

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

Install Server Operating System

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version:01
Competency Standard Title: Install Server Operating System	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to install window server OS and troubleshoot any issue according to the requirement as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to install VMware and troubleshoot any issue according to the requirement as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Configure YAML file.</p> <p>Performance Criteria 2: Create web server gateway interface (WSGI) application.</p> <p>Performance Criteria 3: Write Scripts according to application requirements.</p> <p>Performance Criteria 4: Perform a Sanity check.</p> <p>Performance Criteria 5: Identify system error and rectify</p> <p>Performance Criteria 6: Create backup and recovery</p>

	<p>Performance Criteria 7: Re-install the server operating system if required</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Check the compatibility of hardware according to requirement</p> <p>Performance Criteria 2: Install the operating system on workstation as required</p> <p>Performance Criteria 3: Identify system error and rectify</p> <p>Performance Criteria 4: Create backup and recovery</p> <p>Performance Criteria 5: Re-install the server operating system if required</p>
	Portfolios required at the time of assessment (if any) for

Assessors Judgment Guide

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Candidate is required to install window server OS and troubleshoot any issue according to the requirement.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Configure YAML file.			
2. Create web server gateway interface (WSGI) application.			
3. Write Scripts according to application requirements.			
4. Perform a Sanity check.			
5. Identify system error and rectify			
6. Create backup and recovery			
7. Re-install the server operating system if required			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	
Each Assessment Task (with performance criteria)			

Assessment Task 2	Description of Assessment Task 2 Candidate is required to install VMware and troubleshoot any issue according to the requirement.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Check the compatibility of hardware according to requirement			
2. Install the operating system on workstation as required			
3. Identify system error and rectify			
4. Create backup and recovery			
5. Re-install the server operating system if required			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	
Each Assessment Task (with performance criteria)			

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Install Server Operating System	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. List the different Microsoft Server names?	
2. What are the advantages of a multiprocessor system?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is kernel?	
4. Write different file system in Linux?	
5. What is root partition in operating system?	

ANSWER KEY

Sr.	Answers
1	<ul style="list-style-type: none">• Windows Server 2003 (April 2003)• Windows Server 2003 R2 (December 2005)• Windows Server 2008 (February 2008)• Windows Server 2008 R2 (October 2009)• Windows Server 2012 (September 2012)• Windows Server 2012 R2 (October 2013)• Windows Server 2016 (September 2016)• Windows Server 2019 (October 2018)
2	<p>Advantages of Multiprocessor Systems</p> <ul style="list-style-type: none">• More reliable Systems. In a multiprocessor system, even if one processor fails, the system will not halt.• Enhanced Throughput.• More Economic Systems.• Increased Expense.• Complicated Operating System Required. <p>Large Main Memory Required.</p>
3	<p>Linux kernel is a free, open-source, monolithic, modular, Unix-like operating system kernel. It is the main component of the Linux operating system (OS) and is the core interface between the computer's hardware and its processes.</p>
4	<p>Types of Linux File System</p> <ul style="list-style-type: none">• Ext, Ext2, Ext3 and Ext4 file system. The file system Ext stands for Extended File System.• JFS File System. JFS stands for Journaled File System, and it is developed by IBM for AIX Unix.• ReiserFS File System.• XFS File System.• Btrfs File System.• Swap File System.
5	<p>A root partition is the isolated area in a Microsoft Hyper-V environment where the hypervisor runs. The root partition is the first one created; it starts the hypervisor and can access devices and memory directly. The child partitions are where virtualized operating systems (Guest OS) and applications run.</p>

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Configure Inter-VLAN Routing by Using
Multi-Layer Switch (MLS)**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Configure Inter-VLAN Routing by Using Multi-Layer Switch (MLS)	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to install network switch and configure multi switch layer as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to create 3 VLANS using packet tracer and troubleshoot it as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Perform console connection to the switch</p> <p>Performance Criteria 2: Connect PC's or devices to Switch with internet cables</p> <p>Performance Criteria 3: Configure a Trunk Link between switches</p> <p>Performance Criteria 4: Assign IP addresses to PC's</p> <p>Performance Criteria 5: Configure two VLAN's 10 & 20 with name as IT & Accounts respectively</p> <p>Performance Criteria 6: Assign the ports to specific VLAN</p> <p>Performance Criteria 7: Ping from IT department (VLAN 10) to Accounts department (VLAN 20)</p>

	<p>Assessment Task 2</p> <p>Performance Criteria 1: Configure two switch virtual interfaces (SVI)</p> <p>Performance Criteria 2: Assign IP addresses</p> <p>Performance Criteria 3: Communicate within the department</p> <p>Performance Criteria 4: Troubleshoot the trunk link and status of ports</p> <p>Performance Criteria 5: Troubleshoot the VLAN, SVI's & their IP addresses</p> <p>Performance Criteria 6: Secure LAN from Internal & External attacks</p>
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Assessors Judgment Guide

(To be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Candidate is required to install network switch and configure multi switch layer.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Perform console connection to the switch			
2.	Connect PC's or devices to Switch with internet cables			
3.	Configure a Trunk Link between switches			
4.	Assign IP addresses to PC's			
5.	Configure two VLAN's 10 & 20 with name as IT & Accounts respectively			
6.	Assign the ports to specific VLAN			
7.	Ping from IT department (VLAN 10) to Accounts department (VLAN 20)			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Candidate is required to create 3 VLANS using packet tracer and troubleshoot it.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Configure two switch virtual interfaces (SVI)			
2.	Assign IP addresses			
3.	Communicate within the department			
4.	Troubleshoot the trunk link and status of ports			
5.	Troubleshoot the VLAN, SVI's & their IP addresses			
6.	Secure LAN from Internal & External attacks			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Configure Inter-VLAN Routing by Using Multi-Layer Switch (MLS)	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is VLAN?	
2. What are the by default reserved VLANs?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is Access and Trunk Link?	
4. Why do we need same Native VLAN in every switch of a Layer 2 Network?	
5. What are commands to check the VLAN database?	

