Huawei

H31-321

HCIP-Optical Solution Architect

Latest Version: 6.0

Question: 1

A pseudowire is being designed to emulate a constant-bit-rate circuit across a packet-switched network. Which two functions must the pseudowire itself provide, because the packet core does not? (Choose two.)

A. Reordering the arriving packets and playing them out of a buffer at a constant rate
B. Forwarding the labeled packets hop by hop between the two provider edge nodes
C. Assigning a queue and a scheduling weight to the labeled traffic on each core link
D. Detecting a failure on a core link and moving the traffic to an alternative path
E. Regenerating a service clock for the far-end circuit from the arriving packet stream

Answer: A,E

Question: 2

A C-band line system is extended into the L-band on the same fiber, and the L-band channels are launched at their planned power. After the extension, received power and OSNR on the C-band channels fall, and the loss is largest for the shortest C-band wavelengths.
Which effect accounts for this pattern?

A. Four-wave mixing between the C-band and L-band channels, creating products that land on the shortest C-band wavelengths
B. Spontaneous emission from the L-band amplifiers spilling into the C-band, where it adds to the noise of the shorter channels
C. Chromatic dispersion that is higher in the L-band, so the C-band channels must be compensated again once the wider band is lit
D. Stimulated Raman scattering, which moves power from shorter to longer wavelengths along the fiber and drains the short end of the band

Answer: D

Question: 3

A terminal site accepts gray client signals and launches a multiplexed C-band composite onto the outside plant fiber.
Which ordering describes the stages a client signal passes through at that site in the transmit direction?

A. Client interface, optical multiplexing, wavelength conversion onto a grid channel, booster amplification, line fiber
B. Client interface, wavelength conversion onto a grid channel, booster amplification of each channel separately, optical multiplexing, line fiber
C. Client interface, wavelength conversion onto an ITU grid channel, optical multiplexing, booster amplification, line fiber
D. Client interface, line preamplification, wavelength conversion onto an ITU grid channel, optical multiplexing, line fiber

Answer: C

Question: 4

A feeder route runs 11 km of fiber at 0.25 dB/km. The design allows four connector pairs at 0.4 dB each and eight fusion splices at 0.1 dB each, and reserves 3 dB of margin for aging and future repairs. The end-to-end power budget is 25 dB. Splitter insertion loss including excess loss is 7 dB at 1:4, 10.5 dB at 1:8, 14 dB at 1:16 and 17 dB at 1:32.
Which is the highest split ratio this route can carry?

A. 1:32, since the fixed terms leave 16.85 dB and the 3 dB reserve can be released to accommodate the 17 dB split within the 25 dB budget.
B. 1:16, since the fixed terms come to 8.15 dB and leave 16.85 dB, which covers 14 dB of split loss but not 17 dB.
C. 1:8, because a route longer than 10 km requires the reserve to be doubled, which leaves 13.85 dB and rules out both 1:16 and 1:32.
D. 1:4, because connector and splice losses apply once per user rather than once per route, raising the fixed terms to 15.35 dB.

Answer: B

Question: 5

An accepted branch closed its budget with 4.2 dB of margin. A road widening forces a diversion adding 900 m of route at 0.25 dB/km and two further joint closures, each contributing two fusion splices at 0.1 dB and one connector pair at 0.4 dB.
What is the margin after the diversion?

A. About 2.8 dB, the diversion having added roughly 1.4 dB, which leaves less than the 3 dB usually held back for aging and repair.
B. About 3.975 dB, because splices contributing under 0.5 dB fall within the tolerance of the original budget and are not re-counted against the branch's margin.
C. About 2.8 dB, and the branch must therefore be re-split to 1:16, because any margin under 3 dB fails the budget.

D. About 1.4 dB, because the added loss is incurred in both the upstream and downstream directions and is counted twice.

Answer: A

Question: 6

A POL branch shows an intermittent margin problem. A trace taken from the head end at 1310 nm shows a step of about 0.3 dB at 640 m, and the same trace taken at 1550 nm shows about 1.4 dB at that point. There is no reflection there and the trace continues normally beyond it.
What does the comparison indicate, and what follows from it?

A. A fusion splice outside specification, which should be recut and remade, since a loss event with no reflection at it is what a splice produces
B. A macrobend at 640 m, since bend loss grows steeply with wavelength while splice loss barely changes, so the route there needs inspecting
C. A contaminated connector pair, which should be cleaned and measured again, because contamination costs more loss at the longer wavelength
D. A break in the fiber at that point, since the loss measured at the longer wavelength is several times the loss at the shorter one

Answer: B

Question: 7

An operator wants to introduce XGS-PON on an ODN that is already serving GPON subscribers, without moving those subscribers to new units first.
What makes that possible on the same fiber plant?

A. The installed units take a software change that raises their line rate, so one system ends up serving both sets of subscribers
B. The two systems share one wavelength and are separated in time, with the OLT granting each generation its own windows
C. The two systems use different wavelength bands in each direction, so a passive combiner lets both share the splitters and fiber
D. The splitters are replaced with ones rated for the higher line rate, after which either generation can be served through them

Answer: C

Question: 8

A single infected device behind one ONU sends thousands of ARP requests per second from one source address. Subscribers on other PON ports of the same OLT begin failing DHCP renewals, and management sessions to the OLT slow down, although no PON port or uplink is congested.
Which control addresses the cause?

A. A rate limit per port on protocol packets sent to the OLT's processor, which every port shares
B. A limit on the number of addresses the ONU user port may learn, so the device cannot present more hosts than its service allows
C. A larger upstream allocation for that ONU, so its requests clear quickly instead of backing up in the PON
D. Downstream encryption with a per-ONU key, so subscribers on other ports cannot read the flood

Answer: A

Question: 9

An operator has to choose between 1+1 ODUk SNCP and ASON mesh restoration for a set of services with mixed availability targets.
Which two statements state the trade-off correctly?
(Choose two.)

A. SNCP acts in the optical layer, so all services riding a line are switched together
B. ASON removes the need for physically diverse routes, since a restored path may reuse the failed fiber
C. SNCP survives a second and simultaneous fault on its protection path, which ASON cannot
D. ASON can share spare capacity among many services, while SNCP dedicates a protection connection to each
E. ASON recovery takes longer, since the replacement path is computed and signaled after the fault

Answer: D,E

Question: 10

A customer hands off Ethernet at one interface in each of two buildings and needs every frame entering either interface to emerge at the other, whatever address it carries. No third site has to reach either end.
Which service construct meets this without the provider network having to learn MAC addresses for the service?

A. An E-LAN service, a multipoint-to-multipoint Ethernet virtual connection among all member interfaces
B. An IP VPN instance holding a routing adjacency to the customer equipment at each site
C. An E-Line service, a point-to-point Ethernet virtual connection between the two interfaces
D. An E-Tree service configured with one root interface and one leaf interface

Answer: C

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