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Exam A

QUESTION 1
If a broadband user account passes the authentication but all web pages cannot be accessed, the possible causes can be:

A. The firewall settings of the PC are incorrect.
B. The Windows Internet Explorer settings on the PC are incorrect.
C. The data configuration of the upper-layer device is incorrect.
D. The website server is faulty.

Correct Answer: A, B, C
Section:
Explanation:
Firewall Settings (Option A) :
Incorrect firewall settings on the PC can block outbound HTTP/HTTPS traffic, preventing access to web pages.
Browser Settings (Option B) :
Misconfigured browser settings (e.g., proxy settings in Internet Explorer) can prevent the browser from connecting to websites.
Upper-Layer Device Configuration (Option C) :
Incorrect configurations on upper-layer devices (e.g., NAT, routing, or DNS settings) can prevent proper communication between the user and external networks.
Website Server Fault (Option D) :
If the issue affects all web pages , it is unlikely to be caused by a single website server being faulty. This option is irrelevant in this scenario.
Why A, B, C?
These options directly address potential issues that could prevent access to all web pages after successful authentication.
Thus, the correct answers are A, B, C .
HCIA Huawei ACCESS Official Documentation , Chapter: Broadband Troubleshooting.
Broadband Access Network Fault Analysis by Huawei.

QUESTION 2
If the value of the PROTOCOL field in the PPP protocol is 8021, which of the following protocols is used?

A. IPCP
B. LCP
C. IPX
D. IP

Correct Answer: A
Section:
Explanation:
PPP Protocol Overview :
PPP (Point-to-Point Protocol) uses the PROTOCOL field in its header to identify the type of encapsulated protocol.
Protocol Field Values :
0x8021 : Indicates IPCP (Internet Protocol Control Protocol) , which is used to negotiate IP-related parameters during PPP session establishment.
0xC021 : Indicates LCP (Link Control Protocol) , which is used for establishing, configuring, and testing the PPP link.
0x002B : Indicates IPX (Internetwork Packet Exchange) .
0x0021 : Indicates IP (Internet Protocol) .
Why A?

The value 0x8021 corresponds to IPCP , making it the correct answer.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: PPP Protocol.
RFC 1661: PPP Protocol Specification .

QUESTION 3
During DHCP packet forwarding, a DHCP relay agent modifies the corresponding fields in a DHCP packet to complete packet type conversion. Which of the following statements is correct?

A. The DHCP relay agent converts non-Ethernet packets into Ethernet packets.
B. The DHCP relay agent converts only broadcast packets into unicast packets.
C. The DHCP relay agent converts received broadcast packets into unicast packets, and vice versa.
D. The DHCP relay agent transparently transmits unicast packets without changing the packets.

Correct Answer: C
Section:
Explanation:
DHCP Relay Agent Functionality :
A DHCP relay agent forwards DHCP packets between clients and servers located in different subnets.
It modifies the packet headers to ensure proper delivery:
Converts broadcast packets from clients into unicast packets to forward them to the DHCP server.
Converts unicast responses from the DHCP server back into broadcast packets for delivery to clients.
Why C?
The DHCP relay agent performs bidirectional conversion between broadcast and unicast packets to facilitate communication between clients and servers in different subnets.
Other Options :
A : Incorrect because DHCP relay agents do not convert packet types (e.g., Ethernet vs. non-Ethernet).
B : Incorrect because the relay agent handles both broadcast-to-unicast and unicast-to-broadcast conversions.
D : Incorrect because the relay agent modifies unicast packets during forwarding.
Thus, the correct answer is C .
HCIA Huawei ACCESS Official Documentation , Chapter: DHCP Relay Agent.
RFC 2131: DHCP Protocol Specification .

QUESTION 4
Which of the following statements about IP routes are correct?

A. In a LAN, a route consists of the following parts: IP address and MAC address.
B. IP routes are used to guide IP packet forwarding.
C. Routing is a concept at the second layer of the OSI model.
D. Any route must contain the following information: source address, destination address, and next hop.

Correct Answer: B
Section:
Explanation:
Let us analyze each option:
Option A : Incorrect. A route does not include MAC addresses. It typically consists of a destination network, subnet mask, next-hop address, and outgoing interface.
Option B : Correct. IP routes are essential for guiding the forwarding of IP packets from the source to the destination. Routers use routing tables to determine the best path for packet delivery.
Option C : Incorrect. Routing is a concept at the network layer (Layer 3) of the OSI model, not the data link layer (Layer 2).
Option D : Incorrect. A route does not require the source address. It only needs the destination network, subnet mask, and next-hop information.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: IP Routing Basics.

Routing Fundamentals in IP Networks by Huawei.

