



Nokia 4A0-205 Practice Questions

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Question 1

Question Type: MultipleChoice

What is the main function of an optical amplifier?

Options:

- A- Demodulating the incoming signal
- B- Compensating for optical power attenuation
- C- Compensating for chromatic dispersion
- D- Compensating for attenuation through an optical-electrical-optical amplification

Answer:

B

Explanation:

Comprehensive and Detailed Explanation From Nokia Optical Networking Fundamentals:

The primary function of an optical amplifier in a WDM system is to provide gain to the optical signal to compensate for optical power attenuation (loss) that occurs as light travels through the optical fiber. As photons travel through kilometers of silica fiber, their energy is absorbed or scattered, leading to a reduction in signal strength. To ensure the signal reaches its destination with sufficient power for the receiver to detect it, amplifiers like the EDFA (Erbium-Doped Fiber Amplifier) or Raman amplifiers are placed at strategic intervals along the fiber span.

It is crucial to distinguish this from Option D; modern optical amplifiers perform purely optical amplification, meaning the signal stays in the photonic domain without being converted to electricity (O-E-O). While some specialized amplifiers (like the RA2P) might interact with other parameters, their fundamental job is power restoration. Furthermore, while amplifiers are essential for a network's reach, they do not compensate for chromatic dispersion---that is the job of Dispersion Compensation Modules (DCM) or electronic dispersion compensation (EDC) in coherent transponders---nor do they demodulate signals, which is the role of the receiver in a transponder.

Question 2

Question Type: MultipleChoice

Which sentence about NFM-T is correct?

Options:

- A- NFM-T fully supports LO, LI, L2 and GMPLS applications and it is mainly focused on 1830 PSS, as well as other older product families
- B- NFM-T fully supports optical and IP nodes
- C- NFM-T is used to design and manage optical network
- D- NFM-T is used to provision optical services having IP nodes as extremities

Answer:

D

Explanation:

NFM-T is a network management system designed to manage optical networks in a unified manner. It is used to design, manage, and provision optical services having IP nodes as extremities. It supports a variety of technologies, including optical and IP, and fully supports LO, LI, L2, and GMPLS applications. It is mainly focused on the Nokia 1830 PSS product family, as well as other older product families.

Question 3

Question Type: MultipleChoice

What is a trail?

Options:

- A- An entity to encapsulate a low order signal into a high order container
- B- A transparent transport of a client signal
- C- A link between end points to increase the power budget of the optical link
- D- A physical link between two optical amplifiers

Answer:

B

Explanation:

A trail is a transparent transport of a client signal. A trail is a physical link between two points in an optical network, allowing for the transport of a client signal from one point to the other. It is a low-order signal, such as a 10G Ethernet or a Fibre Channel signal, encapsulated into a high-order container, such as a 40G or 100G signal. This allows for the transport of the client signal over longer distances, increasing the power budget of the optical link.

Question 4

Question Type: MultipleChoice

Which macro steps can be executed via CPB?

Options:

- A- Node creation, systems validation and system provisioning
- B- Power adjustment and generation of the system loss report
- C- Systems validation, system provisioning, power adjustment
- D- Node supervision, system validation and system provision

Answer:

A

Explanation:

Node creation, systems validation and system provisioning. The CPB (Commissioning Parameter Builder) application is used to generate commissioning files for a Nokia 1830 Photonic Service Switch (PSS-1) and can be used to create new nodes, validate the system configuration, and provision the system with the appropriate settings and parameters. Power adjustment and generation of system loss report are not related to CPB.

Question 5

Question Type: MultipleChoice

What is the purpose of the NFM-T node synchronization?

Options:

- A- The partial or full node synchronization allows several entities/items defined at node level to be retrieved into the NFM-T database (upload).
- B- The partial or full node synchronization allows several entities/items defined at NFM-T level to be written into the node database (download).
- C- The partial or full node synchronization allows several entities/items defined at EPT level to be retrieved into the NFM-T database (upload from design).
- D- The partial or full node synchronization allows several entities/items defined at NFM-T level to be exported into an XML file, to be used as input for EPT (download to design).

Answer:

B

Explanation:

This is done in order to keep the NFM-T database in sync with the nodes in the network. The synchronization process allows the NFM-T to keep track of any changes that are made to the nodes, such as new nodes added, nodes removed, and so on. By synchronizing the node database with the NFM-T, network administrators can ensure that their network is up to date and running efficiently.

Question 6

Question Type: MultipleChoice

Where is the OPS card equipped to provide the optical channel protection?

Options:

- A- Between the transponder and the amplifiers
- B- Between the filters and the amplifiers
- C- Before the transponder, on the client side, towards the external device
- D- Between the transponder and the filter

Answer:

A

Explanation:

According to the Nokia's 1830 Photonic Service Switch (PSS) product documentation, the Optical Protection Switching (OPS) card is equipped in the transponder and is responsible for providing optical channel protection between the transponder and the amplifiers. The OPS card monitors the optical signal and switches to a pre-configured protection path in case of signal degradation or loss.

Question 7

Question Type: MultipleChoice

Which option best statements is true about chromatic dispersion (CD)?

Options:

- A- Different channels have different bandwidth and this causes different CD performances.
- B- The fiber attenuation changes along the fiber, and when the light crosses these differences the CD takes place.
- C- Different wavelengths propagate at different speeds within the same media and therefore different colors travel in the fiber with different speed.
- D- The fiber attenuation introduces inter-channel interference.

