







ARTIFICIAL INTELLIGENCE DATA TECHNICIAN



ASSESSMENT PACKAGE

National Vocational Certificate Level 3

Version 1 - November, 2019





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Document Version November, 2019 **Islamabad, Pakistan**

ARTIFICIAL INTELLIGENCE DATA TECHNICIAN



ASSESSMENT PACKAGE
National Vocational Certificate Level 3

Version 1 - November, 2019

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level 3 - Artificial Intelligence Data Technician
Competency Standards	061900928 Code in Programming Language suitable for Al
Assessment Task	Assessment Task 1:
	Install Python on provided workstation.
	Assessment Task 2:
	Create a class named "MathFunctions" and implement the functions provided in Annex-A. When done, validate the working of your class by executing instructions found in Annex-B.

I can.....

Performance Criteria	Yes	No
Navigate to python website to Downloads		
2. Choose an appropriate Python version		
3. Check system requirements		
4. Download the chosen Python setup files		
5. Double click on the downloaded setup files		
6. Enter admin username-password to authorize installation		
7. Choose appropriate install options		
8. Click install		
Click add python to PATH environment variable		
10. Code a python program		
11. Save the text file as .py file		
12. Open terminal/cmd application		
13. Navigate to directory containing python program		

14. Run the program with python	
15. Code an "if" statement	
16. Code an "elif" statement	
17. Code an "else" statement	
18. Code a "while" loop	
19. Code a "for" loop	
20. Write a "switch" statement	
21. Use "continue" & "break" statements in loops	
22. Write a "def" statement to define a function	
23. Write a "class" statement to create a class with multiple functions and data elements	
24. Define a "try" block	
25. Apply some error prone code in try block	
26. Handle the possible exceptions using "except" block	
27. Apply "finally" block to statements that will always run	
28. Open a python script file	
29. Open a file with "r" flag in read mode using "open" statement	
30. Read the file line by line or all at once into a python variable	
31. Open a file with "w" flag in write mode	
32. Write a python variable into the opened file	
33. Select an appropriate package to install	
34. Open terminal/cmd application	
35. Use "pip install <package name="">" command to install the package</package>	
36. Uninstall a package with "pip uninstall <package name="">" command</package>	
Candidate's Signature: Assessor's Signature: Date:	

Instruction Sheet for the Candidate

Title of Qualification:	CS Code:	Level:	Version:
National Vocational Certificate Level 3 – Artificial Intelligence Data Technician			02
Competency Standard Title:	Assessment Date (DD/MM/YY):		
Code in Programming Language suitable for Al			

Candidate	Name:						
	Name						
Details	Registration/Roll Number:						
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):						
	Assessment Task 1: Install Python on provided workstation						
Guidance for	Assessment Task 2: Create a class named "MathFunctions" and implement the						
Candidate	functions provided in Annex-A. When done, validate the working of your class by executing instructions found in Annex-B.						
	Assessment Task 3: Knowledge assessment (Oral)						
Time: 120 min							
	During a practical assessment, under observation by an assessor, you are required to						
	Install Python on provided workstation. Also create a class named						
	"MathFunctions" and implement the functions provided in Annex-A. When						
	done, validate the working of your class by executing instructions found in						
	Annex-B demonstrating the following criteria:						
	Navigate to python website to Downloads						
	Choose an appropriate Python version						
	Check system requirements						
Minimum	4. Download the chosen Python setup files						
_	5. Double click on the downloaded setup files						
Evidence	6. Enter admin username-password to authorize installation						
Required	7. Choose appropriate install options						
	8. Click install						
	Click add python to PATH environment variable						
	10. Code a python program 11. Save the text file as .py file						
	12. Open terminal/cmd application						
	13. Navigate to directory containing python program						
	14. Run the program with python						
	15. Code an "if" statement						
	16. Code an "elif" statement						
	17. Code an "else" statement						
	18. Code a "while" loop						

- 19. Code a "for" loop
- 20. Write a "switch" statement
- 21. Use "continue" & "break" statements in loops
- 22. Write a "def" statement to define a function
- 23. Write a "class" statement to create a class with multiple functions and data elements
- 24. Define a "try" block
- 25. Apply some error prone code in try block
- 26. Handle the possible exceptions using "except" block
- 27. Apply "finally" block to statements that will always run
- 28. Open a python script file
- 29. Open a file with "r" flag in read mode using "open" statement
- 30. Read the file line by line or all at once into a python variable
- 31. Open a file with "w" flag in write mode
- 32. Write a python variable into the opened file
- 33. Select an appropriate package to install
- 34. Open terminal/cmd application
- 35. Use "pip install <package name>" command to install the package
- 36. Uninstall a package with "pip uninstall <package name>" command

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

Qualification	National Vocational Certificate Level 03 - Artificial Intelligence Data Technician					
Competency Standard(s)	Code in programming language suitable for Al					
Candidate Details	Name: F	· ·				
Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor: 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

