SRI KRISHNA INSTITUTE OF TECHNOLOGY BANGALORE

COURSE PLAN

Academic Year FEB 2019

Program:	B E – COMPUTER SCIENCE & ENGINEERING
Semester :	6
Course Code:	16CS664
Course Title:	PYTHON APPLICATION PROGRAMMING
Credit / L-T-P:	3 / 3-0-0
Total Contact Hours:	40
Course Plan Author:	MAMATHA T S

Academic Evaluation and Monitoring Cell

Table of Contents

Note : Remove "Table of Content" before including in CP Book

Each Course Plan shall be printed and made into a book with cover page

Blooms Level in all sections match with A.2, only if you plan to teach / learn at higher levels

A. COURSE INFORMATION

1. Course Overview

Degree:	B.E	Program:	IS
Semester :	VI	Academic Year:	2018-19
Course Title:	PYTHON APPLICATION PROGRAMMING	Course Code:	15CS664
Credit / L-T-P:	3/3-0-0	SEE Duration:	180 Minutes
Total Contact Hours:	40	SEE Marks:	80 Marks
CIA Marks:	20	Assignment	1 / Module
Course Plan Author:	Mamatha T S	Sign	Dt:
Checked By:		Sign	Dt:
CO Targets	CIA Target : 79	SEE Target:	59

Note: Define CIA and SEE % targets based on previous performance.

2. Course Content

Content / Syllabus of the course as prescribed by University or designed by institute. Identify 2 concepts per module as in G.

Module	Content	Teaching Hours	Identified Module Concepts	Blooms Learning Levels
1	Why should you learn to write programs, Variables, expressions and statements,	4	Python programming constructs	L3
	Conditional execution, Function	4	Flow control & functions	L3
2	Iteration,Strings,	5	String handling	L3
	Files	3	File handling	L3
3	Lists, Dictionaries, Tuples,	6	core data structures	L4
	Regular Expressions	2	regular expressions	L4
4	Classes and objects,	4	Class & object	L4
	Classes and functions, Classes and methods	4	Methods in classes	L4
5	Networked programs Using Web Services	4	Socket API's	L4
	Networked programs Using databases and SQL	4	Database operations	L4

3. Course Material

Books & other material as recommended by university (A, B) and additional resources used by course teacher (C).

1. Understanding: Concept simulation / video ; one per concept ; to understand the concepts ; 15 – 30 minutes

2. Design: Simulation and design tools used – software tools used ; Free / open source

3. Research: Recent developments on the concepts – publications in journals; conferences etc.

Modules	Details	Chapters in book	Availability
A	**Text books (Title, Authors, Edition, Publisher, Year.)**	**-**	**-**

1,2,3,5	1. Charles R. Severance, "Python for Everybody: Exploring Data Using Python 3", 1 st Edition, Create Space Independent Publishing Platform, 2016. (Chapters 1 – 13, 15)	1,2,3,4,5, 6,7,8,9,1 0,11,12,13	In Dept/ in library
4	2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", Green Tea Press,2015. 2nd Edition, (Chapters 15, 16, 17)(Download pdf files from the above links)	15,16,17	In Dept/ in library
B	Reference books (Title, Au5thors, Edition, Publisher, Year.)	-	-
1,2,3,4, 5	1. Charles Dierbach, "Introduction to Computer Science Using Python", 1 st Edition, Wiley India Pvt Ltd. ISBN-13: 978-8126556014	?	In Lib
1,2,3,4, 5	2. Mark Lutz, "Programming Python", 4 th Edition, O'Reilly Media, 2011.lSBN-13: 978-9350232873	?	Not Available
1,2,3,4, 5	3. Wesley J Chun, "Core Python Applications Programming", 3 rd Edition,Pearson Education India, 2015. ISBN-13: 978-9332555365	?	In lib
1,2,3,4, 5	4. Roberto Tamassia, Michael H Goldwasser, Michael T Goodrich, "Data Structures and Algorithms in Python",1 st Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978- 8126562176	-	In lib
C	Python example programs links		
CO1	http://www.py4e.com/code3/words.py,		
CO1	http://www.py4e.com/code3/fahren.py,		
CO1	http://www.py4e.com/code3/fahren2.py,		
CO1	http://www.py4e.com/code3/lyrics.py,		
CO2	http://www.py4e.com/code3/addtwo.py		
CO3 CO4	http://www.py4e.com/code3/copytildone1.y http://www.py4e.com/code3/copytildone2.y http://www.py4e.com/code3/copytildone3.y http://www.py4e.com/code3/open.py http://www.py4e.com/code3/search1.py http://www.py4e.com/code3/search2.py http://www.py4e.com/code3/search3.py http://www.py4e.com/code3/search4.py http://www.py4e.com/code3/search6.py http://www.py4e.com/code3/search7.py		
CO5 CO6	http://www.py4e.com/code3/avenum.py http://www.py4e.com/code3/avelist.py http://www.py4e.com/code3/search5.py http://www.py4e.com/code3/count1.py http://www.py4e.com/code3/count2.py http://www.py4e.com/code3/soft.py http://www.py4e.com/code3/count3.py http://www.py4e.com/code3/re01.py http://www.py4e.com/code3/re02.py http://www.py4e.com/code3/re03.py http://www.py4e.com/code3/re04.py http://www.py4e.com/code3/re05.py http://www.py4e.com/code3/re06.py http://www.py4e.com/code3/re07.py http://www.py4e.com/code3/re08.py http://www.py4e.com/code3/re09.py http://www.py4e.com/code3/re10.py http://www.py4e.com/code3/re11.py		
CO7 CO8	Http://www.py4e.com/code3/part1.py http://www.py4e.com/code3/part2.py http://www.py4e.com/code3/part3.py http://www.py4e.com/code3/part4.py http://www.py4e.com/code3/part5.py http://www.py4e.com/code3/part2.py		

	http://www.py4e.com/code3/part6.py			
CO9 CO10	http://www.py4e.com/code3/socket1.py http://www.py4e.com/code3/urljpeg.py http://www.py4e.com/code3/urlib1.py http://www.py4e.com/code3/urlwords.py http://www.py4e.com/code3/urlregex.py http://www.py4e.com/code3/urllinks.py http://www.py4e.com/code3/xm12.py http://www.py4e.com/code3/json2.py http://www.py4e.com/code3/geojson.py http://www.py4e.com/code3/hidden.py http://www.py4e.com/code3/twitter.py http://www.py4e.com/code3/twitter2.py http://www.py4e.com/code3/db1.py			
D	**Software Tools for implementation**		**-**	**-**
	Anaconda software with spider editor			
E	**Recent Developments for Research**		**-**	**-**
F	**Others (Web, Video, Simulation, Notes etc.)**		**-**	**-**
1	1.http://do1.dr-chuck.com/pythonlearn/EN_us/pythonlearn.pdf			
2	2.http://greenteapress.com/thinkpython2/thinkpython2.pdf			

4. Course Prerequisites

Refer to GL01. If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.
Students must have learnt the following Courses / Topics with described Content . . .

