MARKING SCHEME OF
11th Class Model Question Paper 2026-27

Note: Apart from the marking instructions, a teacher can evaluate at his discretion.
नोट: अंकन निर्देशों के अलावा, एक शिक्षक अपने विवेकानुसार मूल्यांकन कर सकता है।

Marking Scheme-COMPUTER SCIENCE (CPU)
(SUBJECT CODE: 906)

Maximum Marks: 40 Time: 2:30 hours

General Instructions:

i. This question paper is divided into 4 Sections - A, B and C and D.
ii. **Section A** consists of 1 question (10 parts -Objective Type of 1 mark each).
iii. **Section B** consists of 4 questions (2-5). Each question carries 1 mark.
iv. **Section C** consists of 7 questions (6-12). Each question carries 2 marks.
v. **Section D** consists of 3 questions (13-15). Each question carries 4 marks.

		SECTION A **(Each part of the question carries 1 Mark)**	
1(i)		The volatile memory in a computer system is: a)RAM b)ROM c)Hard Disk d)SSD	**1**
	Ans	a)RAM	
		1 Mark for correct identification.	
1(ii)		What is the decimal representation of $(110011)_2$? a) 49 b) 50 c) 51 d) 52	**1**
	Ans	c) 51	
		1 Mark for correct identification.	
1(iii)		In the context of computers, which of the following is a number system used? a) Geometric b) Alphabetical c) Exponential d) Hexadecimal	**1**
	Ans	d) Hexadecimal	
		1 Mark for correct identification.	
1(iv)		Riya received a message from an unknown person on a social media platform asking for her home address and phone number. What should Riya do? a) Share the information immediately. b) Ignore the request and inform a parent, teacher, or guardian. c) Ask the person for more personal details before sharing. d) Post the request in a public group for advice.	**1**

	Ans	b) Ignore the request and inform a parent, teacher, or guardian.	
		1 Mark for correct identification.	
1(v)		Criminal activities or offences carried out in a digital environment can be considered as _____	**1**
	Ans	Cybercrime	
		1 Mark for writing the correct activity. Note: Do not deduct mark for any spelling mistake.	
1(vi)		The speed of a microprocessor is measured in _____.	**1**
	Ans	Giga Hertz or GHZ or GHz or ghz or Ghz	
		1 Mark for writing any correct unit above. Note: Do not deduct mark for any spelling mistakes.	
1(vii)		Machine Learning is a subsystem of Artificial Intelligence. (True/ False)	**1**
	Ans	True	
		1 Mark for correct identification.	
1(viii)		Hard Disk is a primary memory device. (True/ False)	**1**
	Ans	False	
		1 Mark for correct identification.	
		Direction: In the questions given below, there are two statements marked as **Assertion (A)** and **Reason (R)**. **Choose the correct option** out of the choices given below in each question:	
1(ix)		**Assertion:** Flowcharts help in understanding the logic of an algorithm. **Reason:** Flowcharts are only used in math's problems. I. Both (A) and (R) are correct and (R) is correct explanation of (A). II. Both (A) and (R) are correct and (R) is not the correct explanation of (A). III. (A) is **true** but (R) is **false**. IV. (A) is **false** but (R) is **true**.	**1**
	Ans	III. (A) is **true** but (R) is **false**.	
		1 Mark for correct identification.	
1(x)		**Assertion (A):** Arithmetic operators in Python are used for mathematical calculations. **Reason:** These operators, including addition (+), subtraction (-), multiplication (*), division (/), and modulus (%), perform basic arithmetic operations on numbers. I. Both (A) and (R) are correct and (R) is correct explanation of (A). II. Both (A) and (R) are correct and (R) is not the correct explanation of (A). III. (A) is **true** but (R) is **false**. IV. (A) is **false** but (R) is **true**	**1**
	Ans	I. Both (A) and (R) are correct and (R) is correct explanation of (A).	
		1 Mark for correct identification.	

		SECTION B **(Each question carries 1 mark)**	
2.		What is a Flowchart?	**1**
	Ans	A flowchart is a visual representation of an algorithm.	
		1 Mark for any correct definition of Flowchart.	
		OR	
		What is an algorithm?	
		The step by step procedure to solve a specific problem is called algorithm.	
		1 Mark for any correct definition of Alogorithm.	
3.		What is the full form of IoT?	**1**
	Ans	Internet of Things	
		1 Mark for correct Full Form. Deduct ½ marks for any spelling mistake.	
4.		Define Input Device?	**1**
	Ans	An input device is a hardware device used to enter data and instructions into a computer. **Examples:** Keyboard, Mouse, Scanner.	
		1 Mark for any correct definition of Input Device.	
5.		What is **string** data type in python?	**1**
	Ans	A string in Python is a sequence of characters enclosed in single (' '), double (" "), or triple (''' ''' or """ """) quotes, used to represent textual data.	
		1 Mark for any correct definition of String data type.	
		SECTION C **(Each question carries 2 marks)**	
6.		Explain the purpose of a "for loop" in python programming and provide the basic syntax for its implementation.	**2**
	Ans	A for loop is used to repeat a block of code a fixed number of times or to iterate through a sequence. **Syntax:** **for** variable in sequence: statements **Example:** for i in range(5): print(i)	

