B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main Examinations

Programme: **B.E.**   Semester: **VII**
Branch: **Institutional Elective**   Duration: **3 hrs.**
Course Code: **21CS7OEPYP**   Max Marks: **100**
Course: **Python Programming**

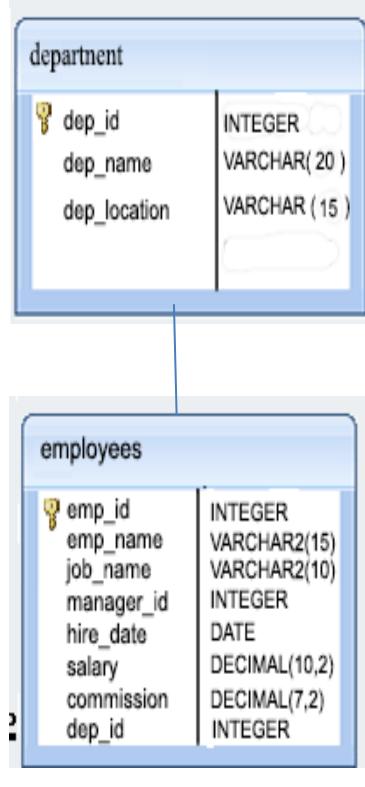**Instructions**: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

				CO	PO	Marks
			UNIT - I	*CO*	*PO*	**Marks**
1	a)		Explain syntax error, logic error and semantic error. List out the difference between compiler and interpreter.	*CO1*	*PO1*	**6**
	b)		Write a program to find the largest and smallest value in a list using loops.	*CO2*	*PO2*	**6**
	c)		Write a program to: • Create an outer function that will accept two parameters, a and b. • Create an inner function inside an outer function that will calculate the addition of a and b • Finally the outer function should add 5 into addition and return it	*CO1*	*PO1*	**8**
			UNIT - II			
2	a)		Explain various methods supported by List data structure.	*CO1*	*PO1*	**6**
	b)		Write a program to sort a list of words from longest to shortest.	*CO1*	*PO1*	**6**
	c)		Write a program to accept the string in the format given below and perform the following operations: str = 'X-DSPAM-Confidence:0.8475' i) Extract only floating point. ii) Count the number of uppercase characters in the given string.	*CO3*	*PO3*	**8**
			OR			
3	a)		Write a program to delete a list of keys from a dictionary.	*CO2*	*PO2*	**6**
	b)		Write a program to count even and odd numbers in a List.	*CO2*	*PO2*	**6**
	c)		Write a program to read through a mail log, build a histogram using a dictionary to count how many messages have come from each email address, and print the dictionary.	*CO3*	*PO3*	**8**

			UNIT - III			
	4	a)	Demonstrate with an example program the process of creating multiple instances of a class with suitable variables and initialization.	*CO1*	*PO1*	**6**
		b)	Write a program to create a class that represents a shape. Include method to calculate its area. Implement subclasses for different shapes like circle and rectangle and override area in respective classes.	*CO2*	*PO2*	**6**
		c)	Write a program to create a Bankaccount class with balance as an argument. Create deposit and withdraw functions performing suitable operations followed by print_balance function. Test the class by creating suitable driver code.	*CO3*	*PO3*	**8**
			OR			
	5	a)	Explain the working of try-except-finally block with an example program. Show the output for cases with and without finally block execution.	*CO2*	*PO2*	**6**
		b)	Write a python program to create a class called Employee with id, name, salary, department as attributes and methods called calculateSalary(to calculate gross salary). Create a subclass called HRManager that overrides calculateSalary(to calculate gross salary with overtime_hrs) . Use super to assign values. Test the classes by creating appropriate objects.	*CO2*	*PO2*	**6**
		c)	Design a simple Shopping Price calculator application to calculate the total shopping price of the items purchased. The application should not stop even if user has entered negative price to calculate the total shopping price of the item. Display the suitable error message to the user if he/she inputs negative price	*CO3*	*PO3*	**8**
			UNIT - IV			
	6	a)	Write a program to implement write, read and append file handling functions.	*CO2*	*PO2*	**6**
		b)	Write a program to check if a list of strings starts with "The". If a string begins with "The," it's marked as "Matched" otherwise, it's labeled as "Not matched".	*CO2*	*PO2*	**6**
		c)	Write a program to read through the following text file and figure out the distribution by hour of the day for each of the messages. You can pull the hour out from the 'From ' line by finding the time and then splitting the string a second time using a colon. Once you have accumulated the counts for each hour, print the count sorted by hour . From Stephen.marquard@uct.ac.za Sat Jan 5 09:14:16 2008 Return-Path: <postmaster@collab.sakaiproject.org> For <source@collab.sakaiproject.org>; Received: (from apache@localhost) Author: Stephen.marquard@uct.ac.za	*CO3*	*PO3*	**8**

7	a)	Demonstrate the types of relationship that exists among tables in a database with suitable diagrams.	CO1	PO1	**6**
	b)	Consider the following Employee and Department table Write SQL queries to do the following 1. Create and insert two values in the table assuming appropriate constraints 2. Find the salaries of all the employees 3. Find those employees with hire date in the format like February 22, 1991. 4. Calculate the average salary of employees who work as analysts 5. Find those employees who are either CLERK or MANAGER 6. Search for all the employees with an annual salary between 24000 and 50000	CO2	PO2	**6**
	c)	Write a program to perform the following operations on sqlite database: • Create a table Student with name, age, address as attributes • Insert suitable values • Update a specific column and • Display the details of the student after update.	CO3	PO3	**8**

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