

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

Manage Repositories On Cloud Side

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version:01
Competency Standard Title: Manage Repositories on Cloud Side	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 user account cloud site and create branches & sub branches of code repositories 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: Set up version control system to store repositories</p> <p>Performance Criteria 2: Set up / add user accounts</p> <p>Performance Criteria 3: Install / Setup local copy of repository on developer's systems</p> <p>Performance Criteria 4: Integrate the local copy with development environment</p> <p>Performance Criteria 5: Create branches and sub branches of code repository</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 Create a user account cloud site and create branches & sub branches of code repositories as per instructions given by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Set up version control system to store repositories			
2.	Set up / add user accounts			
3.	Install / Setup local copy of repository on developer's systems			
4.	Integrate the local copy with development environment			
5.	Create branches and sub branches of code repository			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		
Each Assessment Task (with performance criteria)				

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage Repositories on Cloud Side	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.
------------------------------	--

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. Enlist minimum three names of repository system / version control system	
2. What is the difference between Local Copy and Cloud copy of repository system	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. Name difference Version Control Systems	
4. What is for push and pull command used for?	
5. Name any Continuous Integration Tools.	
6. What is Container?	

ANSWER KEY

Sr.	Answers
1	Three most popular version control systems are broken down into two main categories, centralized and decentralized (also known as distributed)..
2	Cloning a repository means that you're downloading a copy of the source code from source control.
3	Push - pushing sends the recent commit history from your local repository up to GitHub. If you're the only one working on a repository, pushing is fairly simple. ... Pull - a pull grabs any changes from the GitHub repository and merges them into your local repository
4	Software deployment tools install, manage, update, and configure software from a central server
5	<ol style="list-style-type: none">1. Jenkins.2. TeamCity.3. Bamboo.4. Buddy.5. GitLab CI.6. CircleCI.7. TravisCI
6	A container is a standard unit of software that packages up code and all its dependencies so the application runs quickly and reliably from one computing.

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

**Configure Tools for Continuous Deployment
(DevOps)**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Configure Tools for Continuous Deployment (DevOps)	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 deploy continuous integration system, continuous delivery system and deployment system 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: Automate the build by integrating the code of different developers</p> <p>Performance Criteria 2: Automate the posting of software packages to different repositories.</p> <p>Performance Criteria 3: Deploy across different environments</p> <p>Performance Criteria 4: Automate the creation of environment (Dev/QA/Staging) images for facilitating development and testing</p> <p>Performance Criteria 5: Automate the deployment across different environments</p> <p>Performance Criteria 6: Build Automation push a Docker image to the repository.</p> <p>Performance Criteria 7: Release Alpha version to collect feed.</p> <p>Performance Criteria 8: Release Beta version to perform testing</p> <p>Performance Criteria 9: Release Production version after necessary changes</p> <p>Performance Criteria 10: Deploy Manual to production server</p> <p>Performance Criteria 11: Use tools to Automatically deploy to the production</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		
		Deploy continuous integration system, continuous delivery system and deployment system.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Automate the build by integrating the code of different developers			
2.	Automate the posting of software packages to different repositories.			
3.	Deploy across different environments			
4.	Automate the creation of environment (Dev/QA/Staging) images for facilitating development and testing			
5.	Automate the deployment across different environments			
6.	Build Automation push a Docker image to the repository.			
7.	Release Alpha version to collect feed.			
8.	Release Beta version to perform testing			
9.	Release Production version after necessary changes			
10.	Deploy Manual to production server			
11.	Use tools to Automatically deploy to the production			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Configure Tools for Continuous Deployment (DevOps)	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.
------------------------------	--

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. Explain the need of version control system	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
2. What is Code Commit and source control system	
3. Name difference Version Control Systems	
4. Name any Test automation tool.	
5. Name any Continuous Integration Tools.	
6. What do you meant by Containers, give an example	

ANSWER KEY

Sr.	Answers
1	Version control systems are software tools that help software teams manage changes to source code over time. As development environments have accelerated, version control systems help software teams work faster and smarter.
2	AWS Code Commit is a secure, highly scalable, managed source control service that hosts private Git repositories.
3	GitHub. GitHub helps software teams to collaborate and maintain the entire history of code changes. GitLab. Beanstalk. Per Force.
4	Selenium. "Selenium automates browsers." Appium. "Is native app automation missing from your tool belt?" Katalon Studio. "An all-in-one test automation solution." Cucumber.
5	Jenkins. TeamCity. Bamboo. Buddy GitLab CI. Circle CI. Travis CI
6	Containers are a form of operating system virtualization. A single container might be used to run anything from a small microservice or software process to a larger application. Inside a container are all the necessary executables, binary code, libraries, and configuration files.