QUESTION 5
The routing table of a router contains the following two entries:
Destination/Mask Protocol Pre Cost Nexthop Interface
9.0.0.0/8 OSPF 10 50 1.1.1.1 Serial0
9.1.0.0/16 RIP 100 5 2.2.2.2 Ethernet0
If the router needs to forward packets with the destination address of 9.1.4.5, which of the following statements is correct?

A. The router selects the first route, because the priority of OSPF is higher.
B. The router selects the second route, because this route matches the destination address 9.1.4.5 more accurately.
C. The router selects the second route, because the metric of RIP is smaller.
D. The router selects the second route, because the outbound interface is Ethernet0, which is faster than Serial0.

Correct Answer: B
Section:
Explanation:
When a router forwards packets, it selects the route with the longest prefix match (most specific route) for the destination address.
First Route : Matches 9.0.0.0/8, which covers all IP addresses starting with 9.
Second Route : Matches 9.1.0.0/16, which is more specific and covers IP addresses starting with 9.1.
For the destination address 9.1.4.5 , the second route (9.1.0.0/16) is a better match because it is more specific than the first route (9.0.0.0/8).
Option A : Incorrect. OSPF has a higher priority, but the longest prefix match takes precedence over priority.
Option B : Correct. The second route matches the destination address more accurately.
Option C : Incorrect. Metric is not considered when comparing routes with different prefix lengths.
Option D : Incorrect. Interface speed is irrelevant in route selection.
HCIA Huawei ACCESS Official Documentation , Chapter: IP Routing Table Selection.
Routing Principles and Longest Prefix Match by Huawei.

QUESTION 6
On an Ethernet network, ARP packets are classified into ARP Request packets and ARP Response packets. In the initial communication phase, how are ARP Request packets transmitted on the network?

A. Anycast
B. Unicast
C. Multicast
D. Broadcast

Correct Answer: D
Section:
Explanation:
The Address Resolution Protocol (ARP) is used to map IP addresses to MAC addresses in a local network. ARP operates at the data link layer (Layer 2) of the OSI model and is essential for communication within a LAN.
ARP Request :
When a device needs to communicate with another device on the same network but does not know the destination's MAC address, it sends an ARP Request .
Since the sender does not know the MAC address of the destination, it cannot send the request directly to the destination using unicast. Instead, the ARP Request is sent as a broadcast packet to all devices on the local network.
The broadcast packet has a destination MAC address of FF:FF:FF:FF:FF:FF, which ensures that all devices on the network receive the packet.
ARP Response :
The device with the matching IP address responds with an ARP Reply , which is sent as a unicast packet back to the requesting device.
Why Not Other Options?
Anycast : This involves sending packets to the nearest device in a group of devices sharing the same IP address. ARP does not use anycast.

Unicast : ARP Requests cannot be sent as unicast because the sender does not yet know the destination's MAC address.
Multicast : Multicast is used for sending packets to a specific group of devices, but ARP Requests are sent to all devices on the network, making broadcast the correct choice.
Thus, ARP Requests are transmitted as broadcast packets .
HCIA Huawei ACCESS Official Documentation , Chapter: ARP Protocol and Operation.
Ethernet Networking Fundamentals by Huawei.

QUESTION 7
The Ethernet II packet header (without the VLAN tag) contains ( ) bytes?

A. 32
B. 22
C. 14
D. 18

Correct Answer: C
Section:
Explanation:
The Ethernet II frame is the most commonly used Ethernet frame format. It consists of several fields, and its structure is well-defined in networking standards.
Structure of the Ethernet II Header :
Destination MAC Address (6 bytes) : Specifies the MAC address of the intended recipient.
Source MAC Address (6 bytes) : Specifies the MAC address of the sender.
EtherType (2 bytes) : Indicates the protocol encapsulated in the payload (e.g., IPv4, ARP).
Total Size :
The Ethernet II header without a VLAN tag is 14 bytes in size.
If a VLAN tag is added (using IEEE 802.1Q), the header size increases to 18 bytes due to the additional 4-byte VLAN tag.
Why Not Other Options?
32 bytes : This is incorrect because the Ethernet II header is much smaller.
22 bytes : This is incorrect because the header size is fixed at 14 bytes (without VLAN tagging).
18 bytes : This would only apply if VLAN tagging were included, which is not specified in the question.
Thus, the correct answer is 14 bytes .
HCIA Huawei ACCESS Official Documentation , Chapter: Ethernet Frame Structure.
IEEE 802.3 Ethernet Standards .

QUESTION 8
The 48-bit MAC addresses of computer network interface cards are allocated by the IETF to vendors and globally unique.

A. TRUE
B. FALSE

Correct Answer: B
Section:
Explanation:
MAC (Media Access Control) addresses are 48-bit identifiers assigned to network interfaces for communication on a local network.
Allocation of MAC Addresses :
MAC addresses are not allocated by the IETF . Instead, they are managed and assigned by the IEEE (Institute of Electrical and Electronics Engineers) .
The IEEE assigns blocks of MAC addresses to hardware manufacturers (vendors), who then assign unique MAC addresses to their devices.
Structure of MAC Addresses :
The first 24 bits (Organizationally Unique Identifier, OUI) identify the manufacturer.
The remaining 24 bits are assigned by the manufacturer to ensure global uniqueness.

