CLASS XI (COMPUTER SCIENCE) SUMMER VACATION HOMEWORK

1. Solve the last year Centralized QP

2. Writing Work:

Answer the following questions:

- 1. What are the different data types in Python? Explain with examples.
- 2. What is the difference between is and == operators?
- 3. Write the type of operators available in python with examples.
- 4. Write short notes on:
 - Flow of control
 - Iteration vs Recursion
 - Tokens in Python (keywords, identifiers, literals, operators)
- 5. Draw the symbols of AND, OR, NOT, NAND, NOR, XOR gates.
- 6. State and prove all boolean laws available in Boolean algebra.
- 7. Do as directed:
 - a) $(1011.001)_2 = (?)_{10}$
 - b) $(FACE)_{16} = (?)_8$
 - c) $(75AE)_{16} = (?)_{10}$
 - d) $(87.125)_{10} = (?)_2$
 - e) $(47.29)_8 = (?)_{10}$
- 8. Write the ASCII code of your name (in capital letters)
- 9. Describe about the Cloud Computing with its available services (SaaS, PaaS etc)

3. Research & Report

Prepare a handwritten or digital report (1–2 pages) on:

Topic: "The Role of Open Source Software in Modern Computing"

Include:

- What is open source software?
- 3 examples of open source tools.
- Advantages and challenges.

SAINIK SCHOOL CENTRALISED ANNUAL EXAMINATION: 2024-25 CLASS XI COMPUTER SCIENCE (083)

Time allowed: 3 Hours

Maximum Marks: 70

General Instructions:

- This question paper contains 37 questions.
- All questions are compulsory. However, an internal choice have been provided in some questions. Attempt only one of the choices in such questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consist of 21 questions (1 to 21). Each question carries 01 Mark.
- Section B consist of 7 questions (22 to 28). Each question carries 02 Mark.
- Section C consist of 3 questions (29 to 31). Each question carries 03 Mark.
- Section D consist of 4 questions (32 to 35). Each question carries 04 Mark.
- Section E consist of 2 questions (36 to 37). Each question carries 05 Mark.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

	SECTION A (1 mark each)	
SL NO	Note: 013 consists of 4 questions with each 1 mark	MARKS
	Which logic gate is also known as an inverter?	
Q1		1M
	Which unit of the CPU performs arithmetic and logical operations?	
02	b) Memory Unit	114
QZ	c) Arithmetic Logic Unit (ALU)	I IVI
	d) Input Unit	
	Which Boolean law is represented by the equation A + A' = 1?	
Q3	a) Idempotent I aw b) Complement I aw c) Distributive I aw d) Identity	1M
	Law	
	What is the output of the following code?	
	print(10 % 3)	
04	a) 3	1M
	b) 1	1101
	c) 1.0	
	d) 3.0	
Q5	Which of the following is a mutable data type in Python?	
	a) Tuple	
	c) List	1M
	d) Integer	

Q6	What is the output of the following code? x = "Hello" print(x[1:4]) a) Hell b) ello c) ell d) lo	1M
Q7	Which of the following is an example of ethical hacking? a) Phishing b) Penetration Testing c) Malware Injection d) Data Theft	1M
Q8	 What is the full form of GDPR? a) General Data Protection Regulation b) Global Data Privacy Regulation c) General Digital Privacy Regulation d) General Data Protection Rights 	1M
Q9	 What is the primary purpose of a firewall in computer networks? a) Speed up the internet b) Protect against unauthorized access c) Encrypt data d) Provide DNS services 	1M
Q10	 Which type of malware encrypts files and demands payment for decryption? a) Virus b) Ransomware c) Trojan d) Worm 	1M
Q11	 Which of the following is a key principle of data privacy? a) Open sharing of data b) Unlimited retention of data c) Consent-based data collection d) Selling user data 	1M
Q12	Which of the following is a universal gate? a) AND b) OR c) NAND d) XOR	1M
Q13	Convert the following: (i) $(4A)_{16} = ()_2$ (ii) $(106)_{10} = ()_8$ (iii) $(34.25)_{10}=()_2$ (iv) $(10001010101.100101)_2=()_{10}$	1x4= 4M