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

Manage Web Applications On Cloud

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage Web Applications on Cloud	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 FTP user account for directory and create and manage GIT repository as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to create database and create objects in the database and configure your website with your domain on your hosting site as per instructions given by assessor.</p> <p>Assessment Task 3: Candidate is required to create email account and configure email with your domain on the hosting site as per instructions given by assessor.</p> <p>Assessment Task 4: Candidate is required to configure SSH and IP blocker for domain hosting and install CMS into the domain hosting site 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: Manage Files through file manager.</p> <p>Performance Criteria 2: Create a Web Disk account</p> <p>Performance Criteria 3: Modify and manage images</p> <p>Performance Criteria 4: Set a password to protect certain directories</p> <p>Performance Criteria 5: Monitor account's available space</p> <p>Performance Criteria 6: Configure FTP Accounts</p> <p>Performance Criteria 7: Monitor visitors that are logged into your site through FTP</p> <p>Performance Criteria 8: Create your website Backup</p> <p>Performance Criteria 9: Create Git repositories</p> <p>Performance Criteria 10: Manage Git™ repositories</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Create Database on assigned cloud account</p> <p>Performance Criteria 2: Create User</p> <p>Performance Criteria 3: Add user to Database</p> <p>Performance Criteria 4: Give Privilege to users to modify Databases</p> <p>Performance Criteria 5: Manage your domains</p> <p>Performance Criteria 6: Create Addon Domain</p> <p>Performance Criteria 7: Manage Subdomain</p> <p>Performance Criteria 8: Configure your website available from another domain name</p> <p>Performance Criteria 9: Manage redirects</p> <p>Performance Criteria 10: Configure Zone Editor</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1: Create an Email Account Forwarder</p> <p>Performance Criteria 2: Route a domain's incoming mail</p> <p>Performance Criteria 3: Configure Email Filters</p>

	Assessment Task 4 Performance Criteria 1: Configure SSH (Secure Shell) Access Performance Criteria 2: Manage IP Blocker Performance Criteria 3: Configure SSL (Secure Sockets Layer) / TLS (Transport Layer Security) Performance Criteria 4: Configure Installation of CMS Performance Criteria 5: Configure Database for CMS
--	---

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 Create FTP user account for directory and create and manage GIT repository		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Manage Files through file manager.			
2.	Create a Web Disk account			
3.	Modify and manage images			
4.	Set a password to protect certain directories			
5.	Monitor account's available space			
6.	Configure FTP Accounts			
7.	Monitor visitors that are logged into your site through FTP			
8.	Create your website Backup			
9.	Create Git repositories			
10.	Manage Git™ repositories			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Create database and create objects in the database and configure your website with your domain on your hosting site.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Create Database on assigned cloud account			
2.	Create User			
3.	Add user to Database			
4.	Give Privilege to users			
5.	Modify Databases			
6.	Manage your domains			
7.	Create Addon Domain			
8.	Manage Subdomain			
9.	Configure your website available from another domain name			
10.	Manage redirects			
11.	Configure Zone Editor			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3		
		Create email account and configure email with your domain on the hosting site.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Create an Email Account Forwarder			
2.	Route a domain's incoming mail			
3.	Configure Email Filters			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 4		Description of Assessment Task 4		
		Configure SSH and IP blocker for domain hosting and install CMS into the domain hosting site.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Configure SSH (Secure Shell) Access			
2.	Manage IP Blocker			
3.	Configure SSL (Secure Sockets Layer) / TLS (Transport Layer Security)			
4.	Configure Installation of CMS			
5.	Configure Database for CMS			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Certificate Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage Web Applications on Cloud	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.
------------------------------	--

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. Name any two-cloud based database service	
2. What are different types of File System	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. Describe different types of domains	
4. Describe different types of Security protocols	
5. What is DNS Zone	
6. What is meant by Name resolution?	