Why FALSE?
The statement incorrectly attributes the allocation of MAC addresses to the IETF, which is responsible for Internet standards like TCP/IP, not MAC address allocation.
Thus, the correct answer is FALSE .
HCIA Huawei ACCESS Official Documentation , Chapter: MAC Addressing.
IEEE OUI Assignment Process .

QUESTION 9
Which method is not used for VLAN categorization?

A. Based on ports
B. Based on protocols
C. Based on physical locations
D. Based on MAC addresses

Correct Answer: C
Section:
Explanation:
VLANs (Virtual Local Area Networks) are used to logically segment a network into smaller broadcast domains. VLANs can be categorized using various methods:
Port-Based VLANs :
VLAN membership is determined by the switch port to which a device is connected.
Example: Ports 1--10 belong to VLAN 10, and ports 11--20 belong to VLAN 20.
Protocol-Based VLANs :
VLAN membership is determined by the protocol type (e.g., IPv4, IPv6, or AppleTalk) in the packet header.
MAC Address-Based VLANs :
VLAN membership is determined by the MAC address of the device.
Example: Devices with specific MAC addresses are assigned to VLAN 10.
Physical Location-Based VLANs :
VLANs are not categorized based on physical locations. While VLANs can be used to group devices in different physical locations, this is not a standard method of VLAN categorization.
Thus, the correct answer is C , as VLANs are not categorized based on physical locations.
HCIA Huawei ACCESS Official Documentation , Chapter: VLAN Technologies.
VLAN Segmentation Methods by Huawei.

QUESTION 10
Which of the following statements about VLANs are incorrect ?

A. In inter-VLAN communication, the MAC address learned by a host is the MAC address of the destination host.
B. A VLAN can be considered as a broadcast domain.
C. A VLAN can be considered as a collision domain.
D. VLANIF interfaces can be configured to implement interworking between VLANs.

Correct Answer: A, C
Section:
Explanation:
Let us analyze each statement carefully:
Option A :
Incorrect : In inter-VLAN communication, hosts in different VLANs cannot directly communicate with each other because VLANs are isolated at Layer 2. Communication between VLANs requires a Layer 3 device (e.g., a router or Layer 3 switch).
Hosts do not learn the MAC addresses of devices in other VLANs. Instead, they communicate through a gateway (router or VLANIF interface), and the gateway handles the forwarding.
Option B :

Correct : A VLAN is indeed a broadcast domain . Devices within the same VLAN share the same broadcast traffic, while devices in different VLANs do not.
Option C :
Incorrect : A VLAN is not a collision domain. Collision domains are defined at the data link layer (Layer 2) and are associated with individual switch ports or hubs. VLANs are logical groupings that span multiple switch ports and do not represent collision domains.
Option D :
Correct : VLANIF interfaces (also called Switch Virtual Interfaces, SVIs) are logical Layer 3 interfaces configured on switches to enable inter-VLAN routing. These interfaces allow communication between VLANs by acting as gateways for each VLAN.
Thus, the incorrect statements are A and C .
HCIA Huawei ACCESS Official Documentation , Chapter: VLAN Fundamentals.
Inter-VLAN Routing and VLANIF Interfaces by Huawei.

QUESTION 11
Which of the following are common VLAN link types of Ethernet switches?

A. Trunk
B. Access
C. Hybrid
D. Mix

Correct Answer: A, B, C
Section:
Explanation:
VLAN link types define how VLAN traffic is handled on switch ports. The three common VLAN link types are:
Access Ports :
Used to connect end devices (e.g., PCs, printers) to the switch.
An access port belongs to only one VLAN and carries untagged traffic for that VLAN.
Example: A PC connected to an access port in VLAN 10 sends and receives untagged traffic.
Trunk Ports :
Used to connect switches or routers to carry traffic for multiple VLANs.
Trunk ports tag traffic with VLAN IDs using IEEE 802.1Q encapsulation.
Example: A trunk port connecting two switches carries tagged traffic for VLANs 10, 20, and 30.
Hybrid Ports :
A hybrid port can carry both tagged and untagged traffic.
It is flexible and can be used for scenarios where a mix of tagged and untagged traffic is required.
Example: A hybrid port might send untagged traffic for VLAN 10 and tagged traffic for VLAN 20.
Mix :
This is not a standard VLAN link type and does not exist in Ethernet switch configurations.
Thus, the correct answers are A (Trunk) , B (Access) , and C (Hybrid) .
HCIA Huawei ACCESS Official Documentation , Chapter: VLAN Link Types.
IEEE 802.1Q VLAN Tagging Standards .