ANSWER KEY

Sr.	Answers
1	A VLAN (virtual LAN) is a subnetwork which can group together collections of devices on separate physical local area networks (LANs).
2	By default, the range of reserved VLANs is from 4064 to 4094. Among the reserved VLANs, VLANs 4064 to 4071 are used for port mirroring, and VLAN 4095 is used by the system to forward packets inside a device.
3	The access links are part of only one VLAN and carry traffic to only the end devices connected to that particular VLAN. But a trunk link is used to connect switches to other switches or to routers and can carry traffic from multiple VLANs.
4	The basic purpose of native VLAN is to serve it as a common identifier on opposing ends of a trunk link. To carry untagged traffic which is generated by a computer device attached to a switch port, which is configured with the native VLAN.
5	The VLAN database is used to store vlan data, such as the VLAN ID, name and MTU. The default location of the VLAN database is in the local vlan. dat file, this is stored in non-volatile memory

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

Configure Basic Wireless Network

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Configure Basic Wireless Network	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to configure router by connecting it to the computer as per instructions given by assessor</p> <p>Assessment Task 2: Candidate is required to access web interface AP using default IP and configure DHCP IP Pool and connect any device using SSID as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Connect the computer to the router</p> <p>Performance Criteria 2: Login using default username / password</p>

	<p>Assessment Task 2</p> <p>Performance Criteria 1: Configure SSID for your wireless network</p> <p>Performance Criteria 2: Configure wireless security</p> <p>Performance Criteria 3: Clean the threat /malware using antivirus tool</p> <p>Performance Criteria 4: Configure DHCP settings.</p> <p>Performance Criteria 5: Change the default administrative password</p> <p>Performance Criteria 6: Select the configured SSID</p> <p>Performance Criteria 7: Enter the password</p> <p>Performance Criteria 8: Test the connectivity with Wi-Fi router/AP.</p>
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Assessors Judgment Guide

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Each Assessment Task (with performance criteria)				
Assessment Task 1		Description of Assessment Task 1		
		Candidate is required to configure router by connecting it to the computer.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Connect the computer to the router			
2.	Login using default username / password			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Candidate is required to access web interface AP using default IP and configure DHCP IP Pool and connect any device using SSID.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Configure SSID for your wireless network			
2.	Configure wireless security			
3.	Clean the threat /malware using antivirus tool			
4.	Configure DHCP settings.			
5.	Change the default administrative password			
6.	Select the configured SSID			
7.	Enter the password			
8.	Test the connectivity with Wi-Fi router/AP.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Configure Basic Wireless Network	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is Wi-Fi technology and over which frequency band it operates?	
2. What are the different Wi-Fi generations and also explain any one?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. Why WPA encryption is preferred over WEP?	
4. What is the difference between CAPWAP and LWAPP?	
5. What are the different modes of an Access Point (AP) operation?	

ANSWER KEY

Sr.	Answers
1	Wi-Fi is a wireless networking technology that allows devices such as computers (laptops and desktops), mobile devices (smart phones and wearables), and other equipment (printers and video cameras) to interface with the Internet.
2	<ul style="list-style-type: none">• Wi-Fi 0 = 802.11• Wi-Fi 1 = 802.11b• Wi-Fi 2 = 802.11a• Wi-Fi 3 = 802.11g• Wi-Fi 4 = 802.11n• Wi-Fi 5 = 802.11ac• Wi-Fi 6 = 802.11ax
3	WPA brings several security improvements to the airwaves. WPA uses Temporal Key Integrity Protocol (TKIP), which replaces WEP's 40-bit static key with a 128-bit dynamically assigned key. That improvement prevents eavesdroppers from intercepting keys and associating with the WLAN.
4	LWAPP is abbreviation for Lightweight Access Point Protocol. CAPWAP is abbreviation for Control and Provisioning of Wireless Access Points and interoperable protocol that enables a Wireless LAN Controller (WLC) to manage access points (AP) or wireless termination points (WTP).
5	Access Point mode is used to connect to wireless clients (wireless adapter cards) such as laptops, desktops, and PDAs. Wireless clients can only communicate to APs in Access Point mode. AP Client or Wireless Client mode allows the Access Point to become a wireless client to another AP.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Perform Window Based Network
Administration**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Window Based Network Administration	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to configure local domain and add client as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to configure following server and assign IP to client</p> <div style="margin-left: 40px;"> DHCP DNS IIS </div> <p>As per instructions given by assessor.</p> <p>Assessment Task 3: Candidate is required to troubleshoot issues in configuration of the DNS server as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Login to the Server</p> <p>Performance Criteria 2: Install the required software for active directory services</p> <p>Performance Criteria 3: Configure the Active Directory as per instruction</p> <p>Performance Criteria 4: Test the Active Directory</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Install the required software DHCP Server</p> <p>Performance Criteria 2: Configure the DHCP Server</p> <p>Performance Criteria 3: Test the DHCP server with client</p> <p>Performance Criteria 4: Install the required software DNS Server</p> <p>Performance Criteria 5: Configure the DNS Server</p> <p>Performance Criteria 6: Test the DNS server with client</p> <p>Performance Criteria 7: Install the required software IIS Server</p> <p>Performance Criteria 8: Configure the IIS Server as per instructed</p> <p>Performance Criteria 9: Test the IIS server with client</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1: Identify the problem in Server</p> <p>Performance Criteria 2: Check the log files</p> <p>Performance Criteria 3: Use the command lines tool for investigation</p> <p>Performance Criteria 4: Go to graphical interface of webserver for fixing the issue</p> <p>Performance Criteria 5: Apply the necessary command lines/graphical tools for fixing the issue</p> <p>Performance Criteria 6: Conduct the test to check server and client</p>

Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Candidate is required to configure local domain and add client		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Login to the Server			
2. Install the required software for active directory services			
3. Configure the Active Directory as per instruction			
4. Test the Active Directory			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 2	Description of Assessment Task 2 Candidate is required to configure following server and assign IP to client. DHCP DNS IIS		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Install the required software DHCP Server			
2. Configure the DHCP Server			
3. Test the DHCP server with client			
4. Install the required software DNS Server			
5. Configure the DNS Server			
6. Test the DNS server with client			
7. Install the required software IIS Server			
8. Configure the IIS Server as per instructed			
9. Test the IIS server with client			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 3		Description of Assessment Task 2		
		Candidate is required to troubleshoot issues in configuration of the DNS server.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Identify the problem in Server			
2.	Check the log files			
3.	Use the command lines tool for investigation			
4.	Go to graphical interface of webserver for fixing the issue			
5.	Apply the necessary command lines/graphical tools for fixing the issue			
6.	Conduct the test to check server and client			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Window Based Network Administration	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is the purpose of forward lookup / reverse lookup zone?	
2. What is the SYSVOL folder?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is NETDOM?	
4. What is an IP Lease time? Default time of IP Lease.	
5. In terms of DNS, what is a caching-only server?	