ANSWER KEY

Sr.	Answers
1	Amazon Web Services. Amazon offers a wide array of cloud database services, which includes NoSQL as well as relational databases. ... SAP. EnterpriseDB.
2	The two most common file systems in Windows are as follows: NTFS. FAT. exFAT
3	op-Level Domains (TLDs) Each website's URL can be broken down into different parts. ... Country Code Top-Level Domain (ccTLD) As we alluded to earlier, there are actually multiple types of TLDs. ... Generic Top-Level Domain (gTLD) ... Second-Level Domain (SLD)
4	PSec and VPNs. SSL and TLS. Application Transparent Transport Layer Security. Kerberos. OSPF authentication. SNMPv3.
5	A DNS zone is a specific portion of the DNS namespace in the Domain Name System, which is managed by a specific organization or administrator
6	Converting a name into the address required by a machine or network.

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

Manage Public Cloud Services

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage Public Cloud Services	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 virtual machine and virtual network and create a secure connection between two virtual machines as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to Setup APP engine on virtual machine and create a backup of VM and restore from it 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: Create and login cloud account</p> <p>Performance Criteria 2: Select Operating System for server</p> <p>Performance Criteria 3: Create the Virtual machine</p> <p>Performance Criteria 4: Configure accessibility using FTP/SSH</p> <p>Performance Criteria 5: Conduct test for verification of allocated resources</p> <p>Performance Criteria 6: Install applications on the subjected machines</p> <p>Performance Criteria 7: Select required specification for your network</p> <p>Performance Criteria 8: Select resources to create virtual network</p> <p>Performance Criteria 9: Connect hosts with virtual network</p> <p>Performance Criteria 10: Test the virtual network</p> <p>Performance Criteria 11: Collect security level requirements</p> <p>Performance Criteria 12: Inspect network design to detect security flaws</p> <p>Performance Criteria 13: Select security operation as per requirement</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Select requirement and specification for applications</p> <p>Performance Criteria 2: Launch cloud tool for required application</p> <p>Performance Criteria 3: Assign resources to host</p> <p>Performance Criteria 4: Install the required application</p> <p>Performance Criteria 5: Test the environment</p> <p>Performance Criteria 6: Create virtual machine image</p> <p>Performance Criteria 7: Create job schedule for backups</p> <p>Performance Criteria 8: Configure backup repository</p> <p>Performance Criteria 9: Restore virtual machine backups</p> <p>Performance Criteria 10: Select requirement and specification for deployment of resources</p> <p>Performance Criteria 11: Launch the cloud tool</p> <p>Performance Criteria 12: Create the resources for required tasks</p> <p>Performance Criteria 13: Install the required application</p> <p>Performance Criteria 14: Select the management tool</p> <p>Performance Criteria 15: Make the local backup on storage device</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 Configure virtual machine and virtual network and create a secure connection between two virtual machines		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Create and login cloud account			
2. Select Operating System for server			
3. Create the Virtual machine			
4. Configure accessibility using FTP/SSH			
5. Conduct test for verification of allocated resources			
6. Install applications on the subjected machines			
7. Select required specification for your network			
8. Select resources to create virtual network			
9. Connect hosts with virtual network			
10. Test the virtual network			
11. Collect security level requirements			
12. Inspect network design to detect security flaws			
13. Select security operation as per requirement			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 2		Description of Assessment Task 2		
		Setup APP engine on virtual machine and create a backup of VM and restore from it.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Select requirement and specification for applications			
2.	Launch cloud tool for required application			
3.	Assign resources to host			
4.	Install the required application			
5.	Test the environment			
6.	Create virtual machine image			
7.	Create job schedule for backups			
8.	Configure backup repository			
9.	Restore virtual machine backups			
10.	Select requirement and specification for deployment of resources			
11.	Launch the cloud tool			
12.	Create the resources for required tasks			
13.	Install the required application			
14.	Select the management tool			
15.	Make the local backup on storage device			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Manage Public Cloud Services	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.
------------------------------	--

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 Load Balancing?	
2. Differentiate between SaaS and IaaS	

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

ANSWER KEY

Sr.	Answers
1	Load balancing is defined as the methodical and efficient distribution of network or application traffic across multiple servers in a server farm
2	IaaS: cloud-based services, pay-as-you-go for services such as storage, networking, and virtualization. SaaS: software that's available via a third-party over the internet.
3	Active Directory (AD) is a directory service that runs on Microsoft Windows Server. The main function of Active Directory is to enable administrators to manage permissions and control access to network resources