Asse	essment Task	Description of assessment			
Asse	essment Task 1	Install Python on provided wo	orkstation		
Asse	essment Task 2	Create a class named "Mathle provided in Annex-A. When on the by executing instructions found	done, vali	date th	•
	ng the practical ass onstrated the follow	essment, candidate /ing:	Yes	No	Remarks
1.	Navigate to pythe	on website to Downloads			
2.	Choose an appro	opriate Python version			
3.	Check system re	equirements			
4.	Download the ch	osen Python setup files]
5.	Double click on t	he downloaded setup files			
6.	Enter admin use installation	rname-password to authorize			
7.	Choose appropri	ate install options			
8.	Click install				
9.	Click add python	to PATH environment variable)		
10.	Code a python p	rogram			
11.	Save the text file	as .py file			
12.	Open terminal/cr	nd application			
13.	Navigate to direc	ctory containing python program	n		
14.	Run the program	with python]
15.	Code an "if" state	ement			
16.	Code an "elif" sta	atement			1
17.	Code an "else" s	tatement			1
18.	Code a "while" lo	рор			
19.	Code a "for" loop)			

20. Writ	e a "switch" statement				
21. Use	"continue" & "break" statements in	loops			
22. Writ	e a "def" statement to define a func	tion			
	e a "class" statement to create a cla tiple functions and data elements	ass with			
24. Defi	ne a "try" block				
25. App	ly some error prone code in try bloo	ck			
Han 26. bloc	dle the possible exceptions using " k	except"			
27. App	ly "finally" block to statements that	will always			
28. Ope	en a python script file				
-	en a file with "r" flag in read mode us en" statement	sing			
	d the file line by line or all at once i on variable	nto a			
31. Ope	en a file with "w" flag in write mode				
32. Writ	e a python variable into the opened	d file			
33. Sele	ect an appropriate package to insta	II			
34. Ope	Open terminal/cmd application				
	Use "pip install <package name="">" command to install the package</package>				
	nstall a package with "pip uninstall · ne>" command	<package< td=""><td></td><td></td><td></td></package<>			
Competent		Not Yet Cor	mpeten	t	

Feedback to the Candidate			
	Competent		
In terms of complete competency, the candidate was found:	Not Yet Competent		
Candidate's Signature:	Assessor's Signature:		

Test Yourself (Multiple Choice Questions)

MODULE 1 Question 1 "If" statement B "Switch" statement If Ali has to write a function to choose from a given set of options. Which of the following statements should he use? C "While" statement D "For" statement Question 2 A "If" statement You have to display a sequence of numbers. Which statement should you use? В "Switch" statement "While" statement D "For" statement Question 3 "If" statement Which of the following is a conditional loop "Switch" statement statement? C "While" statement D "For" statement

Question	4		Α	and
		You are tasked with creating a function which keeps on printing a given integer until one of two conditions are met. Which comparative statement should be used?	В	or
		statement enough be deed.	С	not
			D	>=
Question	5	A number 5.6 is changed into an integer with a command toint(). What value would you get?	Α	6
		V	В	5
			С	4
			D	3
MODULE	2			
Question	6		Α	<=
		Which of the following is the symbol for not equal to?	В	>=

D ==

Question	7		Α	"For" statement with range()
		would be suited to take factorial of a number: Factorial of $5 = 5*4*3*2*1$	В	"While" statement with range()
			С	"If" statement with range()
			D	"Switch" statement with range()
Question	8		Α	Use "for" within a "for" statement
		How would you check if one of 3 integers is the largest?	В	Use "while" within a "while" statement
		and language.	С	Use "switch" within a "switch" statement
			D	Use "if" within an "if" statement
Question	9		Α	2
		price, color, shape and size. How many if statements should he use.	В	3
			С	4
			D	5

Question 10	Α	"If" statement
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Consider a function, which is extracting text from a file, editing it and printing its contents a specified number of times. Which of the following would this function definitely use.

- B "For" statement
- C "While" statement
- D "Switch" statement

Answers

Question 1	В
Question 2	D
Question 3	С
Question 4	В
Question 5	В
Question 6	С
Question 7	Α
Question 8	D
Question 9	С
Question 10	В

ANNEXURE-A

Instructions:

- 1. Create a function named "comparison" to compare any two given integers and print the greater integer.
- 2. Create a function named "print_loop" to print any given string any given number of times.
- 3. Create a function named "print_descend" which takes in a positive integer, decrements it by one iteratively and print its value until it becomes less than zero.
- 4. Create a function named "switch_fn" using switch statement which either prints area or parameter of a circle using a switch statement. The radius of the circle and switch argument are to be entered as parameters of the function.
- 5. Create a function to read and write files and display it's contents

ANNEXURE-B

Instructions:

- 1. Create a "Mathfunctions" class object named as your first name.
- 2. Using a class object function, compare 14532 and 125342 and print the larger number.
- 3. Print the string "My name is [Your name]" 5, 10 and 20 times using the same class function.
- 4. Print values from 0 to 20 in descending order using a class function.
- 5. Calculate the perimeter of a circle having radius 3.6 using a class function.
- 6. Given a hello_world.txt file, read the file, edit the "hello_world" to "finally_done" and write the file using the created function.