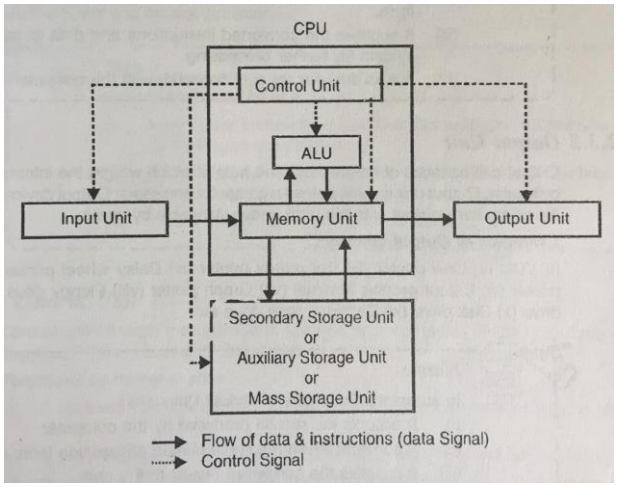
		1 Mark for any correct explanation of the purpose of a "for" statement in python programming. 1 Mark for correct syntax. Deduct ½ mark for any syntax error. Give full 1 mark for an example, even if no syntax is provided, as long as it uses the 'for' loop in Python programming.	
7.		How will Python evaluate the following expression? **2 * 5 + 13 - 2 - 9 // 9**	**2**
	Ans	Python evaluates expressions following the order of operations, also known as PEMDAS: 1. **Parentheses**: Solve expressions within parentheses first. 2. **Exponents**: Evaluate exponents. 3. **Multiplication and Division**: Perform multiplication and division from left to right. 4. **Addition and Subtraction**: Finally, perform addition and subtraction from left to right. So for given expression: **2 * 5 + 13 - 2 - 9 // 9** 1. Step 1: 2 * 5 = 10 2. Step 2: 9 // 9 = 1 3. Step 3: 10 + 13 - 2 - 1 4. Step 4: 20 So, the result of the expression is **20**	
		1½ marks for any correct calculations. ½ marks for correct answer.	
		OR	
		Write a python program to find average of two numbers.	
	Ans	**#Python Program to find the average of two numbers** num1 = float(input("Enter first number: ")) num2 = float(input("Enter second number: ")) avg = (num1 + num2) / 2 print("Average =", avg)	
		½ marks for declaring the two variables. 1 marks for writing the formulae. ½ marks for using print function. Deduct ½ marks for each syntax error.	

8.		Do the following conversions: (i) $(505)_8 = (?)_{16}$ (ii) $(115)_{16} = (?)_2$	**2**
	Ans	i) **$(505)_8 = (?)_{16}$** $(505)_8 = 325_{10}$ $325_{10} = \mathbf{145_{16}}$ **Answer: $(145)_{16}$** --- ii) **$(115)_{16} = (?)_2$** 1 = 0001 1 = 0001 5 = 0101 **Answer: $(000100010101)_2$**	
		1 mark for the correct answer in hexadecimal number system. 1 mark for the correct answer in binary number system. Do not deduct any marks if the process is not written. Give ½ mark for each correct process even if the final answer is wrong.	
9.		Explain any two differences between primary and secondary memory.	**2**
	Ans	**1. Speed:** • **Primary memory** is very fast. • **Secondary memory** is slower than primary memory. **2. Storage:** • **Primary memory** stores data temporarily and has less storage space (like RAM). • **Secondary memory** stores data permanently and has more storage space (like hard disk or pen drive).	
		1 Mark each for any correct difference (1/2 marks each side). Deduct 1/2 marks if examples are not given. Do not deduct marks for any spelling mistake.	
10.		Roshan is passionate about technology and is designing an app to help people schedule Bus booking easily. He is currently finalizing the flow of the app and the logic for online ticket booking. He plans to use a structured approach to solve the problem.	**2**
i.		**Once Roshan completes his algorithm and logic design, what should be his next step?**	