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

**Set High Performance Computing (HPC)
Environment on Public Cloud**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Set High Performance Computing (HPC) Environment on Public Cloud	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 setup High Performance computing network on cloud after server configuration 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: Select GPU requirement</p> <p>S Performance Criteria 2: elect the operating system, memory and storage as per requirement.</p> <p>Performance Criteria 3: Add InfiniBand</p> <p>Performance Criteria 4: Select tool for creating HPC instance.</p> <p>Performance Criteria 5: Perform operation of HPC application</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							
Each Assessment Task (with performance criteria)							

Observation Checklist

Assessment Task 1	Description of Assessment Task 1 Setup High Performance computing network on cloud after server configuration.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Select GPU requirement			
2. Select the operating system, memory and storage as per requirement.			
3. Add InfiniBand			
4. Select tool for creating HPC instance.			
5. Perform operation of HPC application			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Set High Performance Computing (HPC) Environment on Public Cloud	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.
------------------------------	--

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 user can benefit from utility computing?	
2. What are the security aspects provided with cloud?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What are system integrators in Cloud Computing?	

ANSWER KEY

Sr.	Answers
1	For most clients, the biggest advantage of utility computing is convenience.
2	Access control: permissions has to be <i>provided</i> to the users so that they can control the access of other users who are entering the in the <i>cloud</i> environment.
3	Systems Integrator is an individual or a business that creates computing systems by combining software and hardware components taken from multiple vendors for their clients. In cloud computing, a cloud integrator works like an SI

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

**Set up Environment for Big Data and Block
Chain on Cloud**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Set up Environment for Big Data and Block Chain on Cloud	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 setup Bigdata and Block Chain environment on cloud after server configuration 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: Select GPU requirement</p> <p>Performance Criteria 2: Select the operating system, memory and storage</p> <p>Performance Criteria 3: Configure the bandwidth</p> <p>Performance Criteria 4: Select tool for creating <i>BigData and Blockchain</i> instance</p> <p>Performance Criteria 5: Perform the operation of <i>Bigdata and Blockchain</i> application</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 Setup Bigdata and Block Chain environment on cloud after server configuration as per instructions given by assessor.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Select GPU requirement			
2. Select the operating system, memory and storage			
3. Configure the bandwidth			
4. Select tool for creating <i>Big Data and Block Chain</i> instance			
5. Perform the operation of <i>Bigdata and Blockchain</i> application			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Set up Environment for Big Data and Block Chain on Cloud	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.
------------------------------	--

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 out different layers which define cloud architecture?	
2. What is the requirement of virtualization platform in implementing cloud?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. Mention some open-source cloud computing platform databases.	

ANSWER KEY

Sr.	Answers
1	Infrastructure as a Service (IaaS) The basic layer of cloud is the infrastructure – IaaS (Infrastructure as a service). ... Platform as a Service (PaaS) The second layer of the cloud is the platform – the PaaS (Platform as a service). ... Software as a Service (SaaS) ... Business Process Outsourcing (BPO)
2	Virtualization is the main requirement to implement cloud computing. The entire concept is based on virtually parting the resource.
3	MySQL. The most popular open-source database, MySQL has been around for more than 30 years. ... PostgreSQL. PostgreSQL has also been around for a long time, but not as long as MySQL. ... NuoDB. ... MariaDB. ... Oracle Database XE