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level 3 - Artificial Intelligence Data Technician
Competency Standards	061900929 Setup Environment
Assessment Task	Create a folder and change its name to your registration number. Then, create a virtual environment in that folder and install the following packages: Numpy, Pandas and Beautifulsoup. Create a .py file in the folder, import the installed packages and run the file.

l can

Performance Criteria	Yes	No
Open terminal/cmd		
2. Change directories		
3. Rename files		
4. Move files from one directory to another		
5. Copy files from one directory to another		
6. Select/delete only particular types of files		
7. Open a file		
8. Open an application		
9. Zip and unzip files/folders		
10. Download files from a source (network location)		
11. Connect to a server using ssh		
12. Install virtual environment with pip		
13. Create a virtual environment		
14. Activate a virtual environment		
15. Deactivate a virtual environment		
16. Check if the environment is active for a python/pip version		

17. Install packages in virtual environment	
18. Run scripts in virtual environment	
19. Select an appropriate package to install	
20. Open terminal/cmd	
21. Activate a virtual environment if required	
22. Use "pip install <package name="">" command to install the package</package>	
23. Import package in a python environment	
24. Uninstall a package with "pip uninstall <package name="">" command</package>	
Candidate's Signature: Assessor's Signature:	
Date:	

Instruction Sheet for the Candidate

Title of Qualification:	CS Code:	Level:	Version:
National Vocational Certificate Level 3 – Artificial Intelligence Data Technician			02
Competency Standard Title:	Assessment	Date (DD/MM/	YY):
Setup Environment			

Candidate	Name:
Details	
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	Create a folder and change its name to your registration number. Then, create a virtual environment in that folder and install the following packages: Numpy, Pandas and Beautifulsoup. Create a .py file in the folder, import the installed packages and run the file.
Time: 120 min	During a practical assessment, under observation by an assessor, you are required to perform above task by demonstrating the following criteria:
Minimum Evidence Required	 Open terminal/cmd Change directories Rename files Move files from one directory to another Copy files from one directory to another Select/delete only particular types of files Open a file Open an application Zip and unzip files/folders Download files from a source (network location) Connect to a server using ssh Install virtual environment with pip Create a virtual environment Activate a virtual environment Deactivate a virtual environment Check if the environment is active for a python/pip version Install packages in virtual environment Run scripts in virtual environment Select an appropriate package to install Open terminal/cmd Activate a virtual environment if required Lyse "pip install <package name="">" command to install the package</package> Import package in a python environment Uninstall a package with "pip uninstall <package name="">" command</package>

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

Qualification	National Vocational Certificate Level 03 - Artificial Intelligence Data Technician					
Competency Standard(s)	Setup Environment					
Candidate Details	Name: Candidate Signature:	G				
Assessment Outcome	COMPETENT Name of the Assessor: 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

Asse	ssment Task	Description of assessment			
Asse	essment Task 1	Create a folder and change its r create a virtual environment in t packages: Numpy, Pandas and folder, import the installed pack	hat fold Beautif	er and ulsoup	install the following o. Create a .py file in the
	g the practical as enstrated the follo	sessment, candidate wing:	Yes	No	Remarks
1.	Open terminal/o	emd			
2.	Change director	ries			_
3.	Rename files				-
4.	Move files from	one directory to another			-
5.	Copy files from	one directory to another			-
6.	Select/delete or	nly particular types of files			-
7.	Open a file				-
8.	Open an applica	ation			_
9.	Zip and unzip fil	es/folders			-
10.	Download files t	from a source (network location)			_
11.	Connect to a se	rver using ssh			-
12.	Install virtual en	vironment with pip			-
13.	Create a virtual	environment			-
14.	Activate a virtua	al environment			1
15.	Deactivate a vir	tual environment			1
16.	Check if the env	vironment is active for a			
17.	Install packages	s in virtual environment			1
18.	Run scripts in vi	irtual environment			1
19.	Select an appro	priate package to install			1
20.	Open terminal/o	emd			1

21.	Activate a virtual environment if required					
22.	Use "pip install <package name="">" comma install the package</package>	and to				
23.	Import package in a python environment					
24.	Uninstall a package with "pip uninstall <pa name="">" command</pa>	ackage				
Comp	Competent Not Yet Competent					

Feedback to	the Candidate
	Competent
In terms of complete competency, the candidate was found:	Not Yet Competent
Candidate's Signature:	Assessor's Signature:

Test Yourself (Multiple Choice Questions)

MODULE 1 Question 1 How do we install packages in python Pip. B Numpy. C Pandas. D Clc. Question 2 Why do we use virtual environments A To make the app run faster. В To avoid conflicts with other python applications C To keep the app from crashing. D To prevent viruses. Question 3 What does activating an environment mean? Installing packages in the environment. Installing that environment. C Initializing all the variables. D Switching to that virtual environment.