Mod ules	Course Code	Course Name	Topic / Description	Sem	Remarks	Blooms Level
1	17PCD23	C programming for problem solving	1/variables,operators,expressions	1	-	L3
2	17PCD23	C programming for problem solving	2,3/strings,looping,conditional statements	1	-	L3
3	17CS33	Data structures with C	1,2/arrays,stacks,queues	3	-	L3
4	15CS42	Object orientated programming using Java	1,3/Introduction to Object Oriented Concepts, Classes, Inheritance,Exceptions, Packages and Interfaces	4	-	L3
5	15CS53	DBMS	2/SQL commands	5	-	L3
-						

5. Content for Placement, Profession, HE and GATE

The content is not included in this course, but required to meet industry & profession requirements and help students for Placement, GATE, Higher Education, Entrepreneurship, etc. Identifying Area / Content requires experts consultation in the area.

Topics included are like, a. Advanced Topics, b. Recent Developments, c. Certificate Courses, d. Course Projects, e. New Software Tools, f. GATE Topics, g. NPTEL Videos, h. Swayam videos etc.

Modules	Topic / Description	Area	Remarks	Blooms Level
2	Recursive functions	placement	Gap seminar	L3
2	File locking mechanism	placement	Gap presentation	L3
3	Hashing concepts	placement	Gap seminar	L3
4	Object oriented features	placement	Gap seminar	L3
4	Method overloading & overriding	placement	Gap seminar	L3
5	HTML,XML basics	placement	Gap presentation	L3
5	SQL commands	placement	Gap presentation	L3

B. OBE PARAMETERS

1. Course Outcomes

Expected learning outcomes of the course, which will be mapped to POs. Identify a max of 2 Concepts per Module. Write 1 CO per Concept.

Modules	Course Code.#	Course Outcome At the end of the course, student should be able to . . .	Teach. Hours	Concept	Instr Method	Assessment Method	Blooms' Level
1	15CS664.1	Demonstrate Programs using the syntax and semantics of Python programming language.	4	Python programming constructs	Demonstrate programs	Student presentation of programs	L3 Apply
1	15CS664.2	Implement Python program using flow control and functions.	4	Flow control & functions	Demonstrate programs	Student presentation of programs	L3 Apply
2	15CS664.3	Demonstrate proficiency in handling Strings.	5	String handling	Reading, discussion Hands on sessions	Question & answers Quiz	L3 Apply
2	15CS664.4	Demonstrate proficiency in handling File Systems.	3	File handling	Reading, discussion Hands on sessions	Student presentation of programs	L3 Apply
3	15CS664.5	Analyze Python Programs using core data structures- Lists, Dictionaries,Tuples	6	core data structures	Presentation Hands on sessions	Question and answers assignment	L4 Analyze
3	15CS664.6	Implement Python Programs to search and extract variables using Regular Expressions.	2	regular expressions	Presentation Hands on sessions	Question and answers assignment	L4 Analyze
4	15CS664.7	Analyze programs developed using object oriented features	4	Class & object	Demonstrate	Student presentati	L4 Analyze

					programs Hands on sessions	on Quiz		
4	15CS664.8	Test programs using the concepts of Object-Oriented Programming as functional programming	4	Methods in classes	Demonstrate programs Hands on sessions	Student presentation Quiz		L4 Analyze
5	15CS664.9	Examine Python applications related to Network Programming, Web Services.	4	Socket API's	Demonstrate programs Hands on sessions	Student presentation of programs Quiz		L4 Analyze
5	15CS664.10	Distinguish exemplary applications related to Databases in Python.	4	Database operations	Demonstrate programs Hands on sessions	Student presentation of programs Quiz		L4 Analyze
-		**Total**	**40**	-	-	-		**L2-L4**

2. Course Applications

Write 1 or 2 applications per CO.
Students should be able to employ / apply the course learnings to . . .

Modules	Application Area Compiled from Module Applications.	CO	Level
1	Desktop and web applications.	CO1	L3
1	complex scientific and numeric applications	CO2	L3
2	pattern matching	CO3	L3
2	machine learning	CO4	L3
3	data validation, data scraping	CO5	L4
3	data wrangling, simple parsing	CO6	L4
4	Real-Time System Design,Office Automation Systems(Email,Word processing)	CO7	L4
4	Robotics	CO8	L4
5	Python has been used to create a variety of web-frameworks including CherryPy, Django, TurboGears, Bottle, Flask	CO9	L4
5	web services	CO10	L4

3. Mapping And Justification

CO – PO Mapping with mapping Level along with justification for each CO-PO pair.
To attain competency required (as defined in POs) in a specified area and the knowledge & ability required to accomplish it.

Modules	Mapping		Mapping Level	Justification for each CO-PO pair	Level
-	**CO**	**PO**	-	**'Area': 'Competency' and 'Knowledge' for specified 'Accomplishment'**	-
1	CO1	PO1	2.5	Knowledge of python programming syntax & semantics is required to build any applications	L3
		PO2	2.5	Analyzing programs require the knowledge syntax & semantics of python programming	L3
		PO3	2.5	Implementation of python programs	L3

		PO7	2.5	Knowledge of python is required for sustainable development	L3
		PO12	2.5	Learning in the context of technology changes	L3
1	CO2	PO1	2.5	Knowledge of Python flow control and functions is required to build any applications	L3
		PO2	2.5	Analyzing programs require the knowledge of flow control and functions for python programming	L3
		PO3	2.5	Implementation of python programs	L3
		PO7	2.5	Knowledge of python is required for sustainable development	
		PO12	2.5	Learning in the context of technology changes	L3
2	CO3	P01	2.5	Knowledge of string, files is required in building complex applications	L3
		PO2	2.5	Analyzing programs written using string & files requires the knowledge of strings,files.	L3
		PO3	2.5	Design & develop new programs	L3
		PO7	2.5	Knowledge of python is required for sustainable development	
		PO12	2.5	Learning in the context of technology changes	L3
2	CO4	P01	2.5	Knowledge of file handling is required in building complex applications using files	L3
		PO2	2.5	Analyzing programs written using files requires the knowledge of files.	L3
		PO3	2.5	Design & develop new programs to access and modify files	L3
		PO7	2.5	Knowledge of python is required for sustainable development	L3
		PO12	2.5	Learning in the context of technology changes	L3
3	CO5	PO1	2.5	Knowledge of lists,tuples & dictionaries required data validation,data scaring & parsing	L4
		PO2	2.5	Analyzing programs written using lits,tuples & dictionaries	L4
		PO3	2.5	Design & develop new programs using lists,tuples.	L4
		PO12	2.5	Learning in the context of technology changes	L4
3	CO6	PO1	2.5	Knowledge of lists,tuples & dictionaries required n building complex applications.	L4
		PO2	2.5	Analyzing programs written using lists, tuples & dictionaries	L4
		PO3	2.5	Design & develop new programs using lists, tuples.	L4
		PO7	2.5	Knowledge of python is required for sustainable development	l4
		PO12	2.5	Learning in the context of technology changes	L4
4	CO7	PO1	2.5	Knowledge of classes & objects is required in object oriented programming	L4
		PO2	2.5	Analyzing programs written using OOP concepts	L4
		PO3	2.5	Design new class of programs using encapsulation, inheritance,polymorphism,abstraction	L4
		PO7	2.5	Knowledge of python is required for sustainable development	L4
		PO12	2.5	Learning in the context of technology changes	L4
4	CO8	PO1	2.5	Knowledge of classes,objects,functions is required in functional programming	L4
		PO2	2.5	Analyzing programs written using OOP concepts,functions	L4
		PO3	2.5	Design new class of programs using encapsulation, inheritance,polymorphism,abstraction	L4
		PO7	2.5	Knowledge of python is required for sustainable development	l4
		PO12	2.5	Learning in the context of technology changes	L4
5	CO9	PO1	2.5	Knowledge of network, web, is required to develop different types of applications	L4
		PO2	2.5	Classify different categories of applications	L4
		PO3	2.5	Design web based,network based based applications	L4
		PO4	2.5	Test different programs written using web,network,	L4
		PO5	2.5	Modern tools usage to test the developed programs	L4
		PO12	2.5	Learning in the context of technology changes	L4
5	CO10	PO1	2.5	Knowledge of network, database is required to develop different types of applications	L4
		PO2	2.5	Classify different categories of applications	L4
		PO3	2.5	Design web based,network based, database based applications	L4
		PO7	2.5	Knowledge of python is required for sustainable development	l4

