📘 Part 1: Theoretical Understanding (30%)

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1. Short Answer Questions

Q1: Define *algorithmic bias* and provide two examples of how it manifests in AI systems.

Answer:
Algorithmic bias refers to systematic and unfair discrimination in AI systems, often caused by biased training data or flawed model design.
Examples:

- A facial recognition system that misidentifies people of certain races more frequently than others.
- A hiring algorithm that favors male applicants over equally qualified female candidates because it was trained on past biased hiring data.

Q2: Explain the difference between *transparency* and *explainability* in AI. Why are both important?

Answer:
Transparency means being open about how an AI system works—what data it uses, how it's trained, and how decisions are made.
Explainability is the ability to clearly understand and describe why an AI system made a specific decision.

Both are important to build trust, allow for accountability, and help users understand and challenge unfair or harmful outcomes.

Q3: How does GDPR (General Data Protection Regulation) impact AI development in the EU?

Answer:
GDPR requires AI systems to protect personal data, ensure data is collected fairly, and give users control over their information. It also gives individuals the right to explanation for automated decisions, which means AI developers must design systems that can justify their outputs.

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2. Ethical Principles Matching

Match the principle to the correct definition:

Principle	Definition
A) Justice	Fair distribution of AI benefits and risks.
B) Non-maleficence	Ensuring AI does not harm individuals or society.
C) Autonomy	Respecting users' right to control their data and decisions.
D) Sustainability	Designing AI to be environmentally friendly.