Question	4	Which library is used for dealing with arrays?	A	Beauitifulsoup.
			В	Pandas.
			С	Numpy.
			D	Anaconda.
Question	5	What does ssh do?	Α	Allows you to run a python 2 app in python 3.
			В	Speed up downloading of files.
			С	Access a computer over the internet remotely.
			D	Allocate more ram for the application.
Question	6	What is the maximum number of virtual environments that you can make?	Α	5.
		onvironmental tracty od odri mako.	В	16.
			С	3.
			D	No limit.
Question	7	Can you run more than one virtual environment simultaneously?	Α	Yes.
		onvironment dimutanoodsly.	В	No.
			С	Only if you have enough ram.
			D	Only in python 2.

Question 8 What is Beautifulsoup used for?

A Changing python 3 code to Python 2.

B Working with arrays.

C Scraping data from the web.

D Plotting graphs.

Question 9 What is the command "cd" used for?

A Viewing the current download.

B Changing the display settings.

C Changing the directory.

D Printing the current directory.

Question 10 What does the command "pwd" do?

A Print the name of the current environment.

B View the downloads.

C Allow you to change the password.

D Print the working directory.

Answers

Question 1: A Question 6: D

Question 7: A Question 7: A

Question 3: C

Question 4: B Question 9: C

Question 10: A

Question 5: C

Knowledge Assessment

Qua	alification	National Vocational Certificate Level 03 - Artificial Intelligence Data Technician		
	npetency ndard(s)	Code in programming language suitable for Al		
Can	ndidate ails	Name:Regis Candidate Signature:		
	essment come	COMPETENT NOT Name of the Assessor: Asses Signature of the Assessor: Asses		
be u	•	oonse is not required to be identical, but similar of uestioning may be used to clarify candidate unde	-	•
corr	•	ndidate confidently answered questions monstrated understanding of the topics and	Satisfactory	Not Satisfactory
1.	Explain wha	at is python?		
2.	Indicate the	python file extension?		
3.	Contrast py	thon 2 and python 3?		
4.	Explain pur	pose of "for loop" in python?		
5.	Illustrate the	e basic syntax of 'for loop' in python?		

6.	Explain the purpose of "while" loop in python?	
7.	Differentiate between Switch and If-else statements?	
8.	Explain basic functionality of "def" and "try" statements?	
9.	Write the command used for installing packages?	
10.	Contrast 'r' and 'w' flag?	

Knowledge Assessment

Qua	alification	National Vocational Certificate Level 03 - Artificial Intelligence Data Technician		
	npetency ndard(s)	Setup Environment		
Car Det	ndidate ails	Name:Regist		
	essment	COMPETENT \(\square\) NOT \(\square\) Name of the Assessor:		
be		ponse is not required to be identical, but similar of questioning may be used to clarify candidate	•	•
and	•	didate confidently answered questions correctly ed understanding of the topics and their	Satisfactory	Not Satisfactory
1.	Describe th	e purpose of a virtual environment		
2.	State the po	urpose of packages		
3.	Write the py	ython command for installation of package		
4.	Write the py	thon command for package uninstallation		
5.		e important parameter for setting up at for python		

6.	List the python commands to create activate/deactivate virtual environment respectively	
7.	Describe what the command "cd" does	
8.	Summarize the purpose of indentation within python	
9.	Define variables	
10.	List three variable types	

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level 3 - Artificial Intelligence Data Technician
Competency Standards	 061900928 Code in Programming Language suitable for AI 061900929 Setup Environment
Assessment	Assessment Task 1:
Task	Create a folder and change its name to your registration number.
	Assessment Task 2:
	Create a virtual environment in that folder and install required packages for performing the following task:
	Assessment Task 3:
	Create a class named "MathFunctions" and implement the functions provided in Annex-A. When done, validate the working of your class by executing instructions found in Annex-B.

I can.....