		PO12	2.5	Learning in the context of technology changes																L4

4. Articulation Matrix

CO – PO Mapping with mapping level for each CO-PO pair, with course average attainment.

-	-	Course Outcomes	Program Outcomes															-
Modules	CO.#	**At the end of the course student should be able to . . .**	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Level
1	15CS664.1	Demonstrate Programs using the syntax and semantics of Python programming language.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L3
1	15CS664.2	Implement Python program using flow control and functions.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L3
2	15CS664.3	Demonstrate proficiency in handling Strings.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
2	15CS664.4	Demonstrate proficiency in handling File Systems.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
3	15CS664.5	Analyze Python Programs using core data structures- Lists, Dictionaries,Tuples	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
3	15CS664.6	Implement Python Programs to search and extract variables using Regular Expressions.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
4	15CS664.7	Analyze programs developed using object oriented features0	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
4	15CS664.8	Analyze programs using the concepts of Object-Oriented Programming as functional programming	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
5	15CS664.9	Examine Python applications related to Network Programming, Web Services.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
5	15CS664.10	Test exemplary applications related to Databases in Python.	2.5	2.5	2.5	-	-	-	2.5	-	-	-	-	2.5				L4
-	**CS664PC**	**Average attainment (1, 2, or 3)**	**2.5**	**2.5**	**2.5**	**-**	**-**	**-**	**2.5**	**-**	**-**	**-**	**-**	**2.5**				**L2-L4**
-	PO, PSO	*1.Engineering Knowledge; 2.Problem Analysis; 3.Design / Development of Solutions; 4.Conduct Investigations of Complex Problems; 5.Modern Tool Usage; 6.The Engineer and Society; 7.Environment and Sustainability; 8.Ethics; 9.Individual and Teamwork; 10.Communication; 11.Project Management and Finance; 12.Life-long Learning; S1.Software Engineering; S2.Data Base Management; S3.Web Design*																

5. Curricular Gap and Content

Topics & contents not covered (from A.4), but essential for the course to address POs and PSOs.

Modules	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
2	Hasing concepts	Extra classes		Concerned faculty	
4	Object oriented features	Extra classes		Concerned faculty	
5	HTML,XML,SQL	Extra classes		Concerned faculty	

6. Content Beyond Syllabus

Topics & contents required (from A.5) not addressed, but help students for Placement, GATE, Higher Education, Entrepreneurship, etc.

Modules	Gap Topic	Area	Actions Planned	Schedule Planned	Resources Person	PO Mapping

1	Hands on Examples Programs using variables,conditional execution,functions	placement	Planned for hands on session	Conducting hands on sessions(one hour per week)	Concerned faculty	
2	Hands on Examples Programs using iteration,strings,files	placement	Planned for hands on session	Conducting hands on sessions(one hour per week	Concerned faculty	
3	Hands on Examples Programs using lists,dictionaries,tuples	placement	Planned for hands on session	Conducting hands on sessions(one hour per week	Concerned faculty	
4	Hands on Example Programs using classes & object	placement	Planned for hands on session	Conducting hands on sessions(one hour per week	Concerned faculty	
5	Hands on Application programs	placement	Planned for hands on session	Conducting hands on sessions(one hour per week	Concerned faculty	

C. COURSE ASSESSMENT

1. Course Coverage

Assessment of learning outcomes for Internal and end semester evaluation. Distinct assignment for each student. 1 Assignment per chapter per student. 1 seminar per test per student.

Modules	Title	Teach. Hours	No. of question in Exam						CO	Levels
			CIA-1	CIA-2	CIA-3	Asg	Extra Asg	SEE		
1	Why should you learn to write programs, Variables, expressions and statements,Conditional execution, Functions	08	2	-	-	1	1	2	CO1,Co2	L3
2	Iteration, Strings, Files	08	2	-	-	1	1	2	CO3,co4	L3
3	Lists, Dictionaries, Tuples, Regular Expressions	08	-	2	-	1	1	2	CO5,Co6	L4
4	Classes and objects, Classes and functions, Classes and method	08	-	2	-	1	1	2	CO7,CO8	L4
5	Networked programs, Using Web Services, Using databases and SQL	08	-	-	4	1	1	2	CO9,CO10	L4
-	**Total**	**40**	**4**	**4**	**4**	**5**	**5**	**10**	**-**	**-**

2. Continuous Internal Assessment (CIA)

Assessment of learning outcomes for Internal exams. Blooms Level in last column shall match with A.2.

Modules	Evaluation	Weightage in Marks	CO	Levels
1, 2	CIA Exam – 1	15	CO1, CO2,CO3, CO4	L3,L3,L3,L3
3, 4	CIA Exam – 2	15	CO5CO6, CO7,CO8	L4,L4,L4,L4
5	CIA Exam – 3	15	CO9,CO10	L4,L4
1, 2	Assignment - 1	05	CO1, CO2, CO3,Co4	L3,L3,L3,L3
3, 4	Assignment - 2	05	CO5, CO6, CO7, C08	L4,L4,L4,L4
5	Assignment - 3	05	CO9, CO10	L4,L4

1, 2	Seminar - 1		-	-
3, 4	Seminar - 2		-	-
5	Seminar - 3		-	-
1, 2	Quiz - 1		-	-
3, 4	Quiz - 2		-	-
5	Quiz - 3		-	-
1 - 5	Other Activities – UNIT TEST	-	CO9, CO10	L4,L4
	Final CIA Marks	**20**	**-**	**-**