QUESTION 12
Which of the following statements about static routes is correct?

A. Static routes are manually added to a routing table but are not dynamically updated by a routing protocol.
B. When the network topology changes, static routes need to be recalculated.
C. Static routes are learned from another routing protocol and imported to a local routing table.
D. Static routes have been set before a router is delivered to the market.

Correct Answer: A
Section:
Explanation:
Static routes are manually configured by network administrators and are not dynamically updated by routing protocols. Let us analyze each option:
Option A :
Correct : Static routes are manually added to the routing table by the administrator. They remain unchanged unless manually modified or removed.
Option B :
Incorrect : Static routes are not automatically recalculated when the network topology changes. If a static route becomes invalid due to a topology change, the administrator must manually update it.
Option C :
Incorrect : Static routes are not learned from other routing protocols. Routes learned from dynamic protocols (e.g., OSPF, RIP) are dynamic routes, not static routes.
Option D :
Incorrect : Static routes are not preconfigured on routers before delivery. They are configured by administrators based on the network design.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: Static Routing.
Routing Protocols and Static Routes by Huawei.

QUESTION 13
Which of the following statements about static route configuration is correct?

A. The preference is mandatory.
B. The next hop is mandatory.
C. The mask parameter is optional.
D. The mask parameter is mandatory.

Correct Answer: D
Section:
Explanation:
When configuring a static route, certain parameters are required for the route to function correctly. Let us analyze each option:
Option A :
Incorrect : The preference (or administrative distance) is optional. If not specified, the router uses the default preference value for static routes.
Option B :
Incorrect : While the next-hop IP address is commonly used in static route configuration, it is not always mandatory. For example, you can specify an outgoing interface instead of a next-hop address.
Option C :
Incorrect : The subnet mask is essential for defining the network prefix of the destination network. Without the mask, the router cannot determine the range of IP addresses covered by the route.
Option D :
Correct : The subnet mask is mandatory when configuring a static route. It defines the network portion of the destination IP address, enabling the router to match packets to the correct route.
Thus, the correct answer is D .
HCIA Huawei ACCESS Official Documentation , Chapter: Static Route Configuration.
IP Routing and Subnet Masks by Huawei.

QUESTION 14
Which of the following indicator status indicates that the MA5600T/MA5680T control board is running properly?

A. Green is on and is off repeatedly.
B. Steady green.
C. Green 0.5s on and 0.5s off repeatedly.
D. Green 0.25s on and 0.25s off repeatedly.

Correct Answer: B

Section:
Explanation:
The MA5600T/MA5680T is a Huawei Optical Line Terminal (OLT) device used in GPON networks. The status of the control board's indicator lights provides critical information about the device's operational state.
Option A :
Incorrect : If the green light is on and off repeatedly without a specific pattern, it may indicate an unstable or faulty state.
Option B :
Correct : A steady green light indicates that the control board is running properly and is in a normal operating state. This is the expected status for a healthy control board.
Option C :
Incorrect : A blinking pattern of 0.5s on and 0.5s off typically indicates that the control board is in a transitional state, such as booting up or initializing.
Option D :
Incorrect : A rapid blinking pattern of 0.25s on and 0.25s off usually signifies an alarm or error condition.
Thus, the correct answer is B , as a steady green light indicates normal operation.
HCIA Huawei ACCESS Official Documentation , Chapter: OLT Device Indicators.
MA5600T/MA5680T Maintenance Manual by Huawei.

QUESTION 15
Generally, an OLT is a switch or router and a multi-service provisioning platform.

A. TRUE
B. FALSE

Correct Answer: A
Section:
Explanation:
An OLT (Optical Line Terminal) is a key component in fiber-optic access networks, particularly in GPON and XGS-PON systems. It serves multiple roles:
Switch or Router Role :
The OLT acts as a Layer 2/Layer 3 switch or router, aggregating traffic from multiple ONUs (Optical Network Units) and forwarding it to the core network.
Multi-Service Provisioning Platform :
The OLT supports multiple services, including Internet access (data), voice (VoIP), and video (IPTV). It integrates these services over a single fiber infrastructure, making it a versatile platform for service providers.
Why TRUE?
The statement accurately describes the OLT's functionality as both a switch/router and a multi-service provisioning platform.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: OLT Functionality.
GPON System Architecture by Huawei.

QUESTION 16
The OLT supports multiple protection switching modes for GPON lines. The ( ) technology is supported by the OLT to protect the backbone and branch optical fibers at the same time.

A. Type C
B. Type D
C. Type A
D. Type B

Correct Answer: A
Section:
Explanation:
GPON networks use various protection mechanisms to ensure high availability and reliability. These mechanisms are classified into different types based on their scope and functionality:
Type A :
Protects only the trunk fiber (between the OLT and the splitter).