		a) Deploy the app immediately. b) Begin coding based on the finalized logic. c) Change the app's name before moving ahead. d) Take a break and start a new project.	
	Ans	b) Begin coding based on the finalized logic.	
		1 mark for correct identification.	
ii.		**After the coding phase is completed, what should Roshan focus on next?** a) Ignore testing and prepare the launch event. b) Conduct thorough testing on different devices and scenarios. c) Add more features before any testing. d) Submit the app to app stores without testing.	
	Ans	b) Conduct thorough testing on different devices and scenarios.	
		1 mark for correct identification.	
11.		Define the following terms: a) Phishing b) Cyberbullying	**2**
	Ans	**a) Phishing:** Phishing is a cybercrime where attackers send fake emails or messages to trick people into giving their personal or financial information like passwords, ATM PIN, or credit card numbers. **b) Cyberbullying:** Cyberbullying is the act of bullying or harassing someone using digital platforms like social media, messages, or emails repeatedly to hurt or threaten them.	
		1 Mark for any correct definition of Phishing. 1 Mark for any correct definition of Cyberbullying.	
		OR	
		Explain Social Media and its Etiquettes.	
		Social Media: Social media is a way to connect with people through apps like WhatsApp, Facebook, and Instagram. We can share messages, photos, and videos with friends and family. **Social Media Etiquettes:** These are good habits we should follow while using social media. Some common etiquettes are: • Be respectful and polite. • Don't share fake news. • Think before you post anything. • Don't use bad language. • Ask before sharing someone's photo or video.	
		1 Mark for any correct explanation/definition of social media. 1 Mark for explaining Social Media Etiquettes with example/without example.	
12.		Shiva uses his smartphone and computer for long hours every day. Recently, he has been experiencing eye strain and headaches. He is worried about how technology use is affecting his health.	

i.		**What health problem is Shiva most likely experiencing due to long screen time?** a) Toothache b) Eye strain c) Stomach ache d) Hearing loss	
	Ans	b) Eye strain	
		1 mark for correct identification.	
ii.		**Which of the following is a good way to reduce the negative health effects of technology use?** a) Taking regular breaks from screen b) Using the device continuously without breaks c) Ignoring health symptoms d) Using only in dark rooms	
	Ans	a) Taking regular breaks from screen	
		1 mark for correct identification.	
		SECTION D **(Each question carries 4 Mark)**	
13.		Give the **output** of the following when **num1 = 1, num2 = 2, num3 = 3** i) num1 += num2 + num3 print (num1) ii) num1 = num1 ** (num2 + num3) print (num1) iii) num1 **= num2 + num3 print(num1) iv) num1 = '5' + '5' print(num1)	**4**
	Ans	Given: num1 = 1 num2 = 2 num3 = 3 **i)** num1 += num2 + num3 print(num1) **Output: 6** **ii)** num1 = num1 ** (num2 + num3) print(num1)	

		Output: 1 **iii)** num1 **= num2 + num3 print(num1) **Output: 1** **iv)** num1 = '5' + '5' print(num1) **Output: 55**	
		1 mark each for each correct output of the given codes. 1/2 marks each if process is explained but output is wrong.	
		OR	
		What is an arithmetic operator? Explain any 3 arithmetic operators with examples in Python Programming language.	
	Ans	Arithmetic operators are special symbols used in Python to perform mathematical calculations on numerical values. They help in carrying out basic arithmetic operations such as addition, subtraction, multiplication, division, finding remainders, and calculating powers. Arithmetic operators are commonly used in Python programs to solve mathematical and logical problems. The main arithmetic operators in Python are: Addition (+), Subtraction (-), Multiplication (*), Division (/), Floor Division (//), Modulus (%), and Exponentiation (**). **Addition Operator (+):** The addition operator is used to add two or more numbers. For example, if `a = 10` and `b = 5`, then `a + b` gives the result `15`. **Subtraction Operator (-):** The subtraction operator is used to subtract one number from another. For example, if `a = 10` and `b = 5`, then `a - b` gives the result `5`. **Multiplication Operator (*):** The multiplication operator is used to multiply two numbers. For example, if `a = 10` and `b = 5`, then `a * b` gives the result `50`. **Division Operator (/):** The division operator is used to divide one number by another and returns the result as a floating-point number. For example, `10 / 5` gives `2.0`.	

