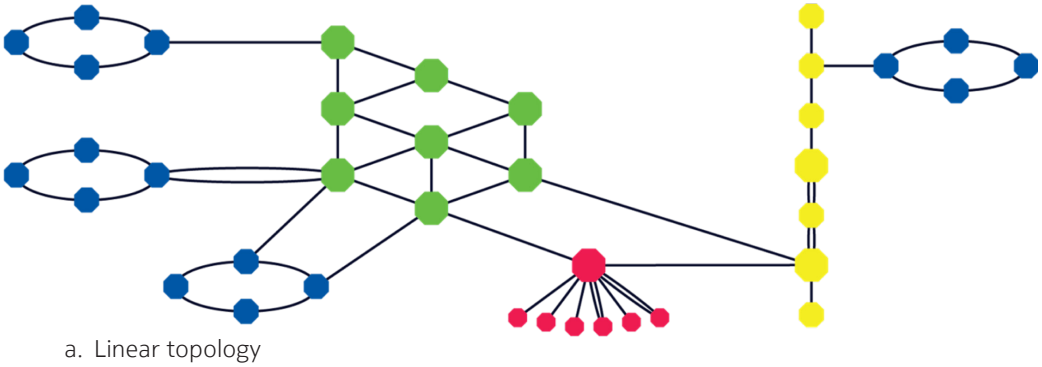
Nokia Advanced Optical Network Design Practice Exam

1. Which of the following is an advantage of grooming?
   a. The number of wavelengths is reduced.
   b. The noise is reduced.
   c. The optical reach is increased.
   d. The availability is increased.

2. Consider the exhibit. Which network topology represents the red colored nodes?



   a. Linear topology
   b. Star topology
   c. Mesh topology
   d. Ring topology

3. Which of the following statements best defines the term “coherent receiver”?
   a. The coherent receiver has a local oscillator for detecting the phase of the received signal.
   b. The coherent receiver has two local oscillators for detecting the phase of the received signal.
   c. The coherent receiver has two photoreceivers for detection of the different wavelengths.
   d. The coherent receiver has a DSP for detection of the different wavelengths.

4. In the context of CDC-F ROADM architectures, what does “contentionless” do?
   a. Contentionless ROADM can multiplex multiple instances of the same wavelength in the same add/drop block.
   b. Contentionless ROADM can upgrade the equipment hardware without traffic interruption.
   c. Contentionless ROADM can route multiple instances of the same wavelength in the same degree.
   d. Contentionless ROADM can multiplex client data traffic through backplane switching.

5. Is it possible to allocate a 50GHz channel on flex-grid?
   a. Yes; it will occupy 5 frequency slices.
   b. Yes; it will occupy 4 frequency slices.
   c. Yes; it will occupy 1/2 of a frequency slice.
   d. No; a 50GHz channel can only be configured on a fixed grid.

6. What is the main limitation of using the received power to assess the quality of transmission (QoT) of an optical channel?
   a. It can only be used for non-coherent optical channels.
   b. It can only be used for coherent optical channels.
   c. The impact of fiber attenuation is not taken into account.
   d. The impact of noise and distortion is not taken into account.

7. Which of the following statements best describes the OSNR in a cascade of two EDFAs?
   a. It is worse than the OSNR of each EDFA.
   b. It is better than the OSNR of each EDFA.
   c. It depends on the bit rate.
   d. It depends on the type of modulation.

8. Which of the following is an effective solution to ensure the QoT for an OSNR-limited trail?
   a. Using a FEC with higher coding gain.
   b. Inserting additional DCMs.
   c. Inserting an additional EDFA amplifier.
   d. Increasing the transmission rate.