Does not protect branch fibers (between the splitter and ONUs).
Type B :
Protects the trunk fiber but does not provide simultaneous protection for branch fibers.
Type C :
Provides full protection for both the trunk and branch fibers.
Uses redundant fibers and splitters to ensure continuity in case of a failure.
Type D :
Not a standard GPON protection type.
Since the question specifies protection for both the backbone (trunk) and branch fibers, the correct answer is Type C .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON Protection Mechanisms.
GPON Redundancy and Protection Schemes by Huawei.

QUESTION 17
Which one of the following protection schemes can protect branch fibers?

A. GPON Type B single-homing protection
B. GPON Type B dual-homing protection
C. GPON Type A protection
D. GPON Type C protection

Correct Answer: D
Section:
Explanation:
Let us analyze each protection scheme:
Type A Protection :
Protects only the trunk fiber (between the OLT and the splitter).
Does not protect branch fibers.
Type B Single-Homing Protection :
Protects the trunk fiber but does not extend protection to branch fibers.
Type B Dual-Homing Protection :
Similar to Type B single-homing but uses two OLTs for redundancy. Still does not protect branch fibers.
Type C Protection :
Provides end-to-end protection , covering both the trunk and branch fibers.
Uses redundant fibers and splitters to ensure continuity in case of failures in either the trunk or branch fibers.
Thus, the correct answer is D , as Type C protection is the only scheme that protects branch fibers.
HCIA Huawei ACCESS Official Documentation , Chapter: GPON Protection Mechanisms.
GPON Redundancy and Protection Schemes by Huawei.

QUESTION 18
GPON is an Ethernet-based passive optical access technology that complies with IEEE 802.3ah.

A. TRUE
B. FALSE

Correct Answer: B
Section:
Explanation:
GPON Overview :
GPON (Gigabit Passive Optical Network) is a fiber-optic access technology standardized by the ITU-T (International Telecommunication Union) under the G.984.x series of standards.

It is not based on Ethernet but uses its own framing structure called GEM (GPON Encapsulation Method) for data transmission.
IEEE 802.3ah :
IEEE 802.3ah is the standard for EPON (Ethernet Passive Optical Network) , which is a competing technology to GPON.
EPON uses Ethernet frames for data transmission and is standardized by the IEEE, unlike GPON, which is standardized by ITU-T.
Why FALSE?
The statement incorrectly associates GPON with IEEE 802.3ah, which applies to EPON, not GPON.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON vs. EPON.
ITU-T G.984.x Standards for GPON .

QUESTION 19
According to the ITU-T G.984.X series standards, the downstream transmission wavelength of the GPON network is ( ) nm.

A. 1490
B. 850
C. 1310
D. 1550

Correct Answer: A
Section:
Explanation:
GPON Wavelengths :
GPON networks use specific wavelengths for upstream and downstream transmission:
Downstream (OLT to ONU) : 1490 nm.
Upstream (ONU to OLT) : 1310 nm.
Optional CATV overlay : 1550 nm (used for video services).
Why 1490 nm?
The ITU-T G.984.x standards specify 1490 nm as the wavelength for downstream data transmission in GPON networks. This wavelength is chosen for optimal performance in fiber-optic communication.
Other Options :
850 nm : Used in multimode fiber for short-distance communication, not in GPON.
1310 nm : Used for upstream transmission in GPON.
1550 nm : Optional wavelength for CATV overlay, not for standard downstream data.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON Wavelengths.
ITU-T G.984.x Standards for GPON .

QUESTION 20
In the downstream direction of the GPON, all ONUs receive the same data because the broadcast mode is adopted. In the upstream direction, because the same optical splitter is used, the data of a branch fiber can also be received by another branch fiber.

A. TRUE
B. FALSE

Correct Answer: B
Section:
Explanation:
Downstream Transmission :
In GPON, downstream data is broadcast to all ONUs. However, each ONU only processes the data intended for it, identified by a unique identifier (ONU ID).
Upstream Transmission :

In the upstream direction, GPON uses TDMA (Time Division Multiple Access) to prevent collisions. Each ONU transmits data during its allocated time slot, and the optical splitter does not allow data from one branch fiber to interfere with another.
Why FALSE?
The second part of the statement is incorrect. Data from one branch fiber cannot be received by another branch fiber due to the TDMA mechanism and the design of the passive optical splitter.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON Upstream and Downstream Transmission.
GPON System Architecture by Huawei.

QUESTION 21
Which of the following is not a part of the PON network system?