D1. TEACHING PLAN - 1

Module - 1

Title:	Introduction	Appr Time:	8 Hrs
a	***Course Outcomes***	**CO**	**Blooms**
-	At the end of the topic the student should be able to . . .	-	**Level**
1	Demonstrate Programs using the syntax and semantics of Python programming language.	CO1,	L3
2	Implement Python program using flow control and functions.	CO2	L3
b	***Course Schedule***	-	-
Class No	**Portion covered per hour**	**-**	**-**
1	Why should you learn to write programs	CO1	L3
2	Variables, expressions and statements,	CO1	L3
3	Conditional execution	CO2	L3
4	Conditional execution	CO2	L3
5	Functions	CO2	L3
6	Functions	CO2	L3
7	Programming Examples	CO1	L3
8	Programming Examples	CO2	L3
c	**Application Areas**	**CO**	**Level**
1	Desktop and web applications.	CO1	L3
2	complex scientific and numeric applications	CO2	L3
d	**Review Questions**	-	-
-	The attainment of the module learning assessed through following questions	-	-
1	Define algorithm. explain three general types of errors.	CO1	L2
2	Explain about the need for learning python programming and its importance.	CO1	L2
3	What is the use of comments?	CO1	L2
4	Define associativity.	CO1	L2
5	Write the rules for choosing names of variables.	CO1	L2
6	Define scope of the variable.	CO1	L2
7	How the reverse an item from the list in Python?	CO1	L2
8	Write in brief about any 5 keywords in Python.	CO1	L2
9	List some features of Python.	CO1	L2
10	What are assertions in Python?	CO1	L2
11	Write in brief about the applications of Python.	CO1	L2
12	Write a program that uses input to prompt a user for their name & then welcome them.	CO2	L3
13	List & explain different conditional statements with flow chart.	CO2	L2
14	What is function. Explain different types of functions with examples.	CO2	L3
15	What are fruitful functions & void functions	CO2	L3

e	Experiences	-	-
1			
2			
3			
4			
5			

Module – 2

Title:	Iteration,Strings & Files	Appr Time:	8 Hrs
a	*Course Outcomes*	**CO**	**Blooms**
-	At the end of the topic the student should be able to . . .	-	**Level**
3	**Demonstrate** proficiency in handling Strings.	CO3	L3
4	**Demonstrate** proficiency in handling File Systems.	CO4	L3
b	*Course Schedule*	-	-
Class No	**Portion covered per hour**	**-**	**-**
09	Iteration,	CO3	L3
10	Iteration,	CO3	L3
11	Strings	CO3	L3
12	Strings	CO3	L3
13	Strings	CO3	L3
14	Files	CO4	L3
15	Files	CO4	L3
16	Programming Examples	CO3,CO4	L3
c	**Application Areas**	**CO**	**Level**
3	machine learning	CO3	L3
4	data validation, data scraping	CO4	L3
d	**Review Questions**	-	-
16	What is iteration?	CO3	L3
17	List different looping statements with examples	CO3	L3
13	Explain while statement with example program.	CO3	L3
18	Explain break & continue statement in python with examples	CO3	L3
19	Explain for loop with example program.	CO3	L3
20	Define string. Write a python program to read a string & find its length.	CO3	L3
21	What is slice. explain with examples.	CO3	L3
22	Strings are immutable. Justify the statement with examples	CO3	L3
23	List & explain different string handling function with examples.	CO3	L3
24	Write a program to read through a file & print the contents of the file line by line in upper case.	CO4	L3
25	Describe in detail about exception handing with necessary examples.	CO4	L3
e	**Experiences**	-	-
1			
2			
3			
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E1. CIA EXAM – 1

a. Model Question Paper - 1

Crs Code:	15CS664	Sem:		VI	Marks:		30	Time:		75 minutes		
Course:		PYTHON APPLICATION PROGRAMMING										
-	**-**	**Note: Answer any 2 questions, each carry equal marks.**								**Marks**	**CO**	**Level**
1	a	Mention the three types of errors encountered in python program. Explain the basic building block of python with an example program.								CO1	L3	5
	b	Briefly discuss about the types of decision making statement.								CO2	L3	6
	c	Write a python program to take the temperature in Celsius and convert it to Fahrenheit.								CO2	L3	4
		OR										
2	a	List the rules to declare a variable in python. Demonstrate at least three different types of variable uses with an example program.								CO1	L3	5
	b	Explain the rules of precedence used by python to evaluate an expression with examples.								CO1	L3	6
	c	How python handles the exceptions? Explain with an example program.								CO2	L3	4
3	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.								CO4	L3	6
	b	Explain the following String methods in detail a) startswith( ) and b) find()								CO3	L3	4
	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.								CO3	L3	5
		OR										
4	a	Briefly discuss about the looping techniques in Python with suitable examples								CO3	L3	6
	b	Write a function called **is_palindrome** 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.								CO2	L3	4
	c	Write a python program to display presence of given substring in main string.Explain format operator with examples in Python.								CO3	L3	5

b. Assignment -1

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions									
Crs Code:	15CS664	Sem:		VI	Marks:	5 / 5	Time:	90 – 120 minutes	
Course:		Python application programming			Module:1,2				
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.									
SNo		**Assignment Description**					**Marks**	**CO**	**Level**
1		Explain Computer Hardware Architecture with neat diagram.					5	CO1	L2
2		Define high level language and machine language. List out the differences between Compiler and Interpreter.					5	CO1	L2
3		Write a function called **is_palindrome** 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.					4	CO2	L3
4		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.					6	CO3	L3
5		Explain the different types of operators with example					6	CO1	L2
6		Briefly discuss about the types of decision making statement.					9	CO1	L2
7		Write a Python program to multiply two matrices.					5	CO2	L3
8		Briefly explain the input and output functions used in python.					6	CO1	L2

9		Write a pseudo code to calculate the sum of n numbers.	4	CO2	L3
10		Write a python program to take the temperature in Celsius and convert it to Fahrenheit.	4	CO2	L3
11		List the various data types in python.	5	CO1	L2
12		Write the syntax of if and if-else statement.	4	CO2	L2
13		Develop a program to find the largest among three numbers..	4	CO2	L3
14		Briefly discuss about the looping techniques in Python with suitable examples	9	CO3	L3
15		Write Python program to swap two numbers using functions. (Write without using intermediate/temporary variables). Prompt the user for input.	6	CO3	L3
		Find the area and perimeter of a circle using functions. Prompt the user for input.	4	CO2	L3
16		Write a Python Program to check whether a number is prime or not using while loop and print appropriate messages.	4	CO3	L3
17		**"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	CO3	L3
18		A number with more than one digit is input through the keyboard. Write Pythonic code to reverse the digits in the number and find the sum of all the digits in the reversed number.	5	CO3	L3
19		Explain the following String methods in detail a) upper( ) and b) find().	6	CO3	L3
20		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.	6	CO4	L3
21		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.	6	CO4	L3

