

B. E. Degree Sixth Semester End Examination

PYTHON APPLICATION PROGRAMMING

(Model Question Paper – I)

Time: 3 Hours]

[Maximum Marks: 100

Instructions to students:

1. Answer FIVE FULL questions.

1.	a)	Explain Computer Hardware Architecture with neat diagram.	10 Marks												
	b)	Define high level language and machine language. List out the differences between Compiler and Interpreter.	5 Marks												
	c)	Write a function called <code>is_palindrome</code> that takes a string argument and returns True if it is a palindrome and False otherwise. Use built-in function to check the length of a string. Prompt the user for input.	5 Marks												
OR															
2.	a)	<p>Explain the concept of short circuit evaluation of logical expressions in Python. Write a program to prompt the user for a score between 0.0 and 1.0. If the score is out of range print an error. If the score is between 0.0 and 1.0, print a grade using the following table:</p> <table style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Score</th> <th style="text-align: left;">Grade</th> </tr> </thead> <tbody> <tr> <td><code>>= 0.9</code></td> <td>A</td> </tr> <tr> <td><code>>= 0.8</code></td> <td>B</td> </tr> <tr> <td><code>>= 0.7</code></td> <td>C</td> </tr> <tr> <td><code>>= 0.6</code></td> <td>D</td> </tr> <tr> <td><code>< 0.6</code></td> <td>F</td> </tr> </tbody> </table> <p>Use try and except so that your program handles non-numeric input gracefully by printing a message and exit the program.</p>	Score	Grade	<code>>= 0.9</code>	A	<code>>= 0.8</code>	B	<code>>= 0.7</code>	C	<code>>= 0.6</code>	D	<code>< 0.6</code>	F	8 Marks
Score	Grade														
<code>>= 0.9</code>	A														
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<code>>= 0.6</code>	D														
<code>< 0.6</code>	F														
	b)	Explain in detail the building blocks of a program. State the need for functions in Python.	6 Marks												
	c)	Explain Syntax errors and Logic errors. Write a program which prompts the user for a Celsius temperature, convert the temperature to Fahrenheit and print out the converted temperature.	6 Marks												
3.	a)	Explain break and continue statements with examples in Python. Write Pythonic code that iteratively prompts the user for input. It should continue until the user enters 'done' and then return the average value.	8 Marks												
	b)	Write a Python Program to check whether a number is prime or not using while loop and print appropriate messages.	6 Marks												
	c)	"Strings in Python are immutable". Explain this statement with example. Write Pythonic code to find the factorial of any number entered through the keyboard.	6 Marks												

OR

4.	a)	Write a Python program to read the file and count and print the lines that start with the word "From". Prompt the user for the file name. Also use try/except to handle bad file names. Explain format operator with examples in Python.	7 Marks
	b)	Write Pythonic code to multiply two matrices using nested loops and print the result.	6 Marks
	c)	Write Pythonic code to Count and Print the occurrence of each of the word in the file using dictionaries. Prompt the user for the file name. Also use try/except to handle bad file names.	7 Marks
5.	a)	Write Pythonic code that implements and returns the functionality of histogram using dictionaries. Also, write the function print_hist to print the keys and their values in alphabetical order from the values returned by the histogram function.	10 Marks
	b)	Explain join(), split() and append() methods in a List with examples. Write Pythonic code to input information about 20 students as given below: 1) Roll number 2) Name 3) Total Marks Get the input from the user for a student name. The program should display the Roll number and total marks for the given student name. Also, find the average marks of all the students. Use dictionaries.	10 Marks
OR			
6.	a)	Define tuple. Explain DSU pattern. Write Pythonic code to demonstrate tuples by sorting a list of words from longest to shortest using loops.	10 Marks
	b)	Why do you need regular expressions in Python? Consider a line "From stephen.marquard@uct.ac.za Sat Jan 5 09:14:16 2008" in the file email.txt. Write Pythonic code to read the file and extract email address from the lines starting from the word "From". Use regular expressions to match email address.	10 Marks
7.	a)	What is Operator Overloading? Write Pythonic code to overload "+", "-" and "*" operators by providing the methods <code>__add__</code> , <code>__sub__</code> and <code>__mul__</code> .	10 Marks
	b)	Consider a user defined class called Time that records the time of the day. Create a new Time object and assign attributes for hours, minutes and seconds. Write a function called print_time that takes a Time object and prints it in the form hour:minute:second. Write a boolean function called is_after that takes two Time objects, t1 and t2, and returns True if t1 follows t2 chronologically and False otherwise. Write a function called increment which adds a given number of seconds to a Time object.	10 Marks
OR			
8.	a)	Write Pythonic code to create a function named move_rectangle that takes an object Rectangle and two numbers named dx and dy. It should change the location of the Rectangle by adding dx to the x coordinate of corner and adding dy to the y coordinate of corner.	10 Marks
	b)	Explain Polymorphism in Python in detail with examples.	10 Marks
9.	a)	Define socket. Write a Python program to retrieve an image over HTTP.	10 Marks
	b)	Write a Python program that makes a connection to a web server requesting for a document and display what the server sends back. Your Python program should follow the rules of the HTTP protocol. List the common headers which the webserver sends to describe the document.	10 Marks

OR

OR			
10.	a)	State the need for urllib in Python. Write Pythonic code to retrieve the file "vtu.txt" by using the URL http://vtu.ac.in/code/vtu.txt . Also compute the frequency of each of the word in the retrieved file.	10 Marks
	b)	Give an example to construct a simple web page using HTML. Write Pythonic code to match and extract the various links found in a webpage using urllib.	10 Marks