A. OAM
B. ODN
C. ONU
D. OLT

Correct Answer: A
Section:
Explanation:
PON Network Components :
OLT (Optical Line Terminal) : Central office equipment that connects to the core network.
ODN (Optical Distribution Network) : Consists of optical fibers, splitters, and connectors that distribute signals between the OLT and ONUs.
ONU (Optical Network Unit) : End-user equipment that connects to customer devices.
OAM (Operations, Administration, and Maintenance) :
OAM refers to a set of tools and protocols used for managing and maintaining the network. It is not a physical component of the PON system.
Why A?
OAM is a function or process, not a physical part of the PON network system.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: PON Network Components.
GPON System Architecture by Huawei.

QUESTION 22
In a GPON network, DBA has the following functions:

A. Increases the upstream bandwidth of a PON port.
B. Improves the downstream bandwidth utilization of a PON port.
C. Improves the upstream bandwidth utilization of a PON port.
D. Adds more ONUs to a PON port.

Correct Answer: C
Section:
Explanation:
DBA (Dynamic Bandwidth Allocation) :
DBA is a mechanism in GPON networks that dynamically allocates upstream bandwidth among ONUs based on their traffic demands.
Functions of DBA :
Improves upstream bandwidth utilization : DBA ensures efficient use of the limited upstream bandwidth by allocating it dynamically to ONUs as needed.
Does not increase total upstream bandwidth : The total upstream bandwidth of a PON port is fixed and determined by the hardware. DBA optimizes how this bandwidth is used.
Does not affect downstream bandwidth : Downstream bandwidth is shared via broadcasting and is not managed by DBA.
Does not add more ONUs : The number of ONUs supported by a PON port depends on hardware capacity, not DBA.

Why C?
DBA improves the efficiency of upstream bandwidth utilization by dynamically allocating resources.
Thus, the correct answer is C .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON DBA Mechanism.
GPON Dynamic Bandwidth Allocation by Huawei.

QUESTION 23
Which of the following statements are incorrect ?

A. WDM1r multiplexers can be deployed close to the CO or user as required.
B. GPON and XGS-PON have different rates but the same network architecture. Therefore, to ensure that the device supports XGS-PON, you only need to change the optical modules on an ONU.
C. The deployment of WDM1r multiplexers does not affect the calculation of optical link attenuation.
D. Because the center wavelengths of XGS-PON and GPON are different and do not overlap or conflict with each other, they can share an optical distribution network (ODN).

Correct Answer: B, C
Section:
Explanation:
Let us analyze each statement:
Option A :
Correct : WDM1r multiplexers can be flexibly deployed close to the Central Office (CO) or closer to the user, depending on network design requirements.
Option B :
Incorrect : While GPON and XGS-PON share the same ODN architecture, simply changing the optical modules on an ONU is insufficient to support XGS-PON. The ONU hardware and software must also be compatible with XGS-PON standards.
Option C :
Incorrect : The deployment of WDM1r multiplexers introduces additional optical loss, which must be accounted for in the calculation of optical link attenuation.
Option D :
Correct : GPON (1490 nm downstream, 1310 nm upstream) and XGS-PON (1577 nm downstream, 1270 nm upstream) use non-overlapping wavelengths, allowing them to coexist on the same ODN using WDM.
Thus, the incorrect statements are B and C .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON and XGS-PON Coexistence.
ITU-T G.9807.1 Standards for XGS-PON .

QUESTION 24
Which of the following statements about the use of the ADSL interleave mode are correct?

A. Worse stability and shorter delay.
B. Better stability and longer delay.
C. Better stability and shorter delay.
D. Worse stability and longer delay.

Correct Answer: B
Section:
Explanation:
ADSL Interleave Mode :
Interleave mode is used in ADSL to improve error correction by interleaving data bits before transmission.
This process introduces additional latency (delay) but enhances stability by reducing the impact of impulse noise.
Why B?
Better stability : Interleaving spreads errors across multiple frames, making it easier to correct them.
Longer delay : The interleaving process adds latency due to the time required to reorder data bits.
Other Options :

A : Incorrect because interleave mode improves stability, not worsens it.
C : Incorrect because interleave mode increases delay, not reduces it.
D : Incorrect because interleave mode improves stability.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: ADSL Modes.
ADSL Interleaving and Fast Path by Huawei.

QUESTION 25
Which technology is used by vectoring to cancel inter-VDSL2 line crosstalk in downstream?

A. fdps
B. Canceller
C. Pre-coder
D. Postponed

Correct Answer: C
Section:
Explanation:
Vectoring in VDSL2 :
Vectoring is a technology used to mitigate crosstalk (interference between adjacent copper lines) in VDSL2 systems, improving data rates and stability.
Crosstalk occurs when signals from one line interfere with signals on another line, especially in bundled copper cables.
Pre-coder Technology :
Pre-coding is a key technique used in vectoring for downstream transmission.
It works by pre-distorting the transmitted signal at the DSLAM (Digital Subscriber Line Access Multiplexer) to cancel out the expected crosstalk at the receiver (CPE).
This ensures that the received signal at each CPE is free from interference caused by other lines.
Other Options :
fdps : Not a recognized term in the context of vectoring or VDSL2.
Canceller : While cancellation is part of vectoring, the specific term 'Canceller' is not used in this context.
Postponed : This is unrelated to vectoring or crosstalk mitigation.
Why C?
Pre-coding is the correct technology used in vectoring to cancel downstream crosstalk in VDSL2.
Thus, the correct answer is C .
HCIA Huawei ACCESS Official Documentation , Chapter: VDSL2 Vectoring.
ITU-T G.993.5 Standards for Vectoring in VDSL2 .

