss that will hold a 5000 lbs (2268 kg) LED wall?

- A. 15000 lbs (6804 kg)
- B. 25000 lbs (11340 kg)

C. 30000 lbs (13608 kg)

D. 50000 lbs (22678 kg)

E. It cannot be determined from the LED wall weight alone; use the truss manufacturer's rated load tables and a qualified rigging/engineering design for the complete configuration.

ANSWER: E

Explanation:

No single truss load rating can be determined from the LED wall's 5,000 lb (2,268 kg) weight alone. The correct requirement is a truss system and rigging design whose documented allowable load, in the specific proposed configuration, is sufficient for the total applied load. That design must include the LED wall and all associated hardware, such as mounting frames, clamps, cabling, hoists, motors, spreader elements, and any relevant temporary or dynamic loads. It must also account for the truss manufacturer's load tables for the exact model, span, support locations, loading pattern, orientation, connections, deflection limits, and point-load locations. A generic 5:1 multiplier should not be applied to a working-load rating to select truss. Design factors are incorporated into engineering and manufacturer ratings, while the installer must not exceed the published working-load limits. AVIXA's rigging guidance emphasizes using qualified personnel, manufacturer documentation, and engineering review where required, rather than inferring capacity from payload weight alone. The event-technology rigging standard ANSI E1.2 likewise addresses design and manufacture of truss and towers, not a universal five-times-payload selection rule. See [AVIXA Standards](#) and [ESTA/ANSI Technical Standards](#).

QUESTION NO: 18

As part of a service agreement offering, wfwf PRIMARY role do preventive maintenance visits (PM/PMV) play?

A. allows the AV provider to clean, service and assess equipment in the field on a regular basis

B. allows the AV provider to check in with customer and serves as an opportunity to sell further solutions

C. allows the AV provider to sell a service that is often forgotten by the customer, and therefore generate greater profit

D. allows the AV provider access to client premises and scope future work

ANSWER: A

Explanation:

Preventive maintenance visits primarily allow the AV provider to clean, service, and assess equipment in the field on a regular basis. In a service agreement, this planned work is intended to sustain reliable operation throughout the system life cycle rather than waiting for a fault or user-reported failure. A technician can inspect equipment condition, remove accumulated dust or contamination, verify physical connections and environmental conditions, assess performance, apply appropriate routine servicing, and identify developing issues before they disrupt the client's use of the AV system. Regular assessment also creates a documented baseline for the installed system and helps the provider plan repairs, replacements, or adjustments at an appropriate time. This proactive approach supports system availability, extends the useful life of equipment, and can reduce unplanned downtime and corrective-service costs. The U.S. Department of Energy describes preventive maintenance as planned maintenance performed to keep equipment operating efficiently and to prevent unexpected failures. Similarly, ISO explains that asset-management practices support value realization through effective life-cycle management of assets. These principles align directly with the operational purpose of scheduled AV preventive-maintenance visits. See the [U.S. Department of Energy Operations and Maintenance Best Practices Guide](#) and [ISO asset management overview](#).

QUESTION NO: 19

Which of the following is the BEST service when new firmware is available for installed equipment across a fleet of conference rooms?

A. keeping current version

- B. replacing the equipment
- C. updating them all at once
- D. a ringed update approach

ANSWER: D

Explanation:

A ringed update approach is the best service for deploying new firmware across a fleet of conference rooms because it uses a controlled, phased rollout rather than exposing every room to an unvalidated change at the same time. The first deployment ring should contain a small, representative set of rooms and devices, allowing the support team to verify successful installation, operational performance, interoperability, and any effects on room workflows. Monitoring this initial group provides an opportunity to identify and resolve issues, confirm rollback procedures if needed, and refine deployment communications before expanding the update to subsequent rings. Once each ring meets defined success criteria, the firmware can be released gradually to larger groups until the fleet is updated. This approach reduces operational risk, limits the potential impact of an unexpected firmware defect, and helps preserve availability of collaboration spaces for users. Phased deployment is also consistent with established change-management practices: changes should be tested, evaluated, authorized, and reviewed in a controlled manner. Guidance on phased deployments is available from [Microsoft Learn: Windows update rings](#), and formal change-management principles are described by [ITIL: Change enablement](#).

QUESTION NO: 20

Which requirement supersedes others when planning an AV project for a client?