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

**Perform Network and Cloud Security
(Formative Assessment)**



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Network and Cloud Security	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 network security and generate SSL certificate as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to end point security for data protection and generate report as per instructions given by assessor.</p> <p>Assessment Task 3: Candidate is required to apply automation in cloud environment for security operations and apply identity and access controls on cloud provider 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 Open SSL library on server and client side.</p> <p>Performance Criteria 2: Create TCP socket and apply SSL on server and client application</p> <p>Performance Criteria 3: Generate SSL certificates for client.</p> <p>Performance Criteria 4: Install these certificates on server</p> <p>Performance Criteria 5: Establish SSL based client server communication</p> <p>Performance Criteria 6: Collect security requirements and specifications</p> <p>Performance Criteria 7: Inspect network design to detect security flaws</p> <p>Performance Criteria 8: Select security operation as per requirement</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Detect malware / threats on operating system</p> <p>Performance Criteria 2: Protect against malware / threats found on operating system</p> <p>Performance Criteria 3: Clean threat /malware using antivirus tool</p> <p>Performance Criteria 4: Select data for protection</p> <p>Performance Criteria 5: Take the backup of data</p> <p>Performance Criteria 6: Protect the data using cloud service</p> <p>Performance Criteria 7: Encrypt the data using available tools in the cloud.</p> <p>Performance Criteria 8: Identify log files for any malicious activity</p> <p>Performance Criteria 9: Conduct monitoring of threat as per instruction</p> <p>Performance Criteria 10: Generate reporting/analysis as per instruction</p>
	<p>Assessment Task 3</p> <p>Performance Criteria 1: Select Identity /rights assignment requirements and specifications</p> <p>Performance Criteria 2: Enforce business user authentication</p> <p>Performance Criteria 3: Apply authorization and single sign-on.</p> <p>Performance Criteria 4: Check security requirements and specifications</p> <p>Performance Criteria 5: Use cloud tool to automate the security operations</p> <p>Performance Criteria 6: Test the environment</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 network security and generate SSL certificate		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Install Open SSL library on server and client side.			
2.	Create TCP socket and apply SSL on server and client application			
3.	Generate SSL certificates for client.			
4.	Install these certificates on server			
5.	Establish SSL based client server communication			
6.	Collect security requirements and specifications			
7.	Inspect network design to detect security flaws			
8.	Select security operation as per requirement			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		End point security for data protection and generate report.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Detect malware / threats on operating system			
2.	Protect against malware / threats found on operating system			
3.	Clean threat /malware using antivirus tool			
4.	Select data for protection			
5.	Take the backup of data			
6.	Protect the data using cloud service			
7.	Encrypt the data using available tools in the cloud.			
8.	Identify log files for any malicious activity			
9.	Conduct monitoring of threat as per instruction			
10.	Generate reporting/analysis as per instruction			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of Assessment Task 3		
		Apply automation in cloud environment for security operations and apply identity and access controls on cloud provider.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Select Identity /rights assignment requirements and specifications			
2.	Enforce business user authentication			
3.	Apply authorization and single sign-on.			
4.	Check security requirements and specifications			
5.	Use cloud tool to automate the security operations			
6.	Test the environment			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Network and Cloud Security	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.
------------------------------	--

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 name of some large cloud providers.	
2. What are the different modes of software as a service (SaaS)?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is the use of APIs in cloud services?	
4. What are the different data centers deployed for cloud computing?	
5. What is the purpose of cloud service?	

ANSWER KEY

Sr.	Answers
1	Amazon Web Services (AWS) Microsoft Azure. Google Cloud. Alibaba Cloud.
2	There are two modes of SaaS, which are as follows: Simple multi-tenancy model – in this one, each user has their own resources that are not shared with the other users. Fine grain multi-tenancy – in this one, the functionality is the same but the resources are shared by many users.
3	A cloud API enables end users to access a cloud provider's application or service, such as compute infrastructure, storage resources or monitoring tools. APIs define the possible features and functions of that app or service, along with the details needed to execute them
4	Cloud Hosting. Dedicated Server. Data Center. VPS Hosting. General Web Hosting Discussions. Email Hosting.
5	Cloud can offer you the possibility of storing your files and accessing, storing, and retrieving them from any web-enabled interface. The web services interfaces are usually simple. At any time and place, you have high availability, speed, scalability, and security for your environment

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

Deploy Hardware/Software Protection

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Deploy Hardware/Software Protection	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 protect networking and cloud computing gateway from cyber-attacks by creating end to end encryption communication as per instructions given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> Knowledge assessment test (Written or Oral) 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 intruders in the communication network through vulnerability scans</p> <p>Performance Criteria 2: Identify packet capture and injection in Wi-Fi attacks</p> <p>Performance Criteria 3: Configure Computer Networking and cloud computing against cyber attack</p> <p>Performance Criteria 4: Apply AES/TKIP on Computer Networking and cloud computing gateway</p> <p>Performance Criteria 5: Apply MAC address filtering</p> <p>Performance Criteria 6: Perform vulnerability test for Computer Networking and cloud computing gateway</p> <p>Performance Criteria 7: Implement microservices by applying physical security</p> <p>Performance Criteria 8: Delete, disable, or rename any default user accounts, and change all default passwords</p> <p>Performance Criteria 9: Create additional accounts with limited privileges based on responsibilities</p> <p>Performance Criteria 10: Update firmware's</p> <p>Performance Criteria 11: Isolate Computer Networking and cloud computing devices by securing device to device communication through wireless PAN protocols</p> <p>Performance Criteria 12: Secure cloud and Computer Networking and cloud computing device connection by applying SSL</p> <p>Performance Criteria 13: Secure communication from device to gateway by encryption protocols</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		
		Protect networking and cloud computing gateway from cyber-attacks by creating end to end encryption communication.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Identify intruders in the communication network through vulnerability scans			
2.	Identify packet capture and injection in Wi-Fi attacks			
3.	Configure Computer Networking and cloud computing against cyber attack			
4.	Apply AES/TKIP on Computer Networking and cloud computing gateway			
5.	Apply MAC address filtering			
6.	Perform vulnerability test for Computer Networking and cloud computing gateway			
7.	Implement microservices by applying physical security			
8.	Delete, disable, or rename any default user accounts, and change all default passwords			
9.	Create additional accounts with limited privileges based on responsibilities			
10.	Update firmware's			
11.	Isolate Computer Networking and cloud computing devices by securing device to device communication through wireless PAN protocols			
12.	Secure cloud and Computer Networking and cloud computing device connection by applying SSL			
13.	Secure communication from device to gateway by encryption protocols			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Deploy Hardware Protection	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.
-----------------------------------	--