ANSWER KEY

Sr.	Answers
1	Forward lookup zones provide information needed to resolve names within the domain and reverse lookup zones provide information on reverse lookups, resolving an IP address to a name.
2	The sysvol folder stores a domain's public files, which are replicated to each domain controller. The netlogon folder contains logon scripts and group policies that can be used by computers deployed within a domain.
3	Netdom is a command-line tool that is built into Windows Server 2008 and Windows Server 2008 R2. It is available if you have the Active Directory Domain Services (AD DS) server role installed. Also, NETDOM is a command-line tool that allows management of Windows domains and trust relationships. It is used for batch management of trusts, joining computers to domains, verifying trusts, and secure channels.
4	An IP address is assigned to a computer from the router's DHCP server not for permanent use but for a specific period of time. This is called the lease time of an IP address. When the lease time expires, the IP address is again considered free, and the client must request a new one (it can, however, be the same one). The standard DHCP lease time is 24 hours.
5	Caching-only Name Server is a name server in the Domain Name System (DNS) that can resolve name lookup requests but does not maintain its own local DNS database or zone file of resource records.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Perform LINUX Based Network
Administration**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform LINUX Based Network Administration	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to configure and troubleshoot following Linux based server and assign IP to client</p> <div style="margin-left: 40px;">DHCP</div> <div style="margin-left: 40px;">DNS</div> <p>As per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Install the required software DHCP Server</p> <p>Performance Criteria 2: Configure the DHCP Server options as per instructed.</p> <p>Performance Criteria 3: Test the DHCP server with client</p> <p>Performance Criteria 4: Install the required software DNS Server</p> <p>Performance Criteria 5: Configure the DNS Server</p> <p>Performance Criteria 6: Test the DNS server with client</p> <p>Performance Criteria 7: Identify the problem in DHCP Server</p> <p>Performance Criteria 8: Check the log files</p> <p>Performance Criteria 9: Use the command lines tool for investigation</p> <p>Performance Criteria 10: Apply the necessary tools for fixing the issue</p> <p>Performance Criteria 11: Identify the problem in DNS Server</p> <p>Performance Criteria 12: Go to graphical interface of DNS for fixing the issue</p> <p>Performance Criteria 13: Apply the necessary command lines/graphical tools for fixing the issue</p> <p>Performance Criteria 14: Conduct the test</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							
Each Assessment Task (with performance criteria)							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Candidate is required to configure following Linux based server and assign IP to client. <div style="text-align: center;">DHCP DNS</div>		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Install the required software DHCP Server			
2. Configure the DHCP Server options as per instructed.			
3. Test the DHCP server with client			
4. Install the required software DNS Server			
5. Configure the DNS Server			
6. Test the DNS server with client			
7. Identify the problem in DHCP Server			
8. Check the log files			
9. Use the command lines tool for investigation			
10. Apply the necessary tools for fixing the issue			
11. Identify the problem in DNS Server			
12. Go to graphical interface of DNS for fixing the issue			
13. Apply the necessary command lines/graphical tools for fixing the issue			
14. Conduct the test			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform LINUX Based Network Administration	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Which are the important configuration files for DNS server?	
2. Explain NS, CNAME, SOA, PTR, MX?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. Which are the important configuration files for DHCP server?	
4. What is Web server configuration file?	
5. How to change the XAMPP Apache server port and How Listen Directive works in Apache?	

ANSWER KEY

Sr.	Answers
1	The DNS configuration files are stored in the /etc./bind directory. The primary configuration file is /etc/bind/named. conf, which in the layout provided by the package just includes these files. The root nameservers used to be described in the file /etc/bind/db.
2	NS: Name server record, which delegates a DNS zone to an authoritative server. SOA: Start of authority, used to designate the primary name server and administrator responsible for a zone. Each zone hosted on a DNS server must have an SOA (start of authority) record. Mail exchanger record (MX Record)—specifies an SMTP email server for the domain, used to route outgoing emails to an email server. CNAME records allow you to resolve a DNS name with a different name.
3	The main DHCP configuration file is /etc/dhcp/dhcpd. conf. The file is used to store the network configuration information required by DHCP clients. There is also a sample configuration file at /usr/share/doc/dhcp-[version]/dhcpd.
4	The plug-in configuration file is an XML file with settings that you can tune in the administrative console. The file lists all of the applications installed on the web server definition. The binary module reads the XML file to adjust settings and to route requests to the application server.
5	<p>To change the XAMPP Apache server port here the procedure:</p> <ol style="list-style-type: none">1. Choose a free port number. The default port used by Apache is 802. Edit the file " httpd. conf "3. Edit the file " http-ssl. conf "4. Configure XAMPP Apache server settings. If your want to access localhost without specify the port number in the URL. <p>The Listen directive tells the server to accept incoming requests only on the specified port(s) or address-and-port combinations. If only a port number is specified in the Listen directive, the server listens to the given port on all interfaces.</p>

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

Manage Video Conference and Meeting

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Manage Video Conference and Meeting	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to install and configure Microsoft Team software and create an invitation link according to the requirements as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to create a shareable document using google docs as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Install video conference apps on computer as per requirement</p> <p>Performance Criteria 2: Authorize user for video meeting/conference</p> <p>Performance Criteria 3: Schedule meeting through Date and time on video application</p> <p>Performance Criteria 4: Send Invitation to users</p> <p>Performance Criteria 5: Configure all setting and security before starting the meeting</p>

	Assessment Task 2 Performance Criteria 1: Create shareable document Performance Criteria 2: Assign permission on document Performance Criteria 3: Shared the link with the participants
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Candidate is required to install and configure Microsoft Team software and create an invitation link according to the requirements.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Install video conference apps on computer as per requirement			
2. Authorize user for video meeting/conference			
3. Schedule meeting through Date and time on video application			
4. Send Invitation to users			
5. Configure all setting and security before starting the meeting			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 2	Description of Assessment Task 2 Candidate is required to create a shareable document using google docs.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Create sharable document			
2. Assign permission on document			
3. Shared the link with the participants			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Manage Video Conference and Meeting	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What are open-source video conferencing solution available?	
2. What is CODEC?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. How do we share screen using meeting applications?	
4. List down the names of Video conferencing applications?	