Performance Criteria	Yes	No
Navigate to python website to Downloads		
2. Choose an appropriate Python version		
3. Check system requirements		
4. Download the chosen Python setup files		
5. Double click on the downloaded setup files		
6. Enter admin username-password to authorize installation		
7. Choose appropriate install options		
8. Click install		
Click add python to PATH environment variable		
10. Code a python program		
11. Save the text file as .py file		
12. Open terminal/cmd application		
13. Navigate to directory containing python program		

14. Run the program with python	
15. Code an "if" statement	
16. Code an "elif" statement	
17. Code an "else" statement	
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19. Code a "for" loop	
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32. Write a python variable into the opened file	
33. Select an appropriate package to install	
34. Open terminal/cmd application	
35. Use "pip install <package name="">" command to install the package</package>	
36. Uninstall a package with "pip uninstall <package name="">" command</package>	
37. Open terminal/cmd	
38. Change directories	
39. Rename files	
40. Move files from one directory to another	
41. Copy files from one directory to another	
42. Select/delete only particular types of files	
43. Open a file	

44. Open an application	
45. Zip and unzip files/folders	
46. Download files from a source (network location)	
47. Connect to a server using ssh	
48. Install virtual environment with pip	
49. Create a virtual environment	
50. Activate a virtual environment	
51. Deactivate a virtual environment	
52. Check if the environment is active for a python/pip version	
53. Install packages in virtual environment	
54. Run scripts in virtual environment	
55. Select an appropriate package to install	
56. Open terminal/cmd	
57. Activate a virtual environment if required	
58. Use "pip install <package name="">" command to install the package</package>	
59. Import package in a python environment	
60. Uninstall a package with "pip uninstall <package name="">" command</package>	
Candidate's Signature: Assessor's Signature: Date:	

Instruction Sheet for the Candidate

Title of Qualification: National Vocational Certificate Level 3 – Artificial Intelligence Data Technician	CS Code:	Level:	Version: 02
Competency Standard Title:	Assessment	Date (DD/MM/	YY):
Code in Programming Language suitable for AISetup Environment			

Candidate Details	Name: Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for	Assessment Task 1: Create a folder and change its name to your registration number.
Candidate	Assessment Task 2: Create a virtual environment in that folder and install required packages for performing the following task:
	Assessment Task 3: Create a class named "MathFunctions" and implement the functions provided in Annex-A. When done, validate the working of your class by executing instructions found in Annex-B.
	During a practical assessment, under observation by an assessor, you are required to perform above mentioned task demonstrating the following criteria:
Time: 120 min	 Navigate to python website to Downloads Choose an appropriate Python version Check system requirements Download the chosen Python setup files Double click on the downloaded setup files Enter admin username-password to authorize installation Choose appropriate install options Click install Click add python to PATH environment variable Code a python program Save the text file as .py file Open terminal/cmd application Navigate to directory containing python program Run the program with python Code an "if" statement

- 16. Code an "elif" statement
- 17. Code an "else" statement
- 18. Code a "while" loop
- 19. Code a "for" loop
- 20. Write a "switch" statement
- 21. Use "continue" & "break" statements in loops
- 22. Write a "def" statement to define a function
- 23. Write a "class" statement to create a class with multiple functions and data elements
- 24. Define a "try" block
- 25. Apply some error prone code in try block
- 26. Handle the possible exceptions using "except" block
- 27. Apply "finally" block to statements that will always run
- 28. Open a python script file
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- 30. Read the file line by line or all at once into a python variable
- 31. Open a file with "w" flag in write mode
- 32. Write a python variable into the opened file
- 33. Select an appropriate package to install
- 34. Open terminal/cmd application
- 35. Use "pip install <package name>" command to install the package
- 36. Uninstall a package with "pip uninstall <package name>" command
- 37. Open terminal/cmd
- 38. Change directories
- 39. Rename files
 - 40. Move files from one directory to another
 - 41. Copy files from one directory to another
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 - 43. Open a file
 - 44. Open an application
 - 45. Zip and unzip files/folders
 - 46. Download files from a source (network location)
 - 47. Connect to a server using ssh
 - 48. Install virtual environment with pip
 - 49. Create a virtual environment
 - 50. Activate a virtual environment
 - 51. Deactivate a virtual environment
 - 52. Check if the environment is active for a python/pip version
 - 53. Install packages in virtual environment
 - 54. Run scripts in virtual environment
 - 55. Select an appropriate package to install
 - 56. Open terminal/cmd
 - 57. Activate a virtual environment if required
 - 58. Use "pip install <package name>" command to install the package
 - 59. Import package in a python environment
 - 60. Uninstall a package with "pip uninstall <package name>" command

Minimum Evidence Required

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

Qualification	National Vocational Certificate Level 03 - Artificial Intelligence Data Technician
Competency Standard(s)	 Code in programming language suitable for Al Setup Environment
Candidate Details	Name:
Assessment Outcome	COMPETENT Not yet competent Name of the Assessor: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity		l	Metho	d		Re	sult
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			√				
Knowledge Assessment		√					
Other Requirement							