		Floor Division Operator (//): The floor division operator returns only the integer part of the division result. For example, `10 // 3` gives `3`. **Modulus Operator (%):** The modulus operator returns the remainder after division. For example, `10 % 3` gives `1`. **Exponentiation Operator (**):** The exponentiation operator is used to raise a number to the power of another number. For example, `2 ** 3` gives `8`.	
		1 mark for any correct definition of arithmetic operator. 1 mark each for explaining any three arithmetic operators with examples. Deduct 1/2 marks each for not giving example (with or without programming) of the respective operator.	
14.		Draw the block diagram of a computer system. Briefly write about the functionality of each component.	**4**
	Ans	 **The block diagram of a computer system** A computer system includes a central processing unit (CPU), memory, input/output devices and storage devices. All these components function together to give output. **Functionality of each component** **Central Processing Unit (CPU)** It is the electronic circuitry of a computer that carries out the actual processing and usually referred as the **brain of the computer**. It is commonly called processor also. **Arithmetic Logic Unit (ALU)** ALU performs all the arithmetic and logic operations that need to be done as per the instruction in a program. **Control Unit (CU)** It controls sequential instruction execution, interprets instructions and guides data flow through the computer's memory, ALU and input or output devices. **Input Unit** The unit through which input is given to a computer is termed as input unit. The devices in this unit convert the input data into a digital form that is	

		acceptable by the computer system. For ex. keyboard, mouse, scanner, touch screen, etc. **Memory Unit:** **Main Memory:** Data entered through input device is temporarily stored in the main memory (also called RAM) of the computer system. **Secondary memory:** For permanent storage and future use, the data as well as instructions are stored permanently in additional storage locations called secondary memory. **Output Unit** The unit that displays or physically produce the output from a computer is called output unit. It converts digital information into human understandable form. For example, monitor, projector, headphone, speaker, printer, etc.	
		2 mark for any correct labelled diagram of a computer system. 2 mark for correct explanation of all components. Deduct 1/2 marks for each mistake in diagram.	
		OR	
		Explain the need for an operating system. Also, list and explain any three important functions of an operating system.	
	Ans	**Need for Operating System:** An Operating System (OS) is needed because it allows users to **interact with the computer hardware** easily. It manages hardware and software resources, so users can run programs, save files, and use devices like the keyboard, mouse, and printer without any difficulty. **Important Functions of an Operating System (Any 3 can be explained):** 1. **Memory Management:** The OS keeps track of all memory used and free. It gives memory to different programs when needed and frees it after use. 2. **Process Management:** It manages all running programs (processes). It decides which process runs first and how long it should run. 3. **File Management:** It helps in creating, saving, reading, writing, and deleting files. It also keeps files organized in folders. 4. **Device Management:** The OS controls all input/output devices like keyboard, mouse, printer, etc. It uses drivers to communicate with these devices. 5. **Security and Protection:** The OS protects data and resources from unauthorized access. It uses passwords and permissions to keep data safe. 6. **User Interface:** The OS provides a user-friendly interface, like Windows or Linux screens, so users can easily interact with the computer.	
		1 mark for explaining need of an Operating System.	

		1 mark each for any correct function of the operating system. (Max 3 marks)	
15.		Write a short note on each of the following: (4 marks) i) Robotics ii) Big data	**4**
	Ans	**i) Robotics:** Robotics is a branch of technology that deals with the design, development, and operation of robots. Robots are programmable machines that can perform tasks automatically or with minimal human intervention. Robotics combines concepts from computer science, artificial intelligence, and engineering to create machines that can work efficiently in different environments. Robots are widely used in industries, healthcare, manufacturing, and space exploration. **ii) Big Data:** Big Data refers to extremely large and complex sets of data that cannot be processed using traditional data-processing methods. It includes data generated from social media, online transactions, sensors, and various digital devices. Big Data helps organizations analyze patterns, trends, and customer behavior to make better decisions. It is commonly used in business analytics, healthcare, scientific research, and financial services.	
		2 marks for any correct explanation of Robotics 2 mark for any correct explanation of Big Data	
		OR	
		Explain the following along with their applications. i) Cloud Computing ii) Block Chain Technology	
	Ans	**i) Cloud Computing and its Applications** Cloud Computing is a technology that allows users to access computing resources such as storage, software, and servers over the Internet instead of using local devices. It enables users to store data and run applications from anywhere with an internet connection. Cloud computing is cost-effective, scalable, and easy to access. Its applications include online storage services like Google Drive, web-based email services, online collaboration tools, and cloud-based software applications. **ii) Blockchain Technology and its Applications** Blockchain Technology is a decentralized and secure digital ledger that records transactions in the form of blocks linked together in a chain. Each transaction is verified and stored permanently, making the system transparent and difficult to tamper with. Blockchain improves security, trust, and data integrity. Its applications include cryptocurrencies such as Bitcoin, digital payments, supply chain management, healthcare record management, and secure voting systems.	
		2 marks for any correct explanation of Cloud Computing. 2 mark for any correct explanation of Block Chain Technology.	