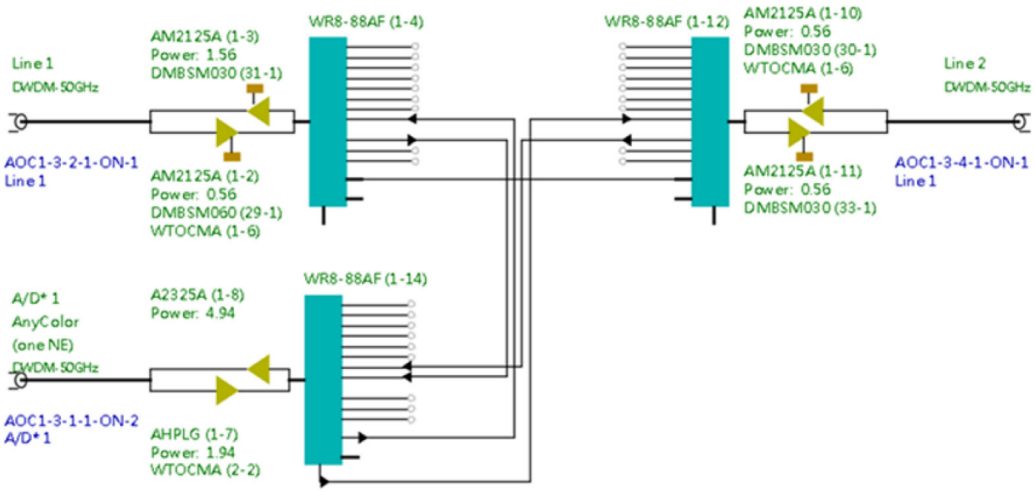
9. What does an EPT commissioning file contain?
   a. The floor position on site required for each rack.
   b. The L1 encryption keys for each service.
   c. The Wavelength Tracker keys for each trail.
   d. The power settings required for the amplifiers on each link.

10. Which of the following spectrum bands correspond to the L-band?
    a. Between 1271 and 1351 nanometers.
    b. Between 1460 and 1530 nanometers.
    c. Between 1530 and 1565 nanometers.
    d. Between 1565 and 1625 nanometers.

11. Which of the following statements best describes GMPLS?
    a. GMPLS is a suite of protocols for the control plane.
    b. GMPLS is a suite of protocols for the management plane.
    c. GMPLS is a software-defined network (SDN) controller.
    d. GMPLS is a network function virtualization (NFV) controller.

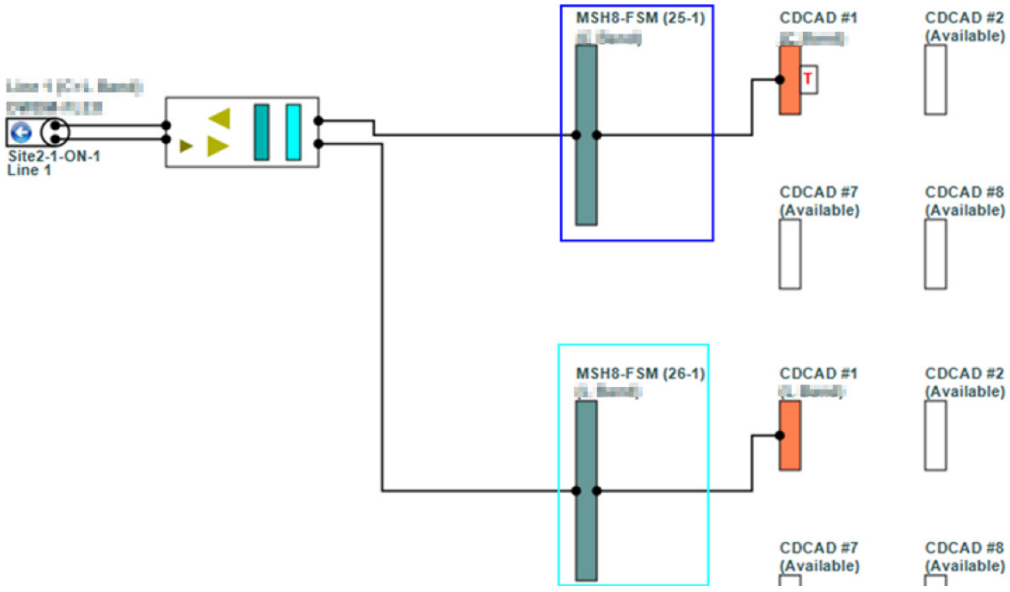
12. How is PRC implemented?
    a. PRC is implemented using GR and SBR.
    b. PRC is implemented using protection and restoration.
    c. PRC is implemented using O-SNCP and line protection.
    d. PRC is implemented using two protection paths in O-SNCP.