Observation Checklist

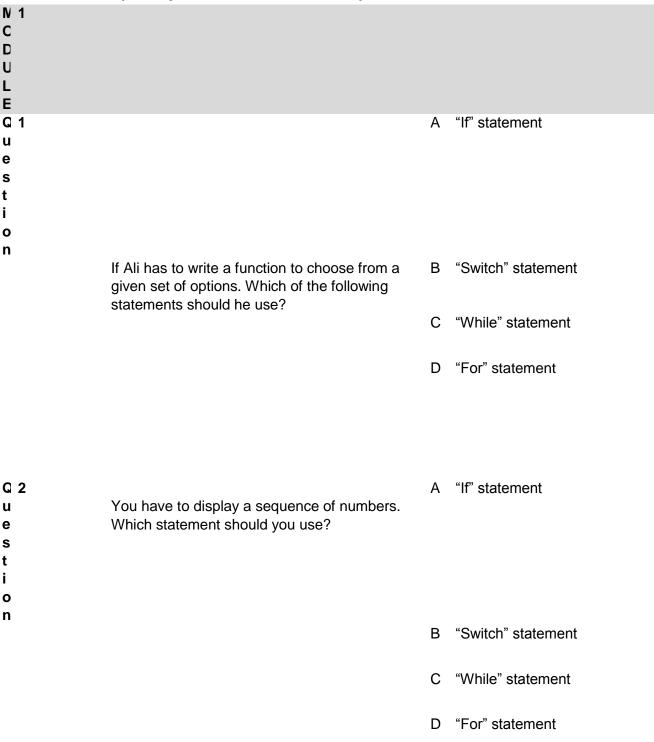
Ass	essment Task	Description of assessment				
Asse	essment Task 1	Create a folder and change its name to your registration number.				
Asse	essment Task 2	Create a virtual environment in that folder and install required packages for performing the following task.				
Asse	essment Task 3	Create a class named "MathFunctions" and implement the function provided in Annex-A. When done, validate the working of your class by executing instructions found in Annex-B.				
	ng the practical a onstrated the follo	ssessment, candidate owing:	Yes	No	Remarks	
1.	Navigate to pytho	on website to Downloads				
2.	Choose an appro	opriate Python version				
3.	Check system re	quirements				
4.	Download the ch	osen Python setup files				
5.	Double click on t	he downloaded setup files				
6.	Enter admin use installation	rname-password to authorize				
7.	Choose appropriate install options					
8.	Click install					
9.	Click add python to PATH environment variable					
10.	Code a python p	rogram				
11.	Save the text file	as .py file				
12.	Open terminal/cr	nd application				
13.	Navigate to direc	tory containing python program				
14.	Run the program	with python				
15.	Code an "if" statement					
16.	Code an "elif" statement					
17.	Code an "else" statement					
18.	Code a "while" lo	ор				
19.	Code a "for" loop					
20.	Write a "switch" s	statement				
21.	Use "continue" & "break" statements in loops					

22.	Write a "def" statement to define a function
23.	Write a "class" statement to create a class with multiple functions and data elements
24.	Define a "try" block
25.	Apply some error prone code in try block
26.	Handle the possible exceptions using "except" block
27.	Apply "finally" block to statements that will always run
28.	Open a python script file
29.	Open a file with "r" flag in read mode using "open" statement
30.	Read the file line by line or all at once into a python variable
31.	Open a file with "w" flag in write mode
32.	Write a python variable into the opened file
33.	Select an appropriate package to install
34.	Open terminal/cmd application
35.	Use "pip install <package name="">" command to install the package</package>
36.	Uninstall a package with "pip uninstall <package name="">" command</package>
37.	Open terminal/cmd
38.	Change directories
39.	Rename files
40.	Move files from one directory to another
41.	Copy files from one directory to another
42.	Select/delete only particular types of files
43.	Open a file
44.	Open an application
45.	Zip and unzip files/folders
46.	Download files from a source (network location)
47.	Connect to a server using ssh

48.	Install virtual environment with pip			
49.	Create a virtual environment			
50.	Activate a virtual environment			
51.	Deactivate a virtual environment			
52.	Check if the environment is active for a python/pip version	1		
53.	Install packages in virtual environment			
54.	Run scripts in virtual environment			
55.	Select an appropriate package to insta	II		
56.	Open terminal/cmd			
57.	Activate a virtual environment if require	ed		
58.	Use "pip install <package name="">" com install the package</package>	mand to		
59.	Import package in a python environment	nt		
60.	Uninstall a package with "pip uninstall name>" command			
Comp	petent	Not Yet Com	petent	

Feedback to	Feedback to the Candidate				
	Competent				
In terms of complete competency, the candidate was found:	Not Yet Competent				
Candidate's Signature:	Assessor's Signature:				

