# Part 1: IP Structure

**Task 1: Enter your VLSM in the table below:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Name | Network Address | CIDR | Subnet Mask | Usable Range | Broadcast Address | Wildcard Mask |
| Servers and Workstations | 10.0.0.0 | 25 | 255.255.255.128 | 10.0.0.1 – 10.0.0.126 | 10.0.0.127 | 0.0.0.127 |
| Wireless APS | 10.0.0.128 | 27 | 255.255.224 | 10.0.0.129 - 10.0.0.158 | 10.0.0.159 | 0.0.0.31 |
| Printers | 10.0.0.160 | 28 | 255.255.255.240 | 10.0.0.161 - 10.0.0.174 | 10.0.0.175 | 0.0.0.15 |
| Infrastructure | 10.0.0.176 | 28 | 255.255.240 | 10.0.0.177 - 10.0.0.190 | 10.0.0.191 | 0.0.0.15 |

|  |  |
| --- | --- |
| **Question 1** | If the population of the network doubles, what will the Network ID and CIDR be? |
| **ANSWER** | 10.0.0.0/22, that covers a range of 1024 IP addresses (i.e., 10.0.0.0 - 10.0.3.255). The CIDR notation will be changed from /24 to /22, reflecting the expanded number of addresses in the network. |

# Part 2: Virtualization

**Task 2. Provide the screenshot here**

**Graphical user interface, text

Description automatically generated**

**Task 3. Provide the screenshot here**

**Graphical user interface

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| **Question 2** | What full Powershell command will create the virtual switch in this section? |
| **ANSWER** | New-VMSwitch -Name WAS3-Proj-KARIN-SW -SwitchType Private |

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| --- | --- |
| **Question 3** | When should you use the .vhdx format instead of .vhd format? |
| **ANSWER** | When the virtual machine requires a larger storage space and better performance |

# Part 3: Installation and Configuration

**Task 4. Provide the screenshot here**

Graphical user interface, text

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**Task 5. Provide the screenshot here**

Graphical user interface

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**Task 6. Provide the screenshot here**

**Graphical user interface

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**Task 7. Provide the screenshot here**

Graphical user interface

Description automatically generated

**Task 8. Provide the screenshot here**

Graphical user interface, application

Description automatically generated

**Task 9. Provide the screenshot here**

Graphical user interface

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| **Question 4** | A user returning from holidays has attempted to login 6 times, the account is locked out. Which powershell command will you need to execute to allow the user to log into the domain again? |
| **ANSWER** | Unlock-ADAccount -Identity <username>  Replace <username> with the username of the locked-out user |

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| **Question 5** | What Powershell cmdlet would you use to start an interactive session with a remote computer by the name of WS1? |
| **ANSWER** | Enter-PSSessiion -ComputerName WS1 |

# Part 4: DNS

**Task 10. Provide the screenshot here**

**Graphical user interface, text

Description automatically generated**

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| --- | --- |
| **Question 6** | List 2 record types that are found on an AD DS integrated DNS that you wouldn’t find on a public DNS server |
| **ANSWER** | Service Location (SRV) records: These records are used by Active Directory to locate domain controllers, LDAP servers, and other services that are registered in the DNS.  Start of Authority (SOA) records: These records are used by the DNS to identify the authoritative DNS server for a particular domain. In an AD DS integrated DNS, the SOA record is automatically created and managed by Active Directory, whereas in a public DNS server, it must be manually created and managed by the administrator |

# Part 5: AD DS

**Task 11. Provide the screenshot here**

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Description automatically generated**

**Task 12. Provide the screenshot here**

**Graphical user interface

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**Task 13. Provide the screenshot here**

**Graphical user interface

Description automatically generated**

**Task 14. Provide the screenshot here**

**Graphical user interface, application

Description automatically generated**

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| --- | --- |
| **Question 7** | When is a user's access token created? |
| **ANSWER** | A user's access token is created when they log in or authenticate themselves with a service or application using their username and password. After successful authentication, the service or application generates a unique access token that the user can use to make authorized requests to the service or application. |

|  |  |
| --- | --- |
| **Question 8** | What is the interface within Active Directory Administrative Center that simplifies the delegation of permissions for domains, OUs, or containers? |
| **ANSWER** | Delegation of Control Wizard |

|  |  |
| --- | --- |
| **Question 9** | Which term is described as the process of configuring one or more groups as members of another group? |
| **ANSWER** | Group Nesting / Nested Groups |

# Part 6: Join Computers to the domain

**Task 15. Provide the screenshot here**

**Graphical user interface, text

Description automatically generated**

|  |  |
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| **Question 10** | What is the syntax command-line utility for joining a domain using Netdom.exe? |
| **ANSWER** | netdom join <ComputerName> /domain:<DomainName> /userD:<UserName> /passwordD:<UserPassword> /ou:<OrganizationalUnitDN> |

|  |  |
| --- | --- |
| **Question 11** | List an example of two graphical tool in Windows Server 2016 that can create user objects. |
| **ANSWER** | Active Directory Users and Computers (ADUC)  Active Directory Administrative Center (ADAC) |

# Part 7: Group Policy

**Task 16. Provide the screenshot here**

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| **Question 12** | The Group Policy templates (GPT) folder structure is located in the shared \_\_\_\_\_\_\_\_ folder on a domain controller. |
| **ANSWER** | SYSVOL |

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| --- | --- |
| **Question 13** | What is the setting on an individual GPO link that forces the GPO’s settings to flow down through the AD DS hierarchy, without being blocked by child OUs? |
| **ANSWER** | Enforced |

|  |  |
| --- | --- |
| **Question 14** | Describe Group Policy Preferences (GPPs). |
| **ANSWER** | GPPs allow administrators to define and manage configurations within the domain |

# Part 8: AD CS

**Task 17. Provide the screenshot here**

**Graphical user interface, application, PowerPoint

Description automatically generated**

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| **Question 15** | A \_\_\_\_\_\_\_\_\_\_ is an electronic document that contains an identity, such as a user or organization name, along with a corresponding public key. |
| **ANSWER** | Digital certificate |

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| --- | --- |
| **Question 16** | Which PKI-related service is used for network devices such as switches and routers to enroll for an X.509 digital certificate from a CA? |
| **ANSWER** | Certificate Enrollment Protocol (SCEP) |

# Part 9: IPv6 Subnetting

**Task 18: Enter your subnet in the table below:**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | CIDR | First IP address | Last IP address |
| IT | /64 | fc00:1234:5678:1:: | fc00:1234:5678:1:ffff:ffff:ffff:ff ff |
| Sales | /64 | fc00:1234:5678:3:: | fc00:1234:5678:3:ffff:ffff:ffff:ff ff |
| Shipping | /64 | fc00:1234:5678:4:: | fc00:1234:5678:4:ffff:ffff:ffff:ff ff |
| Finance | /64 | fc00:1234:5678:5:: | fc00:1234:5678:5:ffff:ffff:ffff:ff ff |