Air University
(Final Examination: Fall 2025)

Subject:	**Appkication of ICT Theory**	Total Marks:	**100**
Course Code:	**CS-181**	Date:	
Class:	**BSCYS-F-25**	Time:	
Semester:	**I**	Duration:	**3 Hours**
Section:	**B**	FM Name:	**Naima Mubariz Khan**
HoD Signatures:		FM Signatures:	

Note:

- **All questions must be attempted.**
- **This examination carries 45% weight towards the final grade.**
- **ONLY ANSWER WHAT IS ASKED! WRITING EXTRA DON'T MEAN EXTRA MARKS.**

From A to F, attempt any four. G is compulsary

	Q. No. 1 (CLO 1)	**27 Marks**
A.	A small clinic uses computers to store patient records instead of paper files. Explain two advantages and one possible risk of using ICT in this situation.	5
B.	An electricity company uses sensors and computers to automatically record meter readings. Explain how ICT improves accuracy and efficiency in this process.	5
C.	A university sends exam schedules and notices through a student portal instead of notice boards. Explain how this use of ICT improves communication.	5
D.	A farmer uses a mobile application to check weather forecasts before planting crops. Explain how ICT supports better planning and risk reduction.	5
E.	A company allows employees to work from home using video conferencing and shared documents. Explain how ICT supports remote collaboration.	5
F.	Explain how positional value works in number systems. Use binary and hexadecimal examples to justify your explanation.	5
G.	a) Define a database. b) What is the primary key? c) Give one example of a social media application where a NoSQL database is preferred over an SQL database, and state one reason why NoSQL is suitable for this application.	2+2+3=7
Q. No. 2 (CLO 2) **Only the exact output will be awarded marks. No partial credit.**		**30 Marks**

A.	A computer system stores data in binary but displays numbers in decimal form for users. a) Convert the decimal number **45** into **binary** and **hexadecimal**. b) Explain why hexadecimal representation is preferred over binary when displaying memory addresses.	6+4=10
B.	Two different binary numbers produce the same decimal value when converted. a) Is this situation possible? Justify your answer. b) Explain how number systems ensure **uniqueness of representation**.	5+5=10
C.	Consider the binary number **101101.11_2**. a) Convert it into **decimal**. b) Convert the decimal result into **octal**. c) Explain the type of error that may occur due to such misinterpretation in a software system.(let's say $3A_{16}$ is misinterpreted)	4+4+2=10
Q. No. 3 (CLO 3)		**43 Marks**
A.	A Virtual Reality (VR) system consists of specific hardware and software components that work together to create an immersive experience. a) List **any five hardware components** required for a VR system. b) State **one specific function** of each component listed in part (a). c) Identify **two application areas** where VR is commonly used and state **one use** of VR in each area.	5+5+8=18
B.	You are given the following working code. Read it carefully and answer the questions that follow. `<!DOCTYPE html>` `<html>` `<head>` `<title>Simple Task Counter</title>` `<style>` `body{font-family:Arial; background:#f3f4f6;} /* light gray */` `.box{background:#ffffff; padding:10px; margin:10px; border:1px solid #ccc;}` `/* white */` `button{background:#2563eb; color:white; border:none; padding:6px 10px;}` `/* blue */` `</style>` `</head>` `<body>` `<div class="box">` `<b>Task Page</b> ` `Total: <span id="total">0</span>` `</div>`	

```
<div class="box">
  <input id="task" placeholder="Enter task">
  <button onclick="addTask()">Add</button>
</div>

<div class="box">
  <ul id="list"></ul>
</div>

<script>
  let tasks = ["Study HTML", "Study JS"];

  function addTask(){
    let t = document.getElementById("task").value;

    if(t.length < 3) return;   // ignore very short input

    tasks.push(t);
    document.getElementById("task").value = "";
    show();
  }

  function show(){
    document.getElementById("list").innerHTML = "";
    for(let i=0;i<tasks.length;i++){
      document.getElementById("list").innerHTML += "<li>" + tasks[i] + "</li>";
    }
    document.getElementById("total").innerText = tasks.length;
  }

  show();
 </script>
</body>
</html>
```

A.	i. What is the purpose of the tasks array? ii. What does the show() function do? Write **two** actions performed inside it. iii. Why do we use document.getElementById("list").innerHTML = "" before the loop?	2+4+4=10
B.	When the page loads, what will be displayed in: a) the task list (write the two items) b) the Total counter value	5

C.	Add a **Clear** button that removes all tasks from the list and updates the Total. *(Write only the new button line in HTML and the JavaScript function.)* Modify the program so that when the user types a task, it is stored **in uppercase letters** before being added. *(Example: "study" becomes "STUDY" in the list.)* Hint: you can use c++ concepts here	5+5=10

----------End of Paper----------