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Daffodil International University

Department of Software Engineering
Faculty of Science & Information Technology
Final Examination, Fall 2025
Course Code: SE 111; Course Title: Computer Fundamentals
Sections & Teachers: SI (A,B,C), MSA (D,E,M), MKH (F,N,O), AF (G), PC (H,I), AZ (J,P), RHH (K,L), MSP (Q)

Time: 2:00 Hrs **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	Department of Software Engineering is hosting an inter department programming contest. Department wants to build an automated judging system that evaluates each participant's overall performance. For every correct solution, the system adds 100 points, while each wrong submission it deducts 10 points. The system also applies a time penalty of 5 points for exceeding the allowed time. Participants who solve 5 or more problems will receive a bonus of 50 points. **Performance Category:** • If problems solved is greater than or equal to 5 also total time is less than 120 minutes then category is: **Excellent** • If problems solved is between 3 and 4 then category is: **Good** • If problems solved is less than 3 then category is: **Needs Improvement** So, **construct** an algorithm to help our department to calculate points and the performance category and then **draw** a flowchart based on your algorithm.	[Marks-15]	
	b)	**Solve** errors in the following C code, update it after correcting the errors and then write down the corrected version. Also, **trace** the exact expected output. 1. #include <math.h> 2. int main() 3. int X = 5 Y = 10 Z = 3; 4. x = x + 2; 5. y = y - 2; 6. x = x * 2; 7. y = y / 2; 8. z = z + x - y; 9. print("Updated values: x = %d, y = %d, z = %d, x, y, z"); 10. return 0	[Marks-5]	CLO-3 *Level-3*

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c) Mourinho sir is designing a lab for the students of CF Lab course. In this lab, the PCs are connected in a continuous loop so each PC communicates directly with two neighboring PCs. Students send data from one PC to another and observe how it travels through intermediate PCs, learning how information circulates efficiently across the network. In this lab they gained hands-on experience with network reliability and data flow in a controlled environment.

Determine the network topology used by Mourinho sir and its advantages-disadvantages with a proper diagram. **[Marks-5]**

d) **Employee_Info (Primary_Table):**

Emp_ID	Emp_Name	Emp_Address	Emp_phone
EMP01	Mbappe	Mirpur	017310
EMP02	Neymar	Savar	018212
EMP03	Haaland	Dhanmondi	017234
EMP04	Vini jr.	Savar	019299

Course_Info:

Emp_ID	Course	Batch
EMP01	CF	46
EMP02	CF	45
EMP03	English	46
EMP04	SRS	45

Determine the Relational Database and **discover** different type of keys from the given database table with their characteristics. **[Marks-5]**

2. a) After "**GOAT. Lionel Messi" won the World Cup** a popular sports website created a special page where fans could post congratulatory messages. While checking the page, Messi noticed that one fan's message caused unexpected pop-up behavior on the site even though he didn't click anything unusual indicating that some user-submitted content was not being handled safely. At the same time, Cristiano Ronaldo received a link on social media claiming to take him to a **"Vote for Ronaldo's Comeback"** event. By clicking the link caused an unintended change in his account settings without his permission. Both incidents showed the website administrators that they needed stronger protection to ensure that fan messages could not trigger unwanted actions. **[Marks-10]** **CLO-4** *Level-4*

Detect the type of vulnerabilities mentioned in the above scenario briefly and **explain** the steps (at least 5) that website administrators should follow to prevent such vulnerabilities.