D2. TEACHING PLAN - 2

Module – 3

Title:	Lists tuples & Dictionaries	Appr Time:	8 Hrs
a	**Course Outcomes**	**CO**	**Blooms**
-	At the end of the topic the student should be able to . . .	-	**Level**
5	Analyze Python Programs using core data structures- Lists, Dictionaries,Tuples	CO5	L4
6	Implement Python Programs to search and extract variables using Regular Expressions.	CO6	L4
b	**Course Schedule**		
Class No	**Portion covered per hour**	**-**	**-**
17	Lists	CO5	L4
18	Lists	CO5	L4
19	Dictionaries	CO5	L4
20	Dictionaries	CO5	L4
21	Tuples	CO5	L4
22	Tuples	CO5	L4
23	Regular Expressions	CO6	L4
24	Regular Expressions	CO6	L4
c	**Application Areas**	**-**	**-**
-	Students should be able employ / apply the Module learnings to . . .	-	-
5	data validation, data scraping	CO5	L4
6	data wrangling, simple parsing	CO6	L4

d	Review Questions	-	-
-	What is list. list are mutable.justify	CO5	L3
22	Explain different list operations with examples	CO5	L3
23	Write a program to open the file & read it line by line. For each line,split the line into a list of word using split function	CO5	L4
24	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.	CO5	L4
25	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.	CO5	L4
26	How are dictionaries and tuples used together? Demonstrate the use of tuple assignment with dictionaries to traverse the keys and values of dictionary.	CO5	L4
27	Define Tuple. Explain DSU pattern. How are dictionaries and tuples used together? Write Pythonic code to demonstrate tuples by sorting a list of words from longest to shortest using loops.	CO5	L4
28	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.	CO6	L4
29	Write Pythonic code to create a function called **most_frequent** that takes a string and prints the letters in decreasing order of frequency. Use dictionaries.	CO5	L4
30	Consider the string **'brontosaurus'**. Write Pythonic code that implements and returns the functionality of histogram using dictionaries for the given string. Also, write the function **print_hist** to print the keys and their values in alphabetical order from the values returned by the histogram function.	CO5	L4
31	Explain **join(), split()** and **append()** methods in a List with examples. Write a program which repeatedly reads numbers until the user enters '**done**'. Once **'done'** is entered, print out the total, count, and average of the numbers. If the user enters anything other than a number, detect their mistake using try and except and print an error message and skip to the next number.	CO5	L4
e	Experiences	-	-
1		CO6	L2
2			
3			
4		CO6	L3
5			

Module – 4

Title:	Classes & objects	Appr Time:	8 Hrs
a	*Course Outcomes*	**CO**	**Blooms**
-	At the end of the topic the student should be able to . . .	-	**Level**
7	Analyze programs developed using object oriented features	CO7	L4
8	Analyze programs using the concepts of Object-Oriented Programming as functional programming	CO8	L4
b	*Course Schedule*		
Class No	Portion covered per hour	-	-
25	Classes and objects	CO7	L4

26	Classes and objects	CO7	L4
27	Classes and objects	CO7	L4
28	Classes and objects	CO7	L4
29	Classes and functions	CO8	L4
30	Classes and methods	CO8	L4
31	Classes and methods	CO8	L4
32	Classes and methods	CO8	L4
c	**Application Areas**	**CO**	**Level**
7	Real-Time System Design,Office Automation Systems(Email,Word processing)	CO7	L4
8	Robotics	CO8	L4
d	**Review Questions**	-	-
32	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.	CO7	L4
33	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.	CO7	L4
34	Explain Polymorphism in Python in detail with examples.	CO7	L4
35	Objects are immutable. Justify with example program.	CO4	L4
36	What are pure functions explain with examples.	CO7	L4
37	Write a definition for a class named circle with attributes center and radius where center is a Point object and radius is a number.	CO7	L4
38	Write a function named point_in_circle that takes circle and a Point and returns True if the Point lies in or on the boundary of the circle	CO8	L4
39	Use the datetime module to write a program that gets the current date and prints the day of the week.	CO7	L4
40	Write a program that takes a birthday as input and prints the user's age and the number of days, hours, minutes and seconds until their next birthday.	CO7	L4
41	For two people born on different days, there is a day when one is twice as old as the other. That's their Double Day. Write a program that takes two birthdays and computes their Double Day.	CO8	L4
42	Explain __init__ method with example program.	CO8	L4
43	Explain __str__ method with example program.	CO8	L4
44	What is Operator Overloading? Write Pythonic code to overload "+", "-" and "*" operators by providing the methods __add__, __sub__ and __mul__.	CO7	L4
45	What is polymorphism illustrate with an example program	CO7	L4
e	**Experiences**	-	-
1			
2			
3			
4			

E2. CIA EXAM – 2

a. Model Question Paper - 2

Crs Code:	15CS664	Sem:		VI	Marks:		20	Time:		75 minutes	
Course:	Python application programming										
-	-	**Note: Answer any 2 questions, each carry equal marks.**							**Marks**	**CO**	**Level**
1	a	Explain join(), split() and append() methods in a List with examples. Write							6	CO5	L4

		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.			
	b	How are dictionaries and tuples used together? Demonstrate the use of tuple assignment with dictionaries to traverse the keys and values of dictionary.	5	CO5	L4
	c	Write Pythonic code to create a function called **most_frequent** that takes a string and prints the letters in decreasing order of frequency. Use dictionaries.	4	CO5	L3
		OR			
2	a	Consider the string **'brontosaurus'**. Write Pythonic code that implements and returns the functionality of histogram using dictionaries for the given string. Also, write the function **print_hist** to print the keys and their values in alphabetical order from the values returned by the histogram function.	5	CO5	L4
	b	Why do you need regular expressions in Python? Consider a file "**ait.txt**". Write a Python program to read the file and look for lines of the form **X-DSPAM-Confidence: 0.8475** **X-DSPAM-Probability: 0.458** Extract the number from each of the lines using a regular expression. Compute the average of the numbers and print out the average.	5	CO6	L4
	c	What are lists?lists are mutable.justify the statement with examples.	5	CO5	L3
		OR			
3	a	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.	5	CO7	L4
	b	Consider a user defined class called Point. Write a function called distance that takes two Points as arguments and returns the distance between them.	5	CO8	L4
	c	What are polymorphic functions? Explain with a snippet code.	5	CO7	L3
		OR			
4	a	What does the keyword self in Python mean? Explain with an example.	05	CO7	L3
	b	Show using a Python code how_init_method is invoked when an object is initiated. Explain its working.	06	CO8	L4
	c	Explain _str_method with a Python program.	05	CO8	L3

b. Assignment – 2

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions						
Crs Code:	15CS664	Sem:	VI	Marks:	5 / 5	Time:	90 – 120 minutes
Course:	PYTHON APPLICATION PROGRAMMING			Module:3,4		

Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.