QUESTION 26
The ADSL2+ is an extension of the ADSL technology. It supports a maximum downstream rate of 24 Mbit/s and an upstream rate of 2.5 Mbit/s. The maximum transmission distance can reach 6.5 km.

A. TRUE
B. FALSE

Correct Answer: B
Section:
Explanation:
ADSL2+ Specifications :
Downstream Rate : ADSL2+ supports a maximum downstream rate of 24 Mbit/s under ideal conditions.
Upstream Rate : The maximum upstream rate is typically 1 Mbit/s to 3.5 Mbit/s , depending on the line conditions.
Transmission Distance : The maximum transmission distance for ADSL2+ is approximately 5.5 km , not 6.5 km. Beyond this distance, signal attenuation becomes significant, reducing performance.
Why FALSE?

The statement incorrectly states that the maximum transmission distance is 6.5 km, which exceeds the typical range for ADSL2+.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: ADSL2+ Specifications.
ADSL2+ Technical Overview by Huawei.

QUESTION 27
Vectoring is classified only as system-level vectoring (SLV) and node-level vectoring (NLV) based on system architectures.

A. TRUE
B. FALSE

Correct Answer: B
Section:
Explanation:
Vectoring Classification :
Vectoring is primarily classified into two types based on the scope of crosstalk cancellation:
System-Level Vectoring (SLV) : Applies to all lines within a single DSLAM or cabinet.
Node-Level Vectoring (NLV) : Applies to lines across multiple DSLAMs or nodes.
However, these are not the only classifications. Other implementations, such as hybrid approaches, may also exist depending on the network design.
Why FALSE?
The statement incorrectly claims that vectoring is classified only as SLV and NLV, ignoring other possible implementations or variations.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: VDSL2 Vectoring Architectures.
ITU-T G.993.5 Standards for Vectoring in VDSL2 .

QUESTION 28
DHCP implements centralized management of IP addresses. The DHCP server, DHCP client, and DHCP relay exchange packets to distribute key parameters, including the IP address, subnet mask, gateway, and DNS. In addition, DHCP provides a conflict detection mechanism to prevent communication failures caused by IP address conflicts.

A. TRUE
B. FALSE

Correct Answer: A
Section:
Explanation:
DHCP Overview :
DHCP (Dynamic Host Configuration Protocol) is used to automate the assignment of IP addresses and other network configuration parameters (e.g., subnet mask, default gateway, DNS servers).
It centralizes IP address management, reducing manual configuration errors.
Key Components :
DHCP Server : Allocates IP addresses and other parameters to clients.
DHCP Client : Requests and receives configuration from the DHCP server.
DHCP Relay : Forwards DHCP packets between clients and servers in different subnets.
Conflict Detection Mechanism :
DHCP includes a mechanism to detect and resolve IP address conflicts.
Before assigning an IP address, the DHCP server sends an ICMP Echo Request to check if the address is already in use. If no response is received, the address is considered available.
Why TRUE?
The statement accurately describes the functionality of DHCP, including centralized management, parameter distribution, and conflict detection.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: DHCP Protocol.

RFC 2131: DHCP Protocol Specification .

QUESTION 29
The customer needs to access the following information points: AP, PC, POTS, and CATV. Which of the following statements about data transmission of these information points by ONUs is correct?

A. All types of data are encapsulated into Ethernet frames before PON-related encapsulation and transmission over one fiber.
B. When an OLT is connected downstream to an ONU, one fiber and two wavelengths are used to carry CATV and other services respectively. All services except CATV are encapsulated into Ethernet frames before PON encapsulation.
C. POTS voice services are TDM services and directly encapsulated in GEM frames.
D. When an OLT is connected downstream to an ONU, one fiber and two wavelengths are used to carry CATV and other services respectively. For all services except CATV, if POTS is a TDM service, it is transparently transmitted.