Answer:

C

Explanation:

Different wavelengths propagate at different speeds within the same media and therefore different colors travel in the fiber with different speed. This phenomenon is known as chromatic dispersion and causes light to spread out as it travels through the fiber over distance, leading to signal attenuation and distortion. The fiber attenuation does not introduce inter-channel interference, but it can cause attenuation of the signal. Different channels have different bandwidths, but this does not affect CD performance.

Question 8

Question Type: MultipleChoice

Which of the following statements about Wavelength Tracker monitoring points in CDC-F architecture is TRUE?

Options:

- A- Wavelength Tracker monitoring points are settled on ITL mux interfaces and on OTs line interfaces.
- B- Wavelength Tracker monitoring points are settled on IRDMxx line interfaces only.
- C- Wavelength Tracker monitoring points are settled on IRDMxx line interfaces and on CWR CLS interfaces.
- D- Wavelength Tracker monitoring points are settled on IRDMxx and OTs line interfaces.

Answer:

C

Explanation:

Comprehensive and Detailed Explanation From Nokia Optical Networking Fundamentals:

In a CDC-F (Colorless, Directionless, Contentionless, Flex-grid) architecture, the placement of monitoring points is vital for end-to-end visibility of wavelengths. Nokia's Wavelength Tracker technology relies on these points to detect the unique 'keys' or signatures associated with each wavelength. In a CDC-F node, the primary monitoring points are located on the IRDMxx (Intelligent Reconfigurable Demultiplexer/Mux) line interfaces and the CWR (Colorless Wavelength Router) CLS (Colorless) interfaces.

The IRDM monitoring points allow the system to verify the power and presence of wavelengths as they enter or leave the fiber spans (degrees). The CWR CLS monitoring points are critical because they provide visibility at the 'Colorless' add/drop stage. By having monitoring at both locations, the WaveSuite Network Operations Center (WS-NOC) can pinpoint exactly where a signal loss or power degradation is occurring---whether it's in the external fiber plant or within the internal colorless switching fabric of the ROADM. This granular visibility is what allows Nokia's 'Power Management' to automate balancing across complex mesh topologies.

Question 9

Question Type: MultipleChoice

Which option best sentences about FlexGrid is false?

Options:

- A- FlexGrid allows a more efficient channel spacing.
- B- Channels in FlexGrid systems are allocated with a granularity of 27.5GHz.
- C- FlexGrid systems use specific sets of boards. Old generation WDM systems need to be upgraded to support FlexGrid.
- D- The FlexGrid is currently standardized by ITU-T.

Answer:

C

Explanation:

FlexGrid is a flexible grid technology that allows for variable channel spacing and bandwidth allocation. It uses the same sets of boards as the traditional fixed grid systems and it does not require upgrading the old generation WDM systems.

'Flexible Grid Optical Networks: From Concepts to Realizations' by Diomidis S. Michalopoulos and George K. Karagiannidis

'Flexible Grid and Flexible Spectrum Optical Networks' by Diomidis S. Michalopoulos and George K. Karagiannidis

'Flexible Grid Optical Networks' by Diomidis S. Michalopoulos and George K. Karagiannidis

Question 10

Question Type: MultipleChoice

What is the main function of an optical amplifier?

Options:

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- C- Compensating for chromatic dispersion
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Answer:

B

Explanation:

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Question 11

Question Type: MultipleChoice

Which of the following statements about coherent transmission in WDM technology is TRUE?

Options:

- A- Coherent systems need carrier phase information at the receiver.
- B- Only multi-mode fibers can be used with coherent transmissions.
- C- The channel allocation is flexible, according to the channel size of the signals.
- D- At each receiver, a dispersion compensation unit is often necessary, depending on the fiber length.

Answer:

A

Explanation:

Comprehensive and Detailed Explanation From Nokia Optical Networking Fundamentals:

Coherent transmission represents a massive leap in optical technology, moving beyond simple 'on-off keying' (Intensity Modulation) to more complex modulation formats like QPSK or 16-QAM. A fundamental requirement of a coherent receiver is the ability to recover and track the carrier phase information of the incoming signal. This is achieved by using a Local Oscillator (LO) laser at the receiver that interferes with the incoming signal, allowing the receiver to extract phase and polarization data.

Unlike legacy 10G direct-detection systems, coherent systems (like Nokia's PSE-V engine) perform Digital Signal Processing (DSP) to electronically compensate for impairments. This makes Option D false, as physical Dispersion Compensation Modules (DCMs) are actually detrimental and usually removed in coherent networks. Option B is incorrect as coherent transmission is designed for Single-Mode Fiber (SMF). Option C refers to Flex-grid technology; while coherent signals often use Flex-grid, the defining characteristic of coherent technology is the phase-sensitive detection at the receiver.

Question 12

Question Type: MultipleChoice

Is it possible to mix PSS-24x and PSS-8x shelves In an SWDM configuration?

Options:

- A- Yes, as both can be equipped within the same node
- B- No, as they are not compatible and cannot be used within the same node
- C- Yes, but the PSS-24X shelf must be configured as a master
- D- Yes, but the PSS-8X shelf must be configured as a master

Answer:

B

Explanation:

No, it is not possible to mix PSS-24x and PSS-8x shelves in an SWDM (Short Wavelength Division Multiplexing) configuration. The two shelves are not compatible, and cannot be used within the same node.

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