SNo	USN	Assignment Description	Marks	CO	Level
1		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.	6	CO5	L
2		Explain join(), split() and append() methods in a List with examples. Write Pythonic code to input information about 20 students as given below:	5	CO5	L2

		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.			
3		Define tuple. Explain DSU pattern. Write Pythonic code to demonstrate tuples by sorting a list of words from longest to shortest using loops.	6	CO5	L3
4		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.	8	CO6	L3
5		Explain Polymorphism in Python in detail with examples.	5	CO8	L4
6		Objects are immutable. Justify with example program.	5	CO7	L4
7		What are pure functions explain with examples.	4	CO8	L4
8		Write a definition for a class named circle with attributes center and radius where center is a Point object and radius is a number.	5	CO7	L4
9		Write a function named point_in_circle that takes circle and a Point and returns True if the Point lies in or on the boundary of the circle	6	CO8	L4
10		Use the datetime module to write a program that gets the current date and prints the day of the week.	5	CO8	L4
11		Write a program that takes a birthday as input and prints the user's age and the number of days, hours, minutes and seconds until their next birthday.	6	CO7	L4
12		For two people born on different days, there is a day when one is twice as old as the other. That's their Double Day. Write a program that takes two birthdays and computes their Double Day.	6	CO7	L4
13		Explain __init__ method with example program.	5	CO8	L4
14		Explain __str__ method with example program.	5	CO8	
15		What is Operator Overloading? Write Pythonic code to overload "+", "-" and "*" operators by providing the methods __add__, __sub__ and __mul__.	6	CO8	L4
16		What is list. list are mutable.justify	5	CO5	L3
17		Explain different list operations with examples	6	CO5	L3
18		Write a program to open the file & read it line by line. For each line,split the line into a list of word using split function	6	CO5	L4
19		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.	6	CO5	L4
20		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.	8	CO5	L4
21		How are dictionaries and tuples used together? Demonstrate the use of tuple assignment with dictionaries to traverse the	6	CO5	L4

		keys and values of dictionary.			

D3. TEACHING PLAN - 3

Module – 5

Title:	Networked programs		Appr Time:	8 Hrs
a	*Course Outcomes*	**CO**	**Blooms**
-	At the end of the topic the student should be able to . . .	-	**Level**
9	Examine Python applications related to Network Programming, Web Services.	CO9	L4
10	Test exemplary applications related to Databases in Python.	CO10	L4
b	*Course Schedule*	-	-
Class No	**Portion covered per hour**	**-**	**-**
33	Networked programs,	CO9	L4
34	Networked programs	CO9	L4
35	Using Web Services	CO9	L4
36	Using Web Services	CO9	L4
37	Using Web Services	CO9	L4
38	Using databases and SQL	CO10	L4
39	Using databases and SQL	CO10	L4
40	Using databases and SQL	CO10	L4
c	**Application Areas**	**-**	**-**
-	Students should be able employ / apply the Module learnings to . . .	-	-
9	Python has been used to create a variety of web-frameworks including CherryPy, Django, TurboGears, Bottle, Flask	CO9	L4
10	web services	CO10	L4
d	**Review Questions**	-	-
-	The attainment of the module learning assessed through following questions	-	-
46	What is a socket? Explain how socket connection can be established to the internet using python code over the TCP/IP connection and the http protocol to get the web document.	CO9	L4
47	Explain the significance of XML over the web development. Illustrate with an example.	CO9	L4
48	Write a note on Google Geo coding web service. Using Python supported libraries.demonstrate with a Snippet code.	CO9	L4
49	What is embedded SQL? Explain the importance of SQLite database. Write a Python code to establish a database connection to 'EmpDb" and display the total gross salary paid to the employees working in the 'Quality Control department. Assume the employee table has been already created and exist in the 'EmpDb'.The fields of Employee table are:(EmpID, DeptName, GrossSalary).	CO10	L4
50	Give an example to construct a simple web page using HTML. State the need for BeautifulSoup library in Python. Write Pythonic code to read a web page using urllib and then use BeautifulSoup library to extract the href attributes from the anchor (a) tags.	CO9	L4

			CO	Level
51	Define XML. Construct a simple XML document and represent it with a diagram. Write Pythonic code to loop through XML nodes in the document.		CO9	L4
52	Define JSON. Construct a simple JSON document. Bring out the differences between XML and JSON. Write Pythonic code to parse JSON document.		CO10	L4
53	Develop a simple application in Python to prompt the user for a search string, call the Google geocoding API, and extract information from the returned JSON.		CO9	L4
54	Consider a Photo directory with various Photos and a description for each Photo. The format would be **./2006/03/24-03-06_2018002.jpg** **./2006/03/24-03-06_2018002.txt** Assume that over the years this Photo directory has accumulated bad text files that doesn't contain a description for the image. Write Pythonic code to clean up a Photo Directory by recognizing and removing bad files.		CO10	L4
e	**Experiences**		-	-
1			CO10	L2
2			CO9	
3				
4			CO9	L3

E3. CIA EXAM – 3
a. Model Question Paper - 3

Crs Code:	15CS664	Sem:		VI	Marks:		30	Time:		75 minutes		
Course:	PYTHON APPLICATION PROGRAMMING											
-	-	**Note: Answer any 2 questions, each carry equal marks.**								**Marks**	**CO**	**Level**
1	a	What is socket? Explain how socket connection can be established to the Internet using python code over TCP/IP connection & the http protocol to get web document.								8	CO9	L4
	b	Explain the significance of XML over the web development. Illustrate with an example								7	CO9	L3
		OR										
2	a	Write a note on Google Geo coding web service. Using Python supported libraries.demonstrate with a Snippet code.								7	CO9	L3
	b	What is embedded SQL? Explain the importance of SQLite database. Write a Python code to establish a database connection to 'EmpDb" and display the total gross salary paid to the employees working in the 'Quality Control department. Assume the employee table has been already created and exist in the 'EmpDb'.The fields of Employee table are:(EmpID, DeptName, GrossSalary).								8	CO10	L3
3	a	Define JSON. Construct a simple JSON document. Bring out the differences between XML and JSON. Write Pythonic code to parse JSON document.								7	CO10	L4
	b	State the need for urllib in Python. Write Pythonic code to retrieve the file "**ait.txt**" by using the URL **http://dr-ait.org/code/ait.txt.** Also compute the frequency of each of the word in the retrieved file.								8	CO9	L4
		OR										
4	a	Write Pythonic code to retrieve a user's Twitter friends, parse the returned JSON, and extract some of the information about the friends.								8	CO10	L4
	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.								7	CO9	L3