ANSWER KEY

Sr.	Answers
1	<p>The 5 Best Open-Source Video Conferencing Software</p> <ul style="list-style-type: none">• Jitsi Meet.• Apache OpenMeetings. Apache OpenMeetings is an open-source video conferencing software that has four options of video/audio function. ...• Jami.• Nextcloud Talk.• Big Blue Button.
2	<p>Codecs are compression technologies and have two components, an encoder to compress the files, and a decoder to decompress</p>
3	<p>To share screen online:</p> <ol style="list-style-type: none">1. Start or join your meeting.2. Click Share my screen on the top menu bar.3. To share screen online, select "Entire screen". Your entire screen will be shared online.4. To share only a particular window of your screen, you can select "Application window" and share an application.
4	<ul style="list-style-type: none">• Zoom.• Microsoft Teams.• Skype.• Webex Meetings.• BlueJeans Meetings.• GoToMeeting.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Configure Install and Configure CCTV and
NVR**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Configure Install and Configure CCTV and NVR	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to install one CCTV and connect it with DVR with ducting and troubleshoot it as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to install one IP camera and connect it with NVR with ducting and troubleshoot it as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Conduct survey of the site</p> <p>Performance Criteria 2: Install the components for CCTV camera system</p> <p>Performance Criteria 3: Install display unit for monitoring</p> <p>Performance Criteria 4: Install duct and mount servers in rack</p> <p>Performance Criteria 5: Connect CCTV camera with DVR</p> <p>Performance Criteria 6: Install desktop and mobile client to remotely access DVR</p> <p>Performance Criteria 7: Configure firewall for the security of surveillance system</p> <p>Performance Criteria 8: Rectify the CCTV Cameras connectivity with DVR & display units</p> <p>Performance Criteria 9: Inspect cable health</p> <p>Performance Criteria 10: Check accessibility over internet</p> <p>Performance Criteria 11: Check the display unit to work properly</p> <p>Performance Criteria 12: Check the data backup of CCTV cameras</p>
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	<p>Assessment Task 2</p> <p>Performance Criteria 1: Conduct survey of the site</p> <p>Performance Criteria 2: Install the components for IP camera system</p> <p>Performance Criteria 3: Install display unit for monitoring</p> <p>Performance Criteria 4: Install duct and mount servers in rack</p> <p>Performance Criteria 5: Connect NVR with LAN and internet</p> <p>Performance Criteria 6: Connect the IP cameras with NVR</p> <p>Performance Criteria 7: Install desktop and mobile client to remotely access NVR</p> <p>Performance Criteria 8: Configure firewall for the security of surveillance system</p> <p>Performance Criteria 9: Rectify the IP Cameras connectivity with NVR & display units</p> <p>Performance Criteria 10: Check communication protocols between IP cameras and NVRS</p> <p>Performance Criteria 11: Inspect cable health</p> <p>Performance Criteria 12: Check accessibility over internet</p> <p>Performance Criteria 13: Check the display unit to work properly</p> <p>Performance Criteria 14: Check the data backup of IP cameras</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Install one CCTV and connect it with DVR with ducting and troubleshoot it.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Conduct survey of the site			
2.	Install the components for CCTV camera system			
3.	Install display unit for monitoring			
4.	Install duct and mount servers in rack			
5.	Connect CCTV camera with DVR			
6.	Install desktop and mobile client to remotely access DVR			
7.	Configure firewall for the security of surveillance system			
8.	Rectify the CCTV Cameras connectivity with DVR & display units			
9.	Inspect cable health			
10.	Check accessibility over internet			
11.	Check the display unit to work properly			
12.	Check the data backup of CCTV cameras			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Install one IP camera and connect it with NVR with ducting and troubleshoot it.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Conduct survey of the site			
2.	Install the components for IP camera system			
3.	Install display unit for monitoring			
4.	Install duct and mount servers in rack			
5.	Connect NVR with LAN and internet			
6.	Connect the IP cameras with NVR			
7.	Install desktop and mobile client to remotely access NVR			
8.	Configure firewall for the security of surveillance system			
9.	Rectify the IP Cameras connectivity with NVR & display units			
10.	Check communication protocols between IP cameras and NVRS			
11.	Inspect cable health			
12.	Check accessibility over internet			
13.	Check the display unit to work properly			
14.	Check the data backup of IP cameras			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Configure Install and Configure CCTV and NVR	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is the difference between Hardware Compression and Software Compression?	
2. What is Digital CCTV?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is the difference between CCTV and IP Cameras?	
4. What is the difference between DVR /NVR?	

ANSWER KEY

Sr.	Answers
1	Hardware compression is supported by a number of backup devices. Software compression is generally used with virtual devices, or devices that do not natively support compression, such as RDX Devices. Software compression is handled on the Client, and is sent to the device already compress
2	Digital CCTV is a personal computer based and multi-channeled video surveillance system that adopts advanced compression technology to bring you the highest video and picture quality. In a digital environment, many CCTV cameras can be installed to the same network and viewed through a single monitor.
3	IP camera is a type of digital video camera used for surveillance which transmits data via a network Ethernet link. CCTV Camera is a type of digital video camera used for surveillance which transmits a signal for observation on monitor.
4	A DVR converts analog footage into a digital format, while an NVR typically only works with digital footage. DVR systems process data at the recorder, while NVR systems encode and process data at the camera before transmitting it to the recorder for storage and remote viewing.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

Perform NAS Configuration

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform NAS Configuration	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to configure NAS as local and storage drive as per instructions as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Identify hardware requirements and specifications for storage</p> <p>Performance Criteria 2: Configure IP addressing</p> <p>Performance Criteria 3: Configure the components to ensure the connectivity</p> <p>Performance Criteria 4: Configure the shared storage as per instructions</p> <p>Performance Criteria 5: Configure the user accounts as per instructions</p> <p>Performance Criteria 6: Configure the permissions for the storage</p> <p>Performance Criteria 7: Configure storage as a local drive</p>

Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1 Candidate is required to configure NAS as local and storage drive as per instructions.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Identify hardware requirements and specifications for storage			
2.	Configure IP addressing			
3.	Configure the components to ensure the connectivity			
4.	Configure the shared storage as per instructions			
5.	Configure the user accounts as per instructions			
6.	Configure the permissions for the storage			
7.	Configure storage as a local drive			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform NAS Configuration	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is NAS?	
2. What is IP address?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is local drive?	

