(Part-I)

2. Write short answers to any FOUR (4) questions: **(8)**

(i) Write two strategies for planning a solution.

Ans Following are the two strategies for planning a solution:
1. Divide and Conquer
2. Guess, check and improve

(ii) Write the importance of flowchart in problem solving.

Ans Flowcharts can be used to plan a solution. It is more effective to visualize a solution graphically than a text. A graphical representation also makes it effective to verify whether a solution is correct or not. It is also a good way to communicate the solution of a problem to other people.

(iii) What is the problem analysis?

Ans Problem analysis is the process to figure out 5Ws (what, who, when, where and why). Problem analysis helps to understand a given problem.

Example: "Suppose your classteacher assigns you a task to prepare a list of students in your school whose names start with letter 'A'. The list is required in order to prepare an alphabetical directory of all school students and there is only one week to complete the task."

We can analyse this problem by identifying 5Ws in the problem statement as given below:
1. **What:** List of students' names starting with letter 'A'.
2. **Who:** Students.
3. **Why:** To prepare the directory of students.
4. **When:** Within a week.
5. **Where:** School.

(iv) Write the basis of two metrics for efficiency of algorithm.

Ans The basis of two metrics for efficiency of algorithm:
1. Number of steps
2. Space used in computer memory

(v) **What are the singular tags?**

Ans Some tags do not have closing tags and they are called singular tags or empty tags. They are simply written as `<tagname>`. For example, `<br>` for line break, `<hr>` to insert a horizontal line.

(vi) **Write the tag for line breaking.**

Ans The `<br>` element inserts a line break without starting a new Paragraph.

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3. **Write short answers to any FOUR (4) questions:** **(8)**

(i) **What is meant by number system?**

Ans A number system is the system for representation of numeric data.

(ii) **What is meant by volatile memory?**

Ans A device which holds data as long as it has power supply connected to it, is called Volatile Memory. Its best example is Random Access Memory (RAM), which holds memory only as long as it is connected to power source. As soon as the power supply is disconnected, all the data in RAM is cleared.

(iii) **$(11000001)_2$ convert into hexadecimal.**

Ans The four-digit binary groups in this binary number are given below where each group has four binary digits.

1100 0001

1. For 1100, the hexadecimal is C.
2. For 0001, the hexadecimal is 1.

So, $(11000001)_2 = (C1)_{16}$

(iv) **Define the byte.**

Ans A byte contains 8 bits of data.

(v) **What is meant by hard-disk loading?**

Ans Installing and selling unauthorized copies of software on refurbished or new computer is called hard-disk loading.

(vi)   What is counterfeiting?

Ans> Duplicating and selling software having copyright is called counterfeiting.

4.   Write short answers to any FOUR (4) questions: (8)

(i)   Define computer network.

Ans> A computer network is a group of computer systems and other computing hardware devices linked together through communication channels. A network facilitates communication and resource-sharing among the connected devices.

(ii)   Define the protocol.

Ans> A network protocol is a formal arrangement between two computers to send and receive information. Very specifically, a network protocol defines a set of rules and procedures for communication between a sender and a receiver.

(iii)   What is hyperlink?

Ans> Hyperlink is such an icon, graphic, or text in a webpage, that when clicked, takes you to some other webpage.

(iv)   Write a note on file transfer protocol (FTP).

Ans> File Transfer Protocol is the standard TCP/IP protocol, which is used for the purpose of transferring files from one computer to another.

(v)   What is meant by body section in HTML?

Ans> Body section contains the actual contents of a webpage that are visible inside a webpage. This section starts with <body> tag and ends with </body>.

(vi)   How to write headings and sub-headings in an HTML document?

Ans> Headings are defined with the <h1> to <h6> tags. <h1> defines the most important heading. <h6> defines the least important heading. For example, <h1> Heading 1</h1> <h2>

Heading 2 </h2> <h3> Heading 3 </h3> <h4> Heading 4 </h4>
<h5> Heading 5 </h5> <h6> Heading 6 </h6> produces the output.

(Part-II)

NOTE: Attempt any TWO (2) questions.

Q.5. Explain any four symbols of flowchart in detail. **(8)**

Ans For Answer see Model Paper 3, Q.5.

Q.6. Explain routing process in detail. **(8)**

Ans For Answer see Model Paper 6, Q.6.

Q.7. What is meant by encryption? Also explain the importance of encryption for everyday life on the internet. **(8)**

Ans For Answer see Model Paper 2, Q.6.