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 MAC address filtering used for?	
2. What is SSL, how it is applied?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is asymmetric and symmetric encryption?	
4. What are the authentication levels of SSL/TLS certificates?	
5. Explain how SSL/TLS works?	
6. What is a Certificate Signing Request (CSR)?	

ANSWER KEY

Sr.	Answers
1	MAC address filtering allows you to block traffic coming from certain known machines or devices.
2	SSL (Secure Sockets Layer) is a security technology that is commonly used to secure server to browser transactions.
3	The basic difference between these two types of encryption is that symmetric encryption uses one key for both encryption and decryption, and the asymmetric encryption uses public key for encryption and a private key for decryption.
4	Domain Validation (DV) Organization Validation (OV) Extended Validation (EV)
5	Secure communication begins with a TLS handshake, in which the two communicating parties open a secure connection and exchange the public key. During the TLS handshake, the two parties generate session keys, and the session keys encrypt and decrypt all communications after the TLS handshake.
6	A certificate signing request (CSR) is one of the first steps towards getting your own SSL/TLS certificate. Generated on the same server you

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

**Configure Virtual Private Networks (VPN)
(Formative Assessment)**



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Configure Virtual Private Networks (VPN)	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 VPN client for incoming connections in windows OS 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 network adaptor setting</p> <p>Performance Criteria 2: Add new incoming connection</p> <p>Performance Criteria 3: Set IP addresses</p> <p>Performance Criteria 4: Add new incoming connection</p> <p>Performance Criteria 5: Set IP address for VPN client and connect</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 Configure VPN client for incoming connections in windows OS.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Perform network adaptor setting			
2.	Add new incoming connection			
3.	Set IP addresses			
4.	Add new incoming connection			
5.	Set IP address for VPN client and connect			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Configure Virtual Private Networks (VPN)	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.
-----------------------------------	--

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 IP Address how it is used for, give an example with the name of its parts?	
2. What is VPN?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is authentication, confidentiality and Integrity	
4. What is IPsec VPN?	
5. Define Digital Signatures?	
6. At Which Layer does SSL VPN Operate?	

ANSWER KEY

Sr.	Answers
1	An IP address is a string of numbers separated by periods. IP addresses are expressed as a set of four numbers
2	A virtual private network extends a private network across a public network and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network
3	Confidentiality means that data, objects and resources are protected from unauthorized viewing and other access. Integrity means that data is protected from unauthorized changes to ensure that it is reliable and correct.
4	IPsec VPN is one of two common VPN protocols, or set of standards used to establish a VPN connection. IPsec is set at the IP layer, and it is often used to allow secure, remote access to an entire network (rather than just a single device).
5	A digital code (generated and authenticated by public key encryption) which is attached to an electronically transmitted document to verify its contents and the sender's identity.
6	SL VPNs operate at the transport layer.