b. Assignment – 3

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions							
Crs Code:	15CS664	Sem:	VI	Marks:	5 / 5	Time:	90 – 120 minutes
Course:	PYTHON APPLICATION PROGRAMMING			Module:5			
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.							
SNo	**USN**	**Assignment Description**			**Marks**	**CO**	**Level**
1		Define socket. Write a Python program to retrieve an image over HTTP.			10	CO9	L2
2		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	CO9	L4
3		State the need for urllib in Python. Write Pythonic code to retrieve the file "**ait.txt**" by using the URL **http://dr-ait.org/code/ait.txt.** Also compute the frequency of each of the word in the retrieved file.			7	CO9	L4
4		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	CO9	L4
5		Define XML. Construct a simple XML document and represent it with a diagram. Write Pythonic code to loop through XML nodes in the document.			10	CO9	L4
6		Define JSON. Construct a simple JSON document. Bring out the differences between XML and JSON. Write Pythonic code to parse JSON document.			6	CO10	L4
7		State the need for urllib in Python. Explain why data is retrieved in blocks. Write Pythonic code to read any sized binary file using urllib without using up all of the memory you have in your computer.			5	CO9	L4
8		Give an example to construct a simple web page using HTML. State the need for BeautifulSoup library in Python. Write Pythonic code to read a web page using urllib and then use BeautifulSoup library to extract the href attributes from the anchor (a) tags.			5	CO9	L4
9		Develop a simple application in Python to prompt the user for a search string, call the Google geocoding API, and extract information from the returned JSON.			4	CO9	L4
10		Consider a Photo directory with various Photos and a description for each Photo. The format would be **./2006/03/24-03-06_2018002.jpg** **./2006/03/24-03-06_2018002.txt** Assume that over the years this Photo directory has accumulated bad text files that doesn't contain a description for the image. Write Pythonic code to clean up a Photo Directory by recognizing and removing bad files.			6	CO10	L4
11		Write Pythonic code to retrieve a user's Twitter friends, parse the returned JSON, and extract some of the information about the friends.			8	CO10	L4
12		Define socket. Write a Python socket program to prompt the user for the URL so it can read any web page. You can use split('/') to break the URL into its component parts so you can extract the host name for the socket connect call. Add error checking using try and except to handle the condition where the user enters an improperly formatted or non-existent URL.			8	CO9	L4

F. EXAM PREPARATION

1. University Model Question Paper

Course:		PYTHON APPLICATION PROGRAMMING				Month / Year		Dec /2018		
Crs Code:		15CS664	Sem:	VI	Marks:	80	Time:		180 minutes	
-	**Note**	Answer all FIVE full questions. All questions carry equal marks.					**Marks**	**CO**	**Level**	
1	a	List the rules to declare a variable in python. Demonstrate at least three different types of variable uses with an example program.					5	CO1	L3	
	b	Explain the rules of precedence used by python to evaluate an expression					5	CO1	L3	
	c	Write a python program ti find the best of two average marks out of three test's marks accepted from the user.					6	CO2	L2	
		OR								
2	a	How python handles the exceptions? Explain with an example program.					5	CO2	L2	
	b	Write a single user defined function named "solve" that returns the remainder & quotient on division of two numbers accepted from the user. Print the remainder & quotient separately on the console.					6	CO2	L3	
	c	Predict the output & justify your answer: i)-11%9 ii)7.7//7 iii)(200-70)*10/5 iv)not "false" v) 5*1**2					5	CO1	L2	
3	a	Demonstrate the use of break & continue keywords in looping structures using a snippet code.					6	CO3	L2	
	b	Explain string slicing in python. Show with examples.					4	CO3	L2	
	c	Write a python program to accept a sentence from the user & display the long word of that sentence along with its length.					6	CO3	L3	
		OR								
4	a	List & explain any four built in string manipulation functions supported by python					6	CO3	L3	
	b	Write the python code to display the last six character of the string "make hay while the sun shines" to the console					3	CO3	L2	
	c	Write a python program to accept a file name from the user: 1.display the first N lines of the file 2.find the frequency of occurrence of the word accepted from the user in the file					7	CO4	L3	
5	a	What are lists? Lists are mutable,justify the statements with examples.					05	CO5	L4	
	b	How tuples are created in python? Explain different ways of accessing & creating them.					05	CO5	L2	
	c	Write a python program to read all the lines in a file accepted from the user & print all email addresses contained in it. Assume the email addresses contain only non-white space.					06	CO6	L3	
		OR								
6	a	Implement a Python program using Lists to store and display the average of N integers accepted from the user.					05	CO5	L3	
	b	Explain dictionaries. Demonstrate with a Python program.					05	CO5	L3	
	c	Design a Python program to search for lines that start with the word 'From' and a character followed by a two digit number between 00 and 99 followed by ':'Print the number if it is greater than zero. Assume any input file.					06	CO6	L4	

7	a	Construct a student class and initialize it with name and roll number. Design methods to: (i) Display_to display all information of the student. (ii) setAge_to assign age to student. (iii) setMarks_to assign marks to the student.	07	CO7	L4
	b	Using date time module write a program that gets the current date and prints the day of the week.	04	CO8	L3
	c	What are polymorphic functions? Explain with a snippet code.	05	CO8	L2
		OR			
8	a	What does the keyword self in Python mean? Explain with an example.	05	CO7	L3
	b	Show using a Python code how_init_method is invoked when an object is initiated. Explain its working.	06	CO8	L4
	c	Explain _str_method with a Python program.	05	CO8	L3
9	a	What is a socket? Explain how socket connection can be established to the internet using python code over the TCP/IP connection and the http protocol to get the web document.	08	CO9	L3
	b	Explain the significance of XML over the web development. Illustrate with an example.	08	CO9	L3
		OR			
10	a	Write a note on Google Geo coding web service. Using Python supported libraries.demonstrate with a Snippet code.	08	CO9	L3
	b	What is embedded SQL? Explain the importance of SQLite database. Write a Python code to establish a database connection to 'EmpDb" and display the total gross salary paid to the employees working in the 'Quality Control department. Assume the employee table has been already created and exist in the 'EmpDb'.The fields of Employee table are:(EmpID, DeptName, GrossSalary).	08	CO10	L3

2. SEE Important Questions

Course:	PYTHON APPLICATION PROGRAMMING					Month / Year	Dec /2018	
Crs Code:	15CS664	Sem:	VI	Marks:	80	Time:	180 minutes	
Note	Answer all FIVE full questions. All questions carry equal marks.					-	-	

Module	Qno.	Important Question	Marks	CO	Year
1	1	List the rules to declare a variable in python. Demonstrate at least three different types of variable uses with an example program.	5	CO1	2018
	2	Explain the rules of precedence used by python to evaluate an expression	5	CO1	2018
	3	Write a python program ti find the best of two average marks out of three test's marks accepted from the user.	6	CO2	2018
	4	How python handles the exceptions? Explain with an example program.	5	CO2	2018
	5	Write a single user defined function named "solve" that returns the remainder & quotient on division of two numbers accepted from the user. Print the remainder & quotient separately on the console.	6	CO2	2018
	6	Predict the output & justify your answer: i)-11%9 ii)7.7//7 iii)(200-70)*10/5 iv)not "false" v) 5*1**2	5	CO1	2018
2	1	Demonstrate the use of break & continue keywords in looping structures using a snippet code.	6	CO3	2018
	2	Explain string slicing in python. Show with examples.	4	CO3	2018
	3	Write a python program to accept a sentence from the user & display the long word of that sentence along with its length.	6	CO3	2018