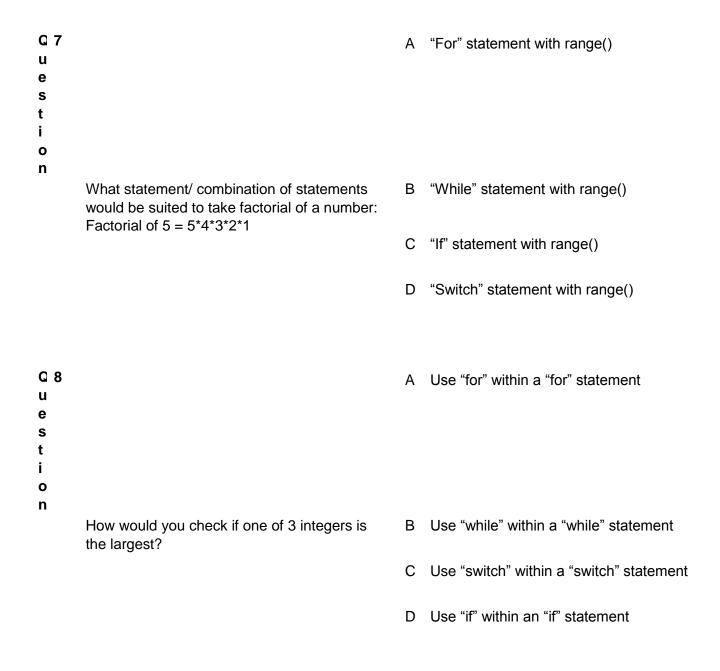
Test Yourself (Multiple Choice Questions)



Q 3 u e s t i o		A	"If" statement
n	Which of the following is a conditional loop statement?	В	"Switch" statement
		С	"While" statement
		D	"For" statement
Q 4 u e s t i		Α	and
n	You are tasked with creating a function which keeps on printing a given integer until one of two conditions are met. Which comparative statement should be used?	В	or
		С	not
		D	\-

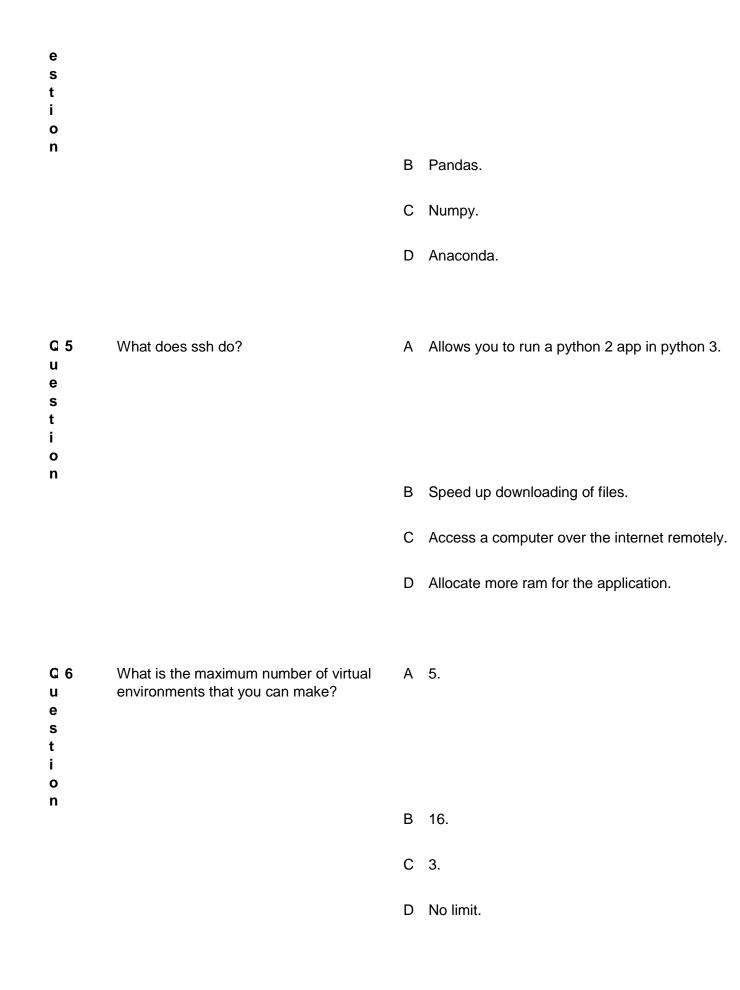
A number 5.6 is changed into an integer with a A 6 Q 5 command toint(). What value would you get? u е s t i 0 n B 5 C 4 D 3 Q 6 A <= u е S t i 0 n Which of the following is the symbol for not B >= equal to? C !=

D ==



Q 9 u e s t i		A	2
n	Ali has to compare two items in terms of it's price, color, shape and size. How many if statements should he use.	В	3
	statements should be use.	С	4
		D	5
Q 10 u e s t		Α	"If" statement
o n	Consider a function, which is extracting text from a file, editing it and printing its contents a specified number of times. Which of the following would this function definitely use.	В	"For" statement "While" statement
		D	"Switch" statement
N 2 C D U L E G 1 u e s t	How do we install packages in python	Α	Pip.

o n			
		В	Numpy.
		С	Pandas.
		D	Clc.
Q 2 Why do we use u e s t i	virtual environments	Α	To make the app run faster.
n		В	To avoid conflicts with other python applications.
		С	To keep the app from crashing.
		D	To prevent viruses.
Q 3 What does active esste	vating an environment mean?	Α	Installing packages in the environment.
n		В	Installing that environment.
		С	Initializing all the variables.
		D	Switching to that virtual environment.
Q 4 Wh u	ich library is used for dealing v	vith	arrays? A Beauitifulsoup.