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

**Perform Traffic Filtration on Next Generation
Firewall**

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Traffic Filtration on Next Generation Firewall	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 setup firewall and create inbound and outbound rules and allow/ deny services as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to configure firewall security policy, NAT and user rights as per scenario given by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> Knowledge assessment test (Written or Oral) 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 a device through the console port</p> <p>Performance Criteria 2: Login to the device through telnet</p> <p>Performance Criteria 3: Login to the device through SSH</p> <p>Performance Criteria 4: Login to the device using the default web mode</p> <p>Performance Criteria 5: Login to the device through the web UI</p> <p>Performance Criteria 6: Install firewall on operating system</p> <p>Performance Criteria 7: Update firewall to the latest vendor recommended firmware</p> <p>Performance Criteria 8: Delete, disable, or rename any default user accounts, and change all default passwords</p> <p>Performance Criteria 9: Create additional accounts with limited privileges based on responsibilities</p> <p>Performance Criteria 10: Set up firewall zones and IP addresses</p> <p>Performance Criteria 11: Configure access control lists (i.e set inbound and outbound rules)</p> <p>Performance Criteria 12: Configure other firewall services and logging</p> <p>Performance Criteria 13: Perform testing on firewall configuration</p> <p>Performance Criteria 14: Generate report from firewall logs</p> <p>Performance Criteria 15: Perform vulnerability scans</p> <p>Performance Criteria 16: Set a host name for the firewall.</p> <p>Performance Criteria 17: Set the system time of the firewall.</p> <p>Performance Criteria 18: Backup and restore the firewall's configuration file</p>
---------------------------	---

	<p>Assessment Task 2</p> <p>Performance Criteria 1: Configure IP addresses for interfaces.</p> <p>Performance Criteria 2: Add the interfaces to security zones.</p> <p>Performance Criteria 3: Configure firewall security policies on the CLI.</p> <p>Performance Criteria 4: Configure firewall security policies on the web UI</p> <p>Performance Criteria 5: Configure security zones</p> <p>Performance Criteria 6: Configure a security policy</p> <p>Performance Criteria 7: Configure a NAT address pool.</p> <p>Performance Criteria 8: Configure a NAT Policy A</p> <p>Performance Criteria 9: Create user groups</p> <p>Performance Criteria 10: Create user policies B</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		
		Setup firewall and create inbound and outbound rules and allow/ deny services.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Login to a device through the console port			
2.	Login to the device through telnet			
3.	Login to the device through SSH			
4.	Login to the device using the default web mode			
5.	Login to the device through the web UI			
6.	Install firewall on operating system			
7.	Update firewall to the latest vendor recommended firmware			
8.	Delete, disable, or rename any default user accounts, and change all default passwords			
9.	Create additional accounts with limited privileges based on responsibilities			
10.	Set up firewall zones and IP addresses			
11.	Configure access control lists (i.e set inbound and outbound rules)			
12.	Configure other firewall services and logging			
13.	Perform testing on firewall configuration			
14.	Generate report from firewall logs			
15.	Perform vulnerability scans			
16.	Set a host name for the firewall.			
17.	Set the system time of the firewall.			
18.	Backup and restore the firewall's configuration file			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of Assessment Task 2		
		Configure firewall security policy, NAT and user rights as per scenario.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Configure IP addresses for interfaces.			
2.	Add the interfaces to security zones.			
3.	Configure firewall security policies on the CLI.			
4.	Configure firewall security policies on the web UI			
5.	Configure security zones			
6.	Configure a security policy			
7.	Configure a NAT address pool.			
8.	Configure a NAT Policy A			
9.	Create user groups			
10.	Create user policies B			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Traffic Filtration on Next Generation Firewall	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.
-----------------------------------	--

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 the types of firewalls?	
2. What is IP spoofing?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is worm?	
4. Explain Abuse of Privilege?	
5. What Is Authentication Token?	
6. What Is Cryptographic Checksum?	
7. What Is IP Splicing/hijacking?	
8. What Is DNS Spoofing?	
9. Explain Failover? And its types	

ANSWER KEY

Sr.	Answers
1	Packet filtering firewalls. Packet filtering firewalls are the oldest, most basic type of firewalls. Circuit-level gateways. Stateful inspection firewalls. Application-level gateways (proxy firewalls)
2	In computer networking, IP address spoofing or IP spoofing is the creation of Internet Protocol packets with a false source IP address, for the purpose of impersonating another computing system
3	A computer worm is a type of malware that spreads copies of itself from computer to computer
4	Privileged account abuse occurs when the privileges associated with a particular user account are used inappropriately or fraudulently, either maliciously, accidentally or through willful ignorance of policies.
5	An authentication token allows internet users to access applications, services, websites, and application programming interfaces (APIs) without having to enter their login credentials each time they visit.
6	A mathematical value created using a cryptographic algorithm that is assigned to data and later used to test the data to verify that the data has not changed.
7	Internet Protocol hijacking (IP hijacking) is a specific form of hacking that makes use of IP addresses to move data over the Internet.
8	DNS spoofing is done by replacing the IP addresses stored in the DNS server with the ones under control of the attacker.
9	Failover is the process of replacing a failing computing resource with a healthy resource