Q14	Define the term "algorithm".	1M	
Q15	What is the role of indentation in Python?	1M	
Q16	What does the import statement do in Python?	1M	
Q17	Among the following statements which statement will cause an error? a) d = { 1 : 'SSK' , 2 : 'CBSE' , 3 : 'NLI' } b) d = { '1' : 'SSK' , '2' : 'CBSE' , '3' : 'NLI' } c) d = { [1] : 'SSK' , [2] : 'CBSE' , [3] : 'NLI' } d) d = {(1,) : 'SSK' , (2,) : 'CBSE' , (3,) : 'NLI' }	1M	
Q18	State whether the following statement is True or False "islower() function converts a given string into lower case"	1M	
<u>Section B (2 Marks each)</u> Note: Q20 consists of two questions with each 2 marks			
Q19	Write a Python program to check if a number is prime.	2M	
Q20	What will be the output of the following Python code?a $x = 5$ bfor i in range(1, 4):while $x > 0$: print(x, end="") $x -= 1$ if $x == 3$: breakbfor j in range(1, 4): print(i + j, end="")	2 x 2= 4M	
Q21	Convert the for loop into while loop: print("Convert loop:") for i in range(9,-2,-2): c=0 print("c=",c+i)	2M	
Q22	What are some key practices for safe browsing on the web?	2M	
Q23	Why is proper disposal of electronic waste (e-waste) important?	2M	
Q24	You are a developer who wants to share your software with others while allowing them to modify and redistribute it. Which licensing option would you choose? Justify.	2M	

Section C (3 Marks each)		
Q25.	 Write a Python program to reverse the words in a given sentence. i. Accept a sentence from the user. ii. Reverse the order of words in the sentence. iii. Display the sentence with words in reversed order. 	3M
Q26.	 Write a Python program to convert a given string to uppercase. i. Accept a string from the user. ii. Convert the string to uppercase. iii. Display the uppercase string 	3M
Q27.	 You are tasked with writing a Python program to simulate a simple dice roll. The program should: i. Use the random module to simulate the rolling of a six-sided die. ii. Display the result of the dice roll (a number between 1 and 6). iii. Allow the user to roll the die multiple times by asking if they want to continue. 	3М
Section D(4 Marks each)		
Q28.	 Write a Python program to track the scores of students in a class. The scores are stored in a list. i. Accept scores for 5 students. ii. Find the highest and lowest score. iii. Calculate the average score. iv. Display the scores in ascending order. 	4M
Q29	 You are tasked with managing the attendance of students in a class. The attendance data is stored in a list where each element represents the attendance status of a student (True for present, False for absent). Write a Python program to: Accept the attendance status for 10 students. Count and display the number of students who were present. Count and display the number of students who were absent. Count and display the percentage of students who were present. 	4M
Q30.	What is intellectual property rights (IPR)? Briefly explain the difference between copyright, patent.	4M

Q31	 You are tasked with developing a Python program to manage a student database for a school. Each student has the following details: Name Roll Number Marks in three subjects (Math, Science, English) Tasks (any 4) Create a dictionary for each student to store their details. Add these dictionaries to a list to represent the entire class. Calculate and display the total marks for each student. Find and display the name of the student with the highest total marks. Allow the user to search for a student by roll number and display their details. 	4M	
Section E (5 Mark)			
Q32	Consider the following dictionary stateCapital: stateCapital = {"AndhraPradesh":"Hyderabad","Bihar":"Patna", "Maharashtra":"Mumbai","Rajasthan":"Jaipu r"} Find the output of the following statements: i. print(stateCapital.get("Bihar")) ii. print(stateCapital.keys()) iii. print(stateCapital.keys()) iv. print(stateCapital.items()) v. print(len(stateCapital))	5M	
Q33	Consider the following string mySubject: mySubject = "Computer Science" What will be the output of the following string operations : i. print(mySubject[0:len(mySubject)]) ii. print(mySubject[-7:-1]) iii. print(mySubject[-7:-1]) iv. print(mySubject[len(mySubject)-1]) v. print(2*mySubject)	5M	