	4	List & explain any four built in string manipulation functions supported by python	6	CO3	2018
	5	Write the python code to display the last six character of the string "make hay while the sun shines" to the console	3	CO3	2018
	6	Write a python program to accept a file name from the user: 3.display the first N lines of the file 4.find the frequency of occurrence of the word accepted from the user in the file	7	CO4	2018
3	1	What are lists? Lists are mutable.justify the statements with examples.	05	CO5	2018
	2	How tuples are created in python? Explain different ways of accessing & creating them.	05	CO5	2018
	3	Write a python program to read all the lines in a file accepted from the user & print all email addresses contained in it. Assume the email addresses contain only non-white space.	06	CO5	2018
	4	Implement a Python program using Lists to store and display the average of N integers accepted from the user.	05	CO5	2018
	5	Explain dictionaries. Demonstrate with a Python program.	05	CO5	2018
	6	Design a Python program to search for lines that start with the word 'From' and a character followed by a two digit number between 00 and 99 followed by ':'.Print the number if it is greater than zero. Assume any input file.	06	CO5	2018
4	1	Construct a student class and initialize it with name and roll number. Design methods to: (i) Display_to display all information of the student. (ii) setAge_to assign age to student. (iii) setMarks_to assign marks to the student.	07	CO7	2018
	2	Using date time module write a program that gets the current date and prints the day of the week.	04	CO7	2018
	3	What are polymorphic functions? Explain with a snippet code.	05	CO8	2018
	4	What does the keyword self in Python mean? Explain with an example.	05	CO7	2018
	5	Show using a Python code how_init_method is invoked when an object is initiated. Explain its working.	06	CO8	2018
	6	Explain _str_method with a Python program.	05	CO8	2018
5	1	What is a socket? Explain how socket connection can be established to the internet using python code over the TCP/IP connection and the http protocol to get the web document.	08	CO9	2018
	2	Explain the significance of XML over the web development. Illustrate with an example.	08	CO9	2018
	3	Write a note on Google Geo coding web service. Using Python supported libraries.demonstrate with a Snippet code.	08	CO9	2018
	4	What is embedded SQL? Explain the importance of SQLite database. Write a Python code to establish a database connection to 'EmpDb" and display the total gross salary paid to the employees working in the 'Quality Control department. Assume the employee table has been already created and exist in the 'EmpDb'.The fields of Employee table are:(EmpID, DeptName, GrossSalary).	08	CO10	2018

G. Content to Course Outcomes

1. TLPA Parameters

Table 1: TLPA – 5CS664

Module	Course Content or Syllabus (Split module content into 2 parts which have	Content	Blooms' Learning	Final Bloo	Identified Action	Instruction	Assessment Methods to

e-#	similar concepts)	Teaching Hours	Levels for Content	ms' Level	Verbs for Learning	Methods for Learning	Measure Learning
A	B	C	D	E	F	G	H
1	Why should you learn to write programs, Variables, expressions and statements,	4	- L1 - L2 -L3	L3	understand Demonstrate	Demonstrate programs	Student presentation of programs
1	Conditional execution, Function	4	- L2 - L3	L3	understand Implement	Demonstrate programs	Student presentation of programs
2	Iteration,Strings,	5	- L2 - L3	L3	Understand Demonstrate	Reading, discussion Hands on sessions	Question & answers Quiz
2	Files	3	- L1 - L2 -L3	L3	Understand Demonstrate	Reading, discussion Hands on sessions	Student presentation of programs
3	Lists, Dictionaries, Tuples,	6	- L1 - L2 -L3 -L4	L4	Apply Analyze	Presentation Hands on sessions	Question and answers assignment
3	Regular Expressions	2	- L2 - L3	L3	Understand Implement	Presentation Hands on sessions	Question and answers assignment
4	Classes and objects,	4	- L2 - L3 -L4	L4	Apply Analyze	Demonstrate programs Hands on sessions	Student presentation Quiz
4	Classes and functions, Classes and methods	4	- L2 - L3 -L4	L4	Apply Test	Demonstrate programs Hands on sessions	Student presentation Quiz
5	Networked programs Using Web Services	4	- L2 - L3 -L4	L4	Apply Examine	Demonstrate programs Hands on sessions	Student presentation of programs Quiz
5	Networked programs Using databases and SQL	4	- L2 - L3 -L4	L4	Apply Distinguish	Demonstrate programs	Student presentation of programs

						Hands on sessions	Quiz

2. Concepts and Outcomes:

Table 2: Concept to Outcome – 15Cs664

Modul e-#	Learning or Outcome from study of the Content or Syllabus	Identified Concepts from Content	Final Concept	Concept Justification (What all Learning Happened from the study of Content / Syllabus. A short word for learning or outcome)	CO Components (1.Action Verb, 2.Knowledge, 3.Condition / Methodology, 4.Benchmark)	Course Outcome Student Should be able to …
A	I	J	K	L	M	N
1	-conversion with python - words & sentences -statements,values,types	-python program structure -variables _operators -expressions	Python programming constructs	Implement simple programs using python constructs	Demonstrate syntax and semantics Python programming language.	Demonstrate Programs using the syntax and semantics of Python programming language.
1	-boolean expression -conditional execution -alternative execution -built in functions -type conversion functions	-statement execution -nested statement execution - user defined & pre defined functions	Flow control & functions	Demonstrate flow control programs	Implement flow control and functions. Python programming language.	Implement Python program using flow control and functions.
2	-string sequence - looping & counting in strings -string methods	-iteration -string operations -string functions	String handling	Execute different string handling methods	Demonstrate handling Strings Python programming language.	Demonstrate proficiency in handling Strings.
2	-opening files -reading files -writing files -searching through files	-file operations	File handling	Open,read & write,search data in a file	Demonstrate handling File Systems. Python programming language.	Demonstrate proficiency in handling File Systems.
3	-traversing list - deleting element from list -list & functions	-lists -tuples -dictionaries	core data structures	Analyze different methods related to list. Tuple, dictionaries	Analyze core data structures Lists, Dictionaries,Tuples	Analyze Python Programs using core data structures-Lists, Dictionaries,Tuples

	-list argument -dictionaries as a set of counters -looping & dictionaries -tuples are immutable -tuple assignment -using tuples					
3	-character matching in regular expression -extracting data -combing searching & extracting	-pattern matching -pattern extracting -pattern searching	regular expressions	Extract, search a pattern in a file	Implement search and extract variables Python programming language.	Implement Python Programs to search and extract variables using Regular Expressions.
4	-programmer defined types -attributes -member function -instances as return values -object are mutable -copying	-class -object -attributes -object copying -object aliasing	Class & object	Implement python programs using class & object concept	Analyze object oriented features	Analyze programs developed using object oriented features
4	-pure functions -modifier functions -__init__ method -__str__ method -operator overloading -polymorphism	-types of functions -built in method -	Methods in classes	Object oriented programming	Test functional programming Python programming language.	Test programs using the concepts of Object-Oriented Programming as functional programming
5	-HTTP -web browser -socket -retrieving web pages -XML -JSON	-Socket connection -network protocols	Socket API's	Network programming	Examine applications related to Network Programming, Web Services. Python programming language.	Examine Python applications related to Network Programming, Web Services.
5	-database -Sqlite -creating tables -SQL -data modeling	-database concepts -SQL commands	Database operations	SQL programming	Distinguish applications related to Databases Python programming language.	Distinguish exemplary applications related to Databases in Python.