

Final Exam
PITI.II: IT FOUNDATION
Spring 2026

Points of attention:

- For each question, the maximum earned points are specified in the question.
- Write clearly! Answers that are not readable are not marked and don't earn marks!
- All answers should be written in English using **blue or black pens** only.
- Use the pencil only for diagrams and graphs.
- Show all the calculation steps in the given space.
- When finished, submit the question paper, together with the answer scripts and the signed cover page to the invigilator.
- Any cheating/copying may result in an instant failing of the examination.

Exam Duration: 2 hours
Instructor's Name: Ahlam Mohammed Al Balushi
Exam Date: 05/05/2026
Program: LTM

	40
	10

Student Information

Name: ID:
Signature:

Invigilator

Initials: ☐ Student ID checked
Time received:

Question 1**[17 marks]**

1. Open MS Excel and complete the FMEA table below for a road freight operation.

Process Step	Failure Mode	Effect	Cause	S(1-10)	O (1-10)	D (1-10)	RPN
Loading at the warehouse							
Transportation							
Delivery							
Route Planning							

2. Based on the above table, answer the following:

- Identify one failure mode for each step. (4 marks)
- Determine one effect for each step. (4 marks)
- Determine one cause for each step. (4 marks)
- Assign Severity (S), Occurrence (O), and Detection (D) for each step. (3 marks)
- Calculate RPN. (1 mark)
- Identify the highest risk. (1 mark)

Question 2**[13 marks]**

A dairy company works with a third-party warehouse to manage storage and distribution. Before the products reached the markets, workers noticed during unloading that some milk cartons had a strange smell and an unusual texture. After checking, they confirmed the milk had spoiled. Use the Draw.io program to create a Bow-Tie diagram illustrating the following:

- a. The Hazard (1 mark)
- b. Three threats that can cause the event. (3 marks)
- c. Three consequences of the event. (3 marks)
- d. Three prevention and mitigation barriers. (6 marks)

Question 3**[10 marks]**

A logistics company manages a shipment process involving planning, preparation, and delivery coordination with the activities shown in the table below.

Activity	Description	Duration (Days)	Predecessor
A	Order Processing	2	—
B	Inventory Check	3	A
C	Route Planning	4	A
D	Vehicle Assignment	2	B
E	Cargo Loading	3	C, D
F	Delivery	5	E
G	Documentation Approval	2	D, E

1. Draw the network diagram for the above table. (1 mark)
2. List all network paths and identify the critical one. (1.5 marks)
3. Calculate ES, EF, LS, and LF. (3.5 marks)
4. Determine the free float for all activities. (2 marks)
5. Determine the total float for all activities. (2 marks)

MLO and Bloom's Level of Complexity

Q #	MLO Addressed	Complexity Level	Mark	Remark
1	3 & 4	Create	17	
2	5	Create	13	
3	1&2	Apply	10	