Assessment Evidence Guide

For

“Network and Cloud Configuration Expert”

Level-5

Perform Cyber Security Functions

(Formative Assessment)



**National Vocational & Technical
Training Commission**

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Cyber Security 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 perform cyber security functions by scanning network using NMAP and email tracking as per instructions given by assessor.</p> <p>Assessment Task 2: Candidate is required to perform cyber security functions by securing web attacks and performing sniffing 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: Perform email tracking</p> <p>Performance Criteria 2: Perform whois lookup</p> <p>Performance Criteria 3: Find subdomain</p> <p>Performance Criteria 4: Perform ping & tracert applications</p> <p>Performance Criteria 5: Perform Host scanning</p> <p>Performance Criteria 6: Perform port scanning</p> <p>Performance Criteria 7: Perform running services scanning</p> <p>Assessment Task 2</p> <p>Performance Criteria 1: Perform exploit with metasploite framework</p> <p>Performance Criteria 2: Perform hash cracking</p> <p>Performance Criteria 3: Install sniffing tool</p> <p>Performance Criteria 4: Perform Sniffing with better cap</p> <p>Performance Criteria 5: Perform Cross site scripting (xss)</p> <p>Performance Criteria 6: Perform authentication broken</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 Perform cyber security functions by scanning network using NMAP and email tracking.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Perform email tracking			
2. Perform whois lookup			
3. Find subdomain			
4. Perform ping & tracert applications			
5. Perform Host scanning			
6. Perform port scanning			
7. Perform running services scanning			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Assessment Task 2	Description of Assessment Task 2 Perform cyber security functions by securing web attacks and performing sniffing.		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Perform exploit with metasploite framework			
2. Perform hash cracking			
3. Install sniffing tool			
4. Perform Sniffing with better cap			
5. Perform Cross site scripting (xss)			
6. Perform authentication broken			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Title of Qualification: National Vocational Diploma Level 5 in Computer Networking and Cloud Computing (Network and Cloud Configuration Expert)	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform Cyber Security 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.
-----------------------------------	--

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 a threat, a vulnerability, and a risk?	
2. Why DNS monitoring is important?	

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)	
3. What is the difference between encoding, encrypting, and hashing?	
4. What are the differences between HTTPS, SSL, and TLS?	
5. What sorts of anomalies would you look for to identify a compromised system?	
6. How would you defend against a cross-site scripting (XSS) attack?	
7. What is the difference between UDP and TCP?	
8. What is a traceroute?	
9. What are the response codes that can be received from a Web Application?	

ANSWER KEY

Sr.	Answers
1	A threat exploits a vulnerability and can damage or destroy an asset. Vulnerability refers to a weakness in your hardware, software, or procedures. (In other words, it's a way hackers could easily find their way into your system.) And risk refers to the potential for lost, damaged, or destroyed assets
2	An effective system of DNS monitoring is critical to the reliability of your website, as well as the security and trust of your users. Because the DNS is a popular target for hackers, it's important to keep a close eye for any malicious attacks on your domains and services
3	Encoding is a process of conversion of data from one format to another. - Encryption is a process to convert the information into a cipher using keys, to maintain the confidentiality
4	HTTPS is just the HTTP protocol but with data encryption using SSL/TLS. SSL is the original and now deprecated protocol created at Netscape in the mid 90s. TLS is the new protocol for secured encryption on the web maintained by IETF.
5	Unusual Outbound Network Traffic. Anomalies in Privileged User Account Activity. Geographical Irregularities. Log-In Red Flags.
6	Filter input on arrival. At the point where user input is received, filter as strictly as possible based on what is expected or valid input. Encode data on output.
7	TCP is a connection-oriented protocol, whereas UDP is a connectionless protocol. A key difference between TCP and UDP is speed, as TCP is comparatively slower than UDP. Overall, UDP is a much faster, simpler, and efficient protocol, however, retransmission of lost data packets is only possible with TCP.
8	In computing, traceroute and tracert are computer network diagnostic commands for displaying possible routes and measuring transit delays of packets across an Internet Protocol network
9	Informational responses (100 – 199) Successful responses (200 – 299) Redirection messages (300 – 399) Client error responses (400 – 499) Server error responses (500 – 599)