ANSWER KEY

Sr.	Answers
1	Network-attached storage (NAS) devices store and share data for multiple computers, that can be accessed remotely.
2	An IP address is a unique address that identifies a device on the internet or a local network. IP stands for "Internet Protocol,
3	A local drive or local disk is a hard drive or SSD that is installed inside of or connected to your computer.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Develop Program Using Object Oriented
Concepts**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Develop Program Using Object Oriented Concepts	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to create a program to perform addition and subtraction using mathematical libraries.</p> <p>Assessment Task 2: Candidate is required to create a class for square and develop a function for calculating area of that square.</p> <p>Assessment Task 3: Candidate is required to create two classes use these classes in inherit class as per given instruction.</p> <p>Assessment Task 4: Candidate is required to create a parent class and two child classes and create a member function in parent class and override function in both child classes and implement polymorphism concept as per given scenario.</p> <p>Assessment Task 5: Candidate is required to create a text file and make it readable.</p> <p>And complete:</p> <ol style="list-style-type: none"> 3. Knowledge assessment test (Written or Oral) 4. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Open IDE for coding</p> <p>Performance Criteria 2: Create basic program structure</p> <p>Performance Criteria 3: Import the header file</p> <p>Performance Criteria 4: Call the functions instructed by task from the built-in library.</p> <p>Performance Criteria 5: Perform the task</p> <p>Performance Criteria 6: Debug the code in case of error</p> <p>Performance Criteria 7: Run the code to display the correct answer</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Open IDE for coding</p> <p>Performance Criteria 2: Create basic program structure and create simple class</p> <p>Performance Criteria 3: Declare member functions and variables of the class</p> <p>Performance Criteria 4: Create the objects of that class</p> <p>Performance Criteria 5: Initialize the object</p> <p>Performance Criteria 6: Access the functions and data of particular objects.</p> <p>Performance Criteria 7: Debug the code in case of error</p> <p>Performance Criteria 8: Run the code to display the correct answer</p> <p>Assessment Task 3</p> <p>Performance Criteria 1: Open IDE for coding</p> <p>Performance Criteria 2: Create basic program structure and create simple class</p> <p>Performance Criteria 3: Declare member functions and variables of the class</p> <p>Performance Criteria 4: Apply encapsulation (private, public) on the classes</p> <p>Performance Criteria 5: Create the objects of that class</p> <p>Performance Criteria 6: Initialize the object</p> <p>Performance Criteria 7: Access the functions and data of particular objects.</p> <p>Performance Criteria 8: Debug the code in case of error</p> <p>Performance Criteria 9: Run the code to display the correct answer</p> <p>Assessment Task 4</p> <p>Performance Criteria 1: Open IDE for coding</p>
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	<p>Performance Criteria 2: Create basic program structure and create parent class</p> <p>Performance Criteria 3: Declare child class/classes</p> <p>Performance Criteria 4: Declare member functions and variables of these classes</p> <p>Performance Criteria 5: Create the objects of both parent and child classes</p> <p>Performance Criteria 6: Initialize the objects</p> <p>Performance Criteria 7: Access the functions and data of declared objects as per the requirement of the problem</p> <p>Performance Criteria 8: Debug the code in case of error</p> <p>Performance Criteria 9: Run the code to display the correct answer</p> <p>Assessment Task 5</p> <p>Performance Criteria 1: Open IDE for coding</p> <p>Performance Criteria 2: Create basic program structure and create parent class</p> <p>Performance Criteria 3: Declare child class/classes</p> <p>Performance Criteria 4: Declare member functions and variables of these classes</p> <p>Performance Criteria 5: Create the objects of both parent and child classes</p> <p>Performance Criteria 6: Initialize the objects</p> <p>Performance Criteria 7: Access the functions and data of declared objects to show polymorphic behavior</p> <p>Performance Criteria 8: Debug the code in case of error</p> <p>Performance Criteria 9: Run the code to display the correct answer</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Create a program to perform addition and subtraction using mathematical libraries.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Open IDE for coding	<input type="checkbox"/>	<input type="checkbox"/>	
2. Create basic program structure	<input type="checkbox"/>	<input type="checkbox"/>	
3. Import the header file	<input type="checkbox"/>	<input type="checkbox"/>	
4. Call the functions instructed by task from the built-in library.	<input type="checkbox"/>	<input type="checkbox"/>	
5. Perform the task	<input type="checkbox"/>	<input type="checkbox"/>	
6. Debug the code in case of error	<input type="checkbox"/>	<input type="checkbox"/>	
7. Run the code to display the correct answer	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 2	Description of Assessment Task 2 Create a class for square and develop a function for calculating area of that square.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Open IDE for coding	<input type="checkbox"/>	<input type="checkbox"/>	
2. Create basic program structure and create simple class	<input type="checkbox"/>	<input type="checkbox"/>	
3. Declare member functions and variables of the class	<input type="checkbox"/>	<input type="checkbox"/>	
4. Create the objects of that class	<input type="checkbox"/>	<input type="checkbox"/>	
5. Initialize the object	<input type="checkbox"/>	<input type="checkbox"/>	
6. Access the functions and data of particular objects.	<input type="checkbox"/>	<input type="checkbox"/>	
7. Debug the code in case of error	<input type="checkbox"/>	<input type="checkbox"/>	
8. Run the code to display the correct answer	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 3		Description of Assessment Task 3		
		Create two classes use these classes in inherit class as per given instruction.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Open IDE for coding			
2.	Create basic program structure and create simple class			
3.	Declare member functions and variables of the class			
4.	Apply encapsulation (private, public) on the classes			
5.	Create the objects of that class			
6.	Initialize the object			
7.	Access the functions and data of particular objects.			
8.	Debug the code in case of error			
9.	Run the code to display the correct answer			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 4		Description of Assessment Task 4		
		Create a parent class and two child classes and create a member function in parent class and override function in both child classes and implement polymorphism concept as per given scenario.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Open IDE for coding			
2.	Create basic program structure and create parent class			
3.	Declare child class/classes			
4.	Declare member functions and variables of these classes			
5.	Create the objects of both parent and child classes			
6.	Initialize the objects			
7.	Access the functions and data of declared objects as per the requirement of the problem			
8.	Debug the code in case of error			
9.	Run the code to display the correct answer			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 5		Description of Assessment Task 5		
		Candidate is required to create a text file and make it readable.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Open IDE for coding			
2.	Create basic program structure and create parent class			
3.	Declare child class/classes			
4.	Declare member functions and variables of these classes			
5.	Create the objects of both parent and child classes			
6.	Initialize the objects			
7.	Access the functions and data of declared objects to show polymorphic behavior			
8.	Debug the code in case of error			
9.	Run the code to display the correct answer			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Develop Program Using Object Oriented Concepts	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is OOP?	
2. What is a child class and parent class?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is IDE?	
4. What is debugging a code?	
5. What is class in OOP?	