13. Which of the following best describes the exhibit?



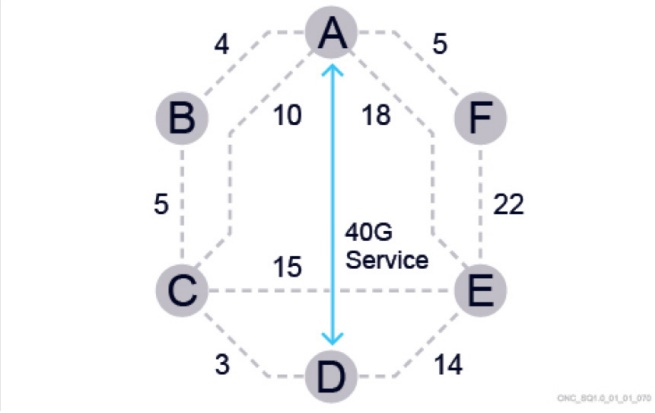
    a. TOADM
    b. FOADM
    c. CDC-F ROADM
    d. CD-ROADM

14. Which of the following best describes the exhibit?



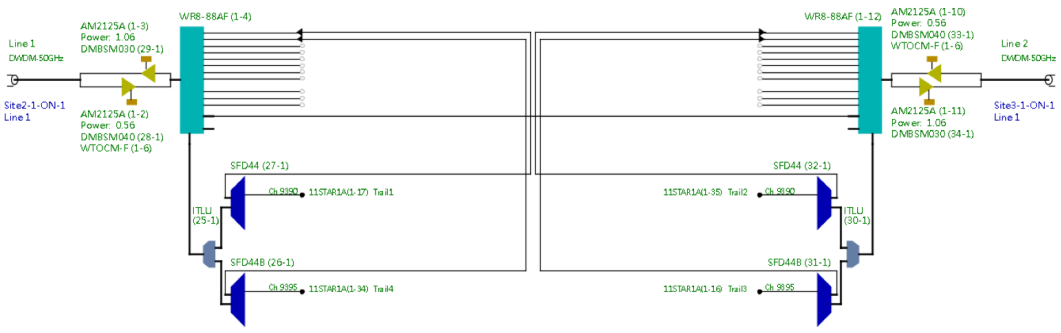
a. FOADM topology
b. BTOADM topology
c. CD-ROADM topology
d. CDC-F topology

15. Consider the exhibit, which shows a network topology with fiber lengths in km. Low latency is required for a 40G service between A and D. Which is the best solution for this requirement?



a. Routing along A-C-D
b. Routing along A-B-C-D
c. Routing along A-F-E-D
d. Routing along A-E-D

16. Which of the following best describes the exhibit?



a. FOADM topology
b. ROADM topology
c. CD-ROADM topology
d. CDC-F topology

17. Which of the following is NOT an advantage of L1 encryption, compared to upper-layer encryption?
a. Lower latency
b. Lower overhead
c. Inherent synchronization capability
d. Transparency to upper layer protocols

18. Consider a signal at 100G PDM-QPSK. Which of the following statements is TRUE?
a. Each symbol represents 8 bits per polarization.
b. The baud rate is 25Gbaud.
c. It has a baud rate higher than that of 100G PDM-16QAM.
d. The baud rate is 50Gbaud.

19. How is Precise Time Protocol implemented in 1830 networks?
a. In-band Ethernet with Layer 1 cards or Out-of-band with DCN network protocols.
b. In-band Ethernet with Layer 2 cards or Out-of-band with OTC cards.
c. Out-of-band with DCN network protocols.
d. PTP is outside of the scope of EPT design.

20. Which of the following is a non-linear impairment?
a. OSNR
b. Q factor
c. Self-phase modulation
d. Quadrature phase modulation

Answer Key

1. A
2. B
3. A
4. A
5. B
6. D
7. A
8. B
9. D
10. D
11. A
12. B
13. D
14. D
15. B
16. B
17. C
18. B
19. B
20. C

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