- A. Institutional policies
- B. Existing infrastructure
- C. Organizational standards
- D. Local safety ordinances and building codes

ANSWER: D

Explanation:

Local safety ordinances and building codes supersede other project requirements because they are enforceable legal and regulatory obligations governing how an AV system may be installed. During planning, these requirements can affect equipment location, mounting methods, structural support, cable pathways, fire stopping, electrical work, plenum ratings, emergency systems, accessibility, permits, and inspections. An AV professional must identify applicable authority-having-jurisdiction requirements early, then ensure that the design, installation practices, and documentation support compliance. Client policies, existing conditions, and organizational standards remain important inputs to a successful solution, but they must be applied within the boundaries established by the governing code and local ordinances. AVIXA emphasizes the need to account for codes, standards, and regulations in AV project work, including coordination with the appropriate authorities and trades. In the United States, building-code requirements are commonly adopted and enforced locally, while electrical safety requirements are frequently based on the National Electrical Code. Consult the local authority having jurisdiction for the specific rules applicable to the project site. See [AVIXA Standards](#) and the [NFPA 70, National Electrical Code](#).

QUESTION NO: 21

When connecting two switches with multiple VLANs, which function should be setup in order to pass all the packets from one switch to the other?

- A. trunk link
- B. multicast routing
- C. QoS (Quality of Service)

ANSWER: A

Explanation:

A trunk link is the required switch-to-switch function because it carries traffic for multiple VLANs across one physical Ethernet connection. Rather than dedicating a separate physical link to each VLAN, the switches establish the interswitch connection as a trunk and use IEEE 802.1Q VLAN tagging to identify the VLAN associated with each frame. The receiving switch reads the tag and forwards the frame within the corresponding local VLAN, preserving logical network separation while allowing each VLAN to extend between the switches. Native-VLAN traffic can be handled according to the trunk's configured native VLAN, while traffic belonging to other permitted VLANs is transmitted with VLAN identification. In a typical AV deployment, trunks are important when devices or services in separate VLANs, such as control, audio, management, or corporate-network traffic, must each remain in their assigned VLAN while traversing the same switch uplink. Both ends of the connection should be configured consistently for trunk operation, including the allowed VLAN list and native-VLAN settings where applicable. Cisco's VLAN configuration guidance describes trunks as links that carry traffic from multiple VLANs and identifies 802.1Q as the encapsulation method: [Cisco: VLAN Trunking Protocol and VLAN Trunks](#). The IEEE standard family for bridged networks and VLAN tagging is also documented by [IEEE 802.1Q](#).

QUESTION NO: 22

A client setting terms for "tire protection of existing conditions" would most likely apply to which of tire following project types?

- A. New construction
- B. A technology refresh
- C. A prefabricated building
- D. Expansion of an existing building

ANSWER: D

Explanation:

Expansion of an existing building is correct because this type of project combines new work with an occupied or retained structure. The client commonly establishes requirements to protect existing architectural finishes, building systems, furnishings, access routes, and operational spaces while construction and AV installation proceed. Those requirements may address dust and debris containment, protection from impact, temporary barriers, safe routing of labor and materials, restoration of disturbed surfaces, and coordination with the facility's ongoing use. A technology specialist needs to identify these constraints during project planning because they influence site logistics, installation sequencing, labor access, scheduling, risk management, and the scope supplied to contractors. In an expansion, the project team must preserve the portions of the building that remain in place while integrating the new area and its technology systems. This aligns with the CTS emphasis on assessing project requirements and coordinating implementation within the client's physical and operational environment. AVIXA describes CTS as validating the ability to create, implement, and support AV solutions, including the project-related competencies needed to work effectively with stakeholders and site conditions. See [AVIXA CTS Certification](#) and [AVIXA Standards](#).

QUESTION NO: 23 - (SIMULATION)

Which setting on the digital multimeter should be used to determine if a DC power supply has failed?

Select the correct measurement category by clicking anywhere within the measurement range.



ANSWER: See the explanation for the answer

Explanation:

Select the DC-voltage range, marked V^- (the V with a solid line over a dashed line) on the upper-left side of the rotary selector.

To test a DC power supply, place the black probe in COM, the red probe in $V\Omega mA$, and select a DC-voltage range higher than the expected supply output. For example, select $20 V^-$ for a common 5 V, 12 V, or similar DC supply; use $200 V^-$ first if the expected output is unknown or could exceed 20 V.

Do not select the $V^\sim$ AC-voltage range, resistance (Ω), or current ranges.

QUESTION NO: 24

A client wants a meeting room control interface to be simple for occasional users. The proposed touch panel includes separate pages for source selection, display control, audio adjustment, lighting, shades, and system diagnostics. What is the BEST design approach?

- A. Present common user tasks through a simplified workflow and restrict diagnostics to authorised support personnel.
- B. Place every available control on the home page for faster access.
- C. Remove all lighting and shade controls from the interface.
- D. Require users to enter network settings before selecting a source.