ANSWER KEY

Sr.	Answers
1	Object-oriented programming (OOP) is a computer programming model that organizes software design around data, or objects, rather than functions and logic
2	The class which inherits the properties of other is known as child class (derived class, sub class) and the class whose properties are inherited is known as parent class (base class, superclass class).
3	Integrated development environment
4	The process of identifying and removing errors from computer hardware or software.
5	A class is a blueprint for creating objects (a particular data structure), providing initial values for state (member variables or attributes), and implementations of behavior (member functions or methods).

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Perform Deployment of Cloud Application
(Formative Assessment)**



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Deployment of Cloud Application	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to create an application on cloud by conducting an interview as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to configure application environment on cloud and access it as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Organize interview sessions for clients.</p> <p>Performance Criteria 2: Gather information regarding VM's or virtualization.</p> <p>Performance Criteria 3: Gather information regarding storage spaces.</p> <p>Performance Criteria 4: Gather information regarding networking.</p> <p>Performance Criteria 5: Create prototype to help visualize processes</p> <p>Performance Criteria 6: Get the requirements approved formally from client side</p> <p>Performance Criteria 7: Login to cloud server</p> <p>Performance Criteria 8: Create a new application on cloud server</p> <p>Performance Criteria 9: Configure application</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Create web server environment as per requirement (single instance, load balancing or auto scaling environment)</p> <p>Performance Criteria 2: Create worker environment</p> <p>Performance Criteria 3: Build Environment type</p> <p>Performance Criteria 4: Deploy application on cloud</p> <p>Performance Criteria 5: Create environment inside a VPC</p> <p>Performance Criteria 6: Extract URL from dashboard</p> <p>Performance Criteria 7: Review upload application</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Create an application on cloud by conducting an interview		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Organize interview sessions for clients.			
2.	Gather information regarding VM's or virtualization.			
3.	Gather information regarding storage spaces.			
4.	Gather information regarding networking.			
5.	Create prototype to help visualize processes			
6.	Get the requirements approved formally from client side			
7.	Login to cloud server			
8.	Create a new application on cloud server			
9.	Configure application			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Configure application environment on cloud and access it.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Create web server environment as per requirement (single instance, load balancing or auto scaling environment)			
2.	Create worker environment			
3.	Build Environment type			
4.	Deploy application on cloud			
5.	Create environment inside a VPC			
6.	Extract URL from dashboard			
7.	Review upload application			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Deployment of Cloud Application	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidat e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Mention the different types of models used for deployment in cloud computing?	
2. What is a private cloud?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What do you mean by SaaS?	
4. What is SLA?	
5. What is meant by Scalability?	

ANSWER KEY

Sr.	Answers
1	Different types of cloud computing deployment models are: <ul style="list-style-type: none">• Public cloud.• Private cloud.• Hybrid cloud.• Community cloud.
2	Private cloud (also known as an internal cloud or corporate cloud) is a cloud computing environment in which all hardware and software resources are dedicated exclusively to, and accessible only by, a single customer.
3	Software as a service (or SaaS) is a way of delivering applications over the Internet—as a service. Instead of installing and maintaining software, you simply access it via the Internet, freeing yourself from complex software and hardware management.
4	Service Level Agreement - A contract between the provider and the user that specifies the level of service expected during its term.
5	Ability to increase or decrease IT resources as needed to meet changing demand.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Develop Application on Any High-Level
Programming Language**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Develop Application on Any High-Level Programming Language	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to create a dynamic web app by creating a hosting plan as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Create a feasible hosting plan.</p> <p>Performance Criteria 2: Configure Web servers with hosting plan.</p> <p>Performance Criteria 3: Download Python SDK (Software Development kit) and another framework required</p> <p>Performance Criteria 4: Get request response for a webpage.</p> <p>Performance Criteria 5: Upgrade web application to use WSGI.</p> <p>Performance Criteria 6: Create code or scripts to retrieve information from users.</p> <p>Performance Criteria 7: Protect application from malicious users, using python escape functions</p> <p>Performance Criteria 8: Perform frequent sanity checks</p>

Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Create a dynamic web app by creating a hosting plan.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Create a feasible hosting plan.			
2.	Configure Web servers with hosting plan.			
3.	Download Python SDK (Software Development kit) and another framework required			
4.	Get request response for a webpage.			
5.	Upgrade web application to use WSGI.			
6.	Create code or scripts to retrieve information from users.			
7.	Protect application from malicious users, using python escape functions			
8.	Perform frequent sanity checks			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Develop Application on Any High-Level Programming Language	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is the difference between an implicit and explicit intent?	
2. What is Fragment? What is Fragment?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is ANR error and how to prevent it?	

ANSWER KEY

Sr.	Answers
1	Explicit intents specify the component to start by name (the fully-qualified class name). Implicit intents do not name a specific component, but instead declare a general action to perform, which allows a component from another app to handle it.
2	Fragments are incomplete sentences. Usually, fragments are pieces of sentences that have become disconnected from the main clause. One of the easiest ways to correct them is to remove the period between the fragment and the main clause
3	<i>ANR</i> means “Application Not Responding” is an <i>error</i> message that display, when UI (main thread) of an android app is blocked for too long (more than 5 seconds). Stop doing heavy tasks on the main thread. Instead use worker threads such as IntentService, AsyncTask Handler, or another Thread simply.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

Perform Debugging of Cloud Application

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Debugging of Cloud Application	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to debug a cloud application with stack traces as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to synchronize the remote desktop as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 3. Knowledge assessment test (Written or Oral) 4. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Install Sentry</p> <p>Performance Criteria 2: Monitor performance issues</p> <p>Performance Criteria 3: Resolve errors and poor performing API calls</p> <p>Performance Criteria 4: Locate local variables in Stack for prod errors</p> <p>Performance Criteria 5: Write custom logics that gets executed on startup</p> <p>Performance Criteria 6: Inspect errors on runtime</p> <p>Performance Criteria 7: Extract additional errors from frame for any local variable</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Enable logging using diagnostics</p> <p>Performance Criteria 2: Extract application`s insight</p> <p>Performance Criteria 3: Demonstrate visual profiling</p> <p>Performance Criteria 4: Sync the remote desktop to the host Machine</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Debug a cloud application with stack traces.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Install Sentry			
2.	Monitor performance issues			
3.	Resolve errors and poor performing API calls			
4.	Locate local variables in Stack for prod errors			
5.	Write custom logics that gets executed on startup			
6.	Inspect errors on runtime			
7.	Extract additional errors from frame for any local variable			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Synchronize the remote desktop.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Enable logging using diagnostics			
2.	Extract application`s insight			
3.	Demonstrate visual profiling			
4.	Sync the remote desktop to the host Machine			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Perform Debugging of Cloud Application	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. How to debug deadlock?	
2. What is difference between crash and exception?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is SQS dead-letter queue (DLQ)?	