Q 7 u e s t i	Can you run more than one virtual environment simultaneously?	A	Yes.
n		В	No.
		С	Only if you have enough ram.
		D	Only in python 2.
Q 8 u e s t	What is Beautifulsoup used for?	Α	Changing python 3 code to Python 2.
o n		В	Working with arrays.
		С	Scraping data from the web.
		D	Plotting graphs.
Q 9 u e s t	What is the command "cd" used for?	Α	Viewing the current download.
o n		В	Changing the display settings.

- C Changing the directory.
- D Printing the current directory.

Q 10	What does the command "pwd" do?	Α	Print the name of the current environment.
u			
е			
S			
t			
i			
0			
n			
		В	View the downloads.

- C Allow you to change the password.
- D Print the working directory.

Answers

Module 1		Module 2	
Question 1	В	Question 1:	A
Question 2	D	Question 2:	В
Question 3	С	Question 3:	D
Question 4	В	Question 4:	В
Question 5	В	Question 5:	С
Question 6	С	Question 6:	D
Question 7	Α	Question 7:	A
Question 8	D	Question 8:	С
Question 9	С	Question 9:	С
Question 10	В	Question 10:	Α

ANNEXURE-A

Instructions:

- 1. Create a function named "comparison" to compare any two given integers and print the greater integer.
- 2. Create a function named "print_loop" to print any given string any given number of times.
- 3. Create a function named "print_descend" which takes in a positive integer, decrements it by one iteratively and print its value until it becomes less than zero.
- 4. Create a function named "switch_fn" using switch statement which either prints area or parameter of a circle using a switch statement. The radius of the circle and switch argument are to be entered as parameters of the function.
- 5. Create a function to read and write files and display it's contents

ANNEXURE-B

Instructions:

- 1. Create a "Mathfunctions" class object named as your first name.
- 2. Using a class object function, compare 14532 and 125342 and print the larger number.
- 3. Print the string "My name is [Your name]" 5, 10 and 20 times using the same class function.
- 4. Print values from 0 to 20 in descending order using a class function.
- 5. Calculate the perimeter of a circle having radius 3.6 using a class function.
- 6. Given a hello_world.txt file, read the file, edit the "hello_world" to "finally_done" and write the file using the created function.

Knowledge Assessment

*		National Vocational Certificate Level 03 - Artificial Intelligence Data Technician			
	Code in programming language suitable for Al Setup Environment				
	didate	Name:Registration/Roll Number:			
Detai	Candidate Signature:				
		COMPETENT NOT YI	ET COMPETE	NT 🗆	
Assessment Outcome		Name of the Assessor: Assessor's code:			
		Signature of the Assessor:			
Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.					
,		ndidate confidently answered questions correctly ed understanding of the topics and their	Satisfactory	Not	
applic	cation)	·		Satisfactory	
applic 1.		hat is python?		Satisfactory	
1.	Explain w	hat is python?		Satisfactory	
	Explain w			Satisfactory	
1.	Explain w	hat is python? ne python file extension?		Satisfactory	
1.	Explain w	hat is python?		Satisfactory	
1.	Explain w	hat is python? ne python file extension?		Satisfactory	
1. 2. 3.	Explain w	hat is python? ne python file extension? python 2 and python 3?		Satisfactory	
1. 2. 3.	Explain will limit the contrast pure Explain pure	hat is python? ne python file extension? python 2 and python 3?		Satisfactory	
1. 2. 3.	Explain will Indicate the Contrast pure Explain pure Illustrate to the Contract pure Indicate the Indicate the Contract pure Indicate the Ind	hat is python? ne python file extension? python 2 and python 3? urpose of "for loop" in python?		Satisfactory	

7.	Differentiate between Switch and If-else statements?	
8.	Explain basic functionality of "def" and "try" statements?	
9.	Write the command used for installing packages?	
10.	Contrast 'r' and 'w' flag?	
11.	Describe the purpose of a virtual environment	
12.	State the purpose of packages	
13.	Write the python command for installation of package	
14.	Write the python command for package uninstallation	
15.	Describe the important parameter for setting up environment for python	
16.	List the python commands to create activate/deactivate virtual environment respectively	
17.	Describe what the command "cd" does	
18.	Summarize the purpose of indentation within python	
19.	Define variables	
20.	List three variable types	

National Vocational and Technical Training Commission (NAVTTC)

- Plot 38. Kirthar Road, Sector H-9/4, Islamabad, Pakistan
- +92 51 9044 322
- info@navttc.org
- www.navttc.org