Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

Question Paper Code : 40446

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2024.

Fifth/Sixth Semester

Computer Science and Engineering

CCS 345 — ETHICS AND AI

(Common to: Computer Science and Engineering (Artificial Intelligence and Machine Learning)/Electronics and Communication Engineering/Mechanical Engineering/Artificial Intelligence and Data Science/Computer Science and Business Systems/Information Technology)

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What environmental challenges does AI pose?

2. How does AI influence trust?

3. What are international ethical initiatives in AI?

4. Name a concern related to AI ethics.

5. State the Ontological Standard for Ethically Driven Robotics and Automation Systems.

6. State Data Privacy Process.

7. What does Harmonization of Principles mean?

8. Define Roboethics.

9. What are Societal Issues Concerning AI in Medicine?

10. Name an Opportunity in AI.

PART B — (5 × 13 = 65 marks)

11. (a) Analyze the influence of AI on human psychology. Evaluate the psychological effects of interacting with AI technologies, such as social media algorithms or virtual assistants, on human behavior and mental health. (5+8)

Or

(b) Discuss AI's societal impact role in shaping social structures, economic systems and community interactions. Analyze the balance between benefits and challenges AI brings to society. (7+6)

12. (a) Analyze the ethical dilemmas related to AI in warfare and weaponization. Apply your understanding to discuss concerns about autonomous weapons, accountability and the role of AI in modern warfare. (7+6)

Or

(b) Discuss safety concerns, decision-making algorithms and societal impacts. Analyze the balance between autonomy and ethical responsibility. (7+6)

13. (a) Analyze the concept of Algorithmic Bias Considerations. Discuss its implications on fairness, diversity and inclusivity in AI and technology. (7+6)

Or

(b) Examine the Data Privacy Process in the context of AI and technology. Discuss its importance, challenges and methods