ANSWER: A

Explanation:

The best approach is to **present common user tasks through a simplified workflow and restrict diagnostics to authorised support personnel**. A control interface should reflect the users' actual tasks, such as starting a meeting, selecting a source, adjusting volume, and ending the session. Exposing infrequently used technical controls or diagnostic functions can increase user error and reduce usability. Required building-control functions can still be incorporated, but they should be organised around clear, appropriate user workflows.

QUESTION NO: 25

A technician is troubleshooting a balanced analogue audio connection between a DSP and an amplifier. The intended programme audio is present, but a strong hum begins when the cable shield is connected at one end. What should be reviewed FIRST?

- A. Grounding and shield termination
- B. Amplifier loudspeaker impedance
- C. DSP output gain structure
- D. Loudspeaker coverage pattern

ANSWER: A

Explanation:

The technician should first review the **grounding and shield termination** of the interconnected equipment. Hum that changes when the shield is connected is evidence of an unwanted ground-current path or an incorrect shield connection. Balanced audio wiring rejects common-mode interference when the signal conductors and shielding are correctly implemented, but it cannot correct a grounding problem created by inappropriate interconnections. Replacing the amplifier or increasing output level would not address the observed relationship between the shield connection and the hum.

QUESTION NO: 26

Determining the expectations of the end users of a presentation space is called a(n):

- A. Needs analysis
- B. Program report
- C. Executive summary
- D. Performance verification

ANSWER: A

Explanation:

Needs analysis is correct because it is the early project activity used to discover and document what the people using a presentation space need the AV system to accomplish. The process focuses on the end users' expected workflows, the

activities to be supported, the type and quantity of content to be presented, room conditions, accessibility needs, and the degree of operational simplicity required. These findings establish the functional requirements that guide subsequent AV system design, including selection of displays, sources, control interfaces, audio reinforcement, collaboration capabilities, and support provisions. Conducting a needs analysis with users and stakeholders helps ensure that a system is designed around actual use cases rather than assumptions or a predetermined equipment list. AVIXA's CTS credential materials identify needs assessment and analysis as a core part of defining client requirements and translating user goals into an appropriate technology solution. More broadly, requirements engineering guidance likewise treats stakeholder needs as the basis for defining a solution's required capabilities. See AVIXA's [CTS certification overview](#) and the [ISO/IEC/IEEE 29148 requirements-engineering standard overview](#).

QUESTION NO: 27

A loud hiss is coming from the audio system. This is MOST LIKELY caused by

- A. fluorescent lighting.
- B. poor gain structure.
- C. phase cancellation issues.
- D. the microphones being off.

ANSWER: B

Explanation:

poor gain structure. is the most likely cause because hiss becomes prominent when the desired audio signal is too low at one or more stages and later gain is increased to compensate. Every microphone preamplifier, mixer input and output, digital signal-processing stage, and amplifier has an inherent noise floor. If signal level is not kept sufficiently above that noise floor, subsequent amplification raises both the wanted signal and the accumulated system noise, producing audible broadband hiss.

Proper gain structure, often called gain staging, establishes healthy signal levels throughout the complete audio path. Inputs should be set high enough to provide a strong signal-to-noise ratio without clipping; intermediate devices should generally operate near their intended nominal level; and output controls should not be used to make up for an inadequately set input gain. In a troubleshooting situation, an AV technician should verify source level, preamp gain, mixer and DSP meters, output levels, and amplifier sensitivity systematically. This approach localizes the stage at which noise is being introduced or excessively amplified and restores clean audio operation. Shure's gain-structure guidance explains the importance of maintaining appropriate levels and headroom across a signal chain: [Shure: Audio System Gain Structure](#). See also AVIXA's professional-development resources: [AVIXA Training](#).

QUESTION NO: 28

What PRIMARY concern should the sales representative have had during the site survey of this room?

- A. room orientation
- B. length of cable runs
- C. ceiling clearance for the projector lift
- D. combination of fluorescent and Incandescent lighting

ANSWER: C

Explanation:

ceiling clearance for the projector lift is the primary site-survey concern because a lift requires adequate space above the finished ceiling for its housing, projector, mounting hardware, cabling, service access, and safe travel between its stored and deployed positions. The representative must verify the ceiling construction and plenum conditions early, since these physical

constraints directly determine whether the proposed lift can be installed as designed. Clearance also affects the projector's final position relative to the screen and therefore the ability to achieve the required image geometry and sightlines. A site survey is specifically intended to validate such field conditions before finalizing the system design, scope, and installation approach. Documenting ceiling dimensions, obstructions, structural support, and access requirements helps prevent an equipment-selection or installation conflict after the project has been sold. AVIXA identifies site surveys and the verification of environmental and physical conditions as essential parts of the AV project process; see the [AVIXA Standards and Resources](#). Projector-lift installation guidance likewise emphasizes confirming above-ceiling space, support, and access before installation; see [Chief Projector Lifts](#).