Correct Answer: B
Section:
Explanation:
Service Types and Transmission :
AP/PC (Data Services) : These services are typically Ethernet-based and encapsulated into Ethernet frames before being transmitted over the PON network.
POTS (Voice Services) : Voice services can be either TDM-based or packetized. In modern GPON/XGS-PON systems, POTS is often packetized into Ethernet frames.
CATV (Video Services) : CATV uses a separate wavelength (1550 nm) for analog or digital video transmission.
Wavelength Division Multiplexing (WDM) :
GPON/XGS-PON systems use WDM to transmit multiple services over a single fiber:
One wavelength (1490 nm or 1577 nm) is used for data services (Ethernet).
Another wavelength (1550 nm) is used for CATV.
Analysis of Options :
Option A : Incorrect because CATV is not encapsulated into Ethernet frames; it uses a separate wavelength.
Option B : Correct because CATV uses a separate wavelength, and other services are encapsulated into Ethernet frames before PON transmission.
Option C : Incorrect because POTS services are typically packetized into Ethernet frames in modern systems, not directly encapsulated in GEM frames.
Option D : Incorrect because POTS is not transparently transmitted in modern GPON/XGS-PON systems.
Thus, the correct answer is B .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON Service Encapsulation.
ITU-T G.984.x Standards for GPON .

QUESTION 30
In a 2.4 GHz frequency band, three sub-channels that do not interfere with each other can be used simultaneously.

A. TRUE
B. FALSE

Correct Answer: A
Section:
Explanation:
2.4 GHz Frequency Band :
The 2.4 GHz band is divided into 14 overlapping channels, each 20 MHz wide.
However, only three channels (e.g., Channels 1, 6, and 11 in North America) are non-overlapping and can be used simultaneously without interference.
Why TRUE?
By using non-overlapping channels (e.g., 1, 6, and 11), wireless networks can operate concurrently without significant interference.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: WLAN Frequency Bands.
IEEE 802.11 Standards for WLAN .

QUESTION 31
A school uses the POL networking and has only one campus. During VLAN design, VLANs are divided by service type and services are identified by a single VLAN tag. In this case, which VLAN attribute should be used?

A. Common
B. QinQ
C. Sub
D. Stacking

Correct Answer: A
Section:
Explanation:
VLAN Attributes :
Common VLAN : Used for standard VLAN tagging, where a single VLAN tag identifies the VLAN.
QinQ VLAN : Adds an additional VLAN tag for double-tagging, typically used in carrier networks.
Sub VLAN : Part of a Super VLAN configuration, used for IP address conservation.
Stacking VLAN : Similar to QinQ, used for double-tagging.
Scenario Analysis :
The school uses a single VLAN tag to identify services by type (e.g., student, faculty, administration).
Since only one VLAN tag is used, the appropriate VLAN attribute is Common .
Why A?
Common VLAN is the simplest and most suitable choice for scenarios requiring single-tag VLAN identification.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: VLAN Design.
IEEE 802.1Q VLAN Tagging Standards .

QUESTION 32
Which of the following is the downstream wavelength of XGS-PON?

A. 1490 nm
B. 1310 nm
C. 1577 nm
D. 1290 nm

Correct Answer: C
Section:
Explanation:
XGS-PON Wavelengths :
XGS-PON (10-Gigabit Symmetric Passive Optical Network) uses specific wavelengths for upstream and downstream transmission:
Downstream (OLT to ONU) : 1577 nm.
Upstream (ONU to OLT) : 1270 nm.
Why 1577 nm?
The ITU-T G.9807.1 standard specifies 1577 nm as the downstream wavelength for XGS-PON. This wavelength is chosen to avoid interference with GPON, which uses 1490 nm for downstream transmission.
Other Options :
1490 nm : Used for downstream transmission in GPON, not XGS-PON.
1310 nm : Used for upstream transmission in GPON, not XGS-PON.
1290 nm : Not a standard wavelength in PON technologies.
Thus, the correct answer is C .
HCIA Huawei ACCESS Official Documentation , Chapter: XGS-PON Wavelengths.
ITU-T G.9807.1 Standards for XGS-PON .

QUESTION 33
Compared with GPON, XGS-PON can cover more users and provide higher bandwidth without changing the ODN network architecture.

A. TRUE
B. FALSE

Correct Answer: A
Section:
Explanation:
GPON vs. XGS-PON :
GPON : Provides asymmetric bandwidth (2.5 Gbps downstream, 1.25 Gbps upstream) and supports up to 128 ONUs per PON port.
XGS-PON : Provides symmetric bandwidth (10 Gbps upstream and downstream) and supports up to 256 ONUs per PON port.
ODN Compatibility :
XGS-PON operates over the same ODN (Optical Distribution Network) as GPON, meaning no changes are required to the existing fiber infrastructure.
XGS-PON uses different wavelengths (1577 nm downstream, 1270 nm upstream) to coexist with GPON on the same ODN using wavelength division multiplexing (WDM).
Why TRUE?
XGS-PON supports higher bandwidth and more users while maintaining compatibility with the existing GPON ODN architecture.
Thus, the correct answer is A .
HCIA Huawei ACCESS Official Documentation , Chapter: GPON vs. XGS-PON.
ITU-T G.9807.1 Standards for XGS-PON .