ANSWER KEY

Sr.	Answers
1	A deadlock is a situation in which two computer programs sharing the same resource are effectively preventing each other from accessing the resource, resulting in both programs ceasing to function.
2	Crash and exception measurement allows you to measure the number and type of caught and uncaught crashes and exceptions that occur in your app. An exception has these fields
3	A Dead Letter Queue is an SQS queue useful for debugging your application or your messaging system, that can isolate messages that can't be processed successfully for later analysis

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

Develop API Functions

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Develop API Functions	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to design and visualize an API as per scenario given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Build new services using REST (Representational State Transfer) or SOAP (Simple Object Access Protocol)</p> <p>Performance Criteria 2: Attach to business capability</p> <p>Performance Criteria 3: Gather resources from published information model</p> <p>Performance Criteria 4: Choose suitable resource methods</p> <p>Performance Criteria 5: Configure API security</p> <p>Performance Criteria 6: Utilize realistic data to fetch responses</p> <p>Performance Criteria 7: Isolate API operations</p> <p>Performance Criteria 8: Simulate network conditions and server capacity</p> <p>Performance Criteria 9: Load test on virtual API's</p>

Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1		
		Design and visualize an API as per given scenario.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Build new services using REST (Representational State Transfer) or SOAP (Simple Object Access Protocol)			
2.	Attach to business capability			
3.	Gather resources from published information model			
4.	Choose suitable resource methods			
5.	Configure API security			
6.	Utilize realistic data to fetch responses			
7.	Isolate API operations			
8.	Simulate network conditions and server capacity			
9.	Load test on virtual API's			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Develop API Functions	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is REST?	
2. Explain the architectural style for creating web API.	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is the difference between PUT and POST Method?	

ANSWER KEY

Sr.	Answers
1	Representational state transfer (REST) is a software architectural style that was created to guide the design and development of the architecture for the World Wide Web.
2	<p>API architecture refers to the process of developing a software interface that exposes backend data and application functionality for use in new applications.</p> <p>REST Style. REST (Representational State Transfer) is an architectural style for services, and as such it defines a set of architectural constraints and agreements.</p> <p>Architectural Style for APIs – how to make the choice</p> <ul style="list-style-type: none">• REST API Style.• GraphQL API Style.• RPC API Style.• SOAP API Style.• gRPC API Style.• Falcor API Style.
3	PUT method is call when you have to modify a single resource, which is already a part of resource collection. POST method is call when you have to add a child resource under resources collection.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Build Application by Using Command Line
Interface (CLI) and Software Development
Kits (SDK)**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Build Application by Using Command Line Interface (CLI) and Software Development Kits (SDK)	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to create a virtual environment and manage vulnerabilities using python as per scenario given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Isolate project on using virtualenvs</p> <p>Performance Criteria 2: Use pip to install virtualenv or use Pycharm as you're IDE (as guided by instructor)</p> <p>Performance Criteria 3: Gather information from other applications.</p> <p>Performance Criteria 4: Integrate data using JSON or XML format.</p> <p>Performance Criteria 5: Run pip install requests command in shell.</p> <p>Performance Criteria 6: Import search function from web scraper</p> <p>Performance Criteria 7: Pass keyword argument from command line.</p> <p>Performance Criteria 8: Run a lookup function from web scrapper</p> <p>Performance Criteria 9: Parse the name argument command.</p>

Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1 Create a virtual environment and manage vulnerabilities using python as per given scenario.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Isolate project on using virtualenvs			
2.	Use pip to install virtualenv or use Pycharm as you're IDE (as guided by instructor)			
3.	Gather information from other applications.			
4.	Integrate data using JSON or XML format.			
5.	Run pip install requests command in shell.			
6.	Import search function from web scraper			
7.	Pass keyword argument from command line.			
8.	Run a lookup function from web scrapper			
9.	Parse the name argument command.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Build Application by Using Command Line Interface (CLI) and Software Development Kits (SDK)	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidat e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. Why pip is used?	
2. What is an AMI?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What are containerized data centers?	
4. How CLI (Command line interface) is accessed in pip?	

ANSWER KEY

Sr.	Answers
1	Pip is a package manager for Python that allows you to install additional libraries and packages that are not part of the standard Python library such as the ones found in the Python Package Index.
2	An Amazon Machine Image (AMI) is a template that contains a software configuration (for example, an operating system, an application server, and applications). From an AMI, you launch an instance, which is a copy of the AMI running as a virtual server in the cloud.
3	A containerized data center is a shipping container that is set up to accommodate IT equipment. The container may be configured to accommodate some combination of servers, storage devices, networking gear, uninterruptible power supplies, generators and cooling equipment.
4	How CLI (Command line interface) is accessed in pip? PIP is a package management system used to install and manage software packages written in Python. It stands for “preferred installer program” or “Pip Installs Packages.” PIP for Python is a utility to manage PyPI package installations from the command line.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Create Virtual Machines/Hypervisor in A
Datacenter**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Create Virtual Machines/Hypervisor In A Datacenter	Assessment Date (DD/MM/YY): Assessment Time :		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to create a virtual machine in hypervisor and assign IP to virtual machine to make network as per scenario given by assessor.</p> <p>Assessment Task 2: Candidate is required to clone a virtual machine and troubleshoot as per scenario given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 3. Knowledge assessment test (Written or Oral) 4. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Install hypervisor Performance Criteria 2: Open hypervisor Performance Criteria 3: Install a guest OS</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Open hypervisor Performance Criteria 2: Open guest OS Performance Criteria 3: Assign IP address to the VM Performance Criteria 4: Connect the VM with others VM as per instruction Performance Criteria 5: Perform operations on VM Performance Criteria 6: Open the hypervisor Performance Criteria 7: Clone a VM Performance Criteria 8: Troubleshoot the VM</p>

Assessors Judgment Guide

(To be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Create a virtual machine in hypervisor and assign IP to virtual machine to make network as per given scenario.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Install hypervisor	<input type="checkbox"/>	<input type="checkbox"/>	
2. Open hypervisor	<input type="checkbox"/>	<input type="checkbox"/>	
3. Install a guest OS	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 2	Description of Assessment Task 2 Clone a virtual machine and troubleshoot as per given scenario.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Open hypervisor	<input type="checkbox"/>	<input type="checkbox"/>	
2. Open guest OS	<input type="checkbox"/>	<input type="checkbox"/>	
3. Assign IP address to the VM	<input type="checkbox"/>	<input type="checkbox"/>	
4. Connect the VM with others VM as per instruction	<input type="checkbox"/>	<input type="checkbox"/>	
5. Perform operations on VM	<input type="checkbox"/>	<input type="checkbox"/>	
6. Open the hypervisor	<input type="checkbox"/>	<input type="checkbox"/>	
7. Clone a VM	<input type="checkbox"/>	<input type="checkbox"/>	
8. Troubleshoot the VM	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Create Virtual Machines/Hypervisor in A Datacenter	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is Hypervisor?	
2. What is difference between Host OS and Guest OS?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is an IP address and how many versions it has?	
4. Why we need a template of a VM?	
5. How to check connectivity between two machines?	

ANSWER KEY

Sr.	Answers
1	A hypervisor, also known as a virtual machine monitor or VMM, is software that creates and runs virtual machines (VMs). A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory and processing.
2	A host OS is a software that is installed on a computer system and communicates with the underlying hardware. A guest OS is a software that is installed in a virtual machine. Function. Interaction of the host OS takes place with the hardware.
3	'IP' stands for 'Internet Protocol'. There are two versions of IP that currently coexist in the global Internet: IP version 4 (IPv4) and IP version 6 (IPv6). IP addresses are made up of binary values and drive the routing of all data over the Internet. IPv4 addresses are 32 bits long, and IPv6 addresses 128 bits long
4	Templates save time and avoid errors when configuring settings and other choices to create new Windows or Linux server VMs. They can also be used as long-term in-place backups of VMs, and to ensure consistent VMs are created and deployed across a company.
5	To test connectivity with a host on a network or internetwork, use the PING utility.

Assessment Evidence Guide

For

“Cloud Configuration Assistant”

Level-4

**Manage Virtual Machines/Hypervisor
(Formative Assessment)**



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Manage Virtual Machines/Hypervisor	Assessment Date (DD/MM/YY): Assessment Time:		

Candidate Details	Name: Registration/Roll Number:
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to assign required sources in virtual machine and create a snapshot as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to install Virtual machine snapshot monitoring & managing tools and troubleshoot as per scenario given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)

Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Identify the modification requirement for virtual machine</p> <p>Performance Criteria 2: Run the hypervisor</p> <p>Performance Criteria 3: Assign the required resources as per instruction</p> <p>Performance Criteria 4: Verify the resources</p> <p>Performance Criteria 5: Run the hypervisor</p> <p>Performance Criteria 6: Create snapshot as per instruction</p> <p>Performance Criteria 7: Save the snapshot as instructed</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Run the hypervisor</p> <p>Performance Criteria 2: Install the required tool for management</p> <p>Performance Criteria 3: Install the required tools for monitoring of VMS</p> <p>Performance Criteria 4: Monitor assigned resources utilization</p> <p>Performance Criteria 5: Check the network connectivity issue</p> <p>Performance Criteria 6: Check the resource issue</p> <p>Performance Criteria 7: Inspect the network through various third-party tools</p> <p>Performance Criteria 8: Modify the setting</p> <p>Performance Criteria 9: Verify the solution</p>
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Assessors Judgment Guide

(to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:.....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Observation Checklist

Assessment Task 1		Description of Assessment Task 1 Assign required sources in virtual machine and create a snapshot.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Identify the modification requirement for virtual machine			
2.	Run the hypervisor			
3.	Assign the required resources as per instruction			
4.	Verify the resources			
5.	Run the hypervisor			
6.	Create snapshot as per instruction			
7.	Save the snapshot as instructed			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2 Install Virtual machine snapshot monitoring & managing tools and troubleshoot as per scenario.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Run the hypervisor			
2.	Install the required tool for management			
3.	Install the required tools for monitoring of VMS			
4.	Monitor assigned resources utilization			
5.	Check the network connectivity issue			
6.	Check the resource issue			
7.	Inspect the network through various third party tools			
8.	Modify the setting			
9.	Verify the solution			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 4 in Computer Networking and Cloud Computing (Cloud Configuration Assistant)	CS Code:	Level: 4	Version: 01
Competency Standard Title: Manage Virtual Machines/Hypervisor	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidat e	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Candidate Details	Name:..... Registration/Roll Number: Candidate Signature:.....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
1. What is snapshot?	
2. What is meant by VMs Migration?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. Describe Virtual Machine Load balancing?	
4. What is meant by resource utilization?	
5. Describe NIC Teaming?	

ANSWER KEY

Sr.	Answers
1	In computer systems, a snapshot is the state of a system at a particular point in time. The term was coined as an analogy to that in photography. It can refer to an actual copy of the state of a system or to a capability provided by certain systems.
2	Virtual machine migration is the task of moving a virtual machine from one physical hardware environment to another. It is part of managing hardware virtualization systems and is something that providers look at as they offer virtualization services. Virtual machine migration is also known as teleportation.
3	A Virtual Load Balancer provides more flexibility to balance the workload of a server by distributing traffic across multiple network servers. Virtual load balancing aims to mimic software-driven infrastructure through virtualization. It runs the software of a physical load balancing appliance on a virtual machine.
4	Resource utilization is a KPI that measures performance and effort over an amount of available time (or capacity). Optimal resource utilization allows project managers to foresee resource availability across multiple categories.
5	NIC Teaming is a capability in Windows Server that allows you to group NICs into "teams". Each team consists of one or more team members (NICs that are in the team) and one or more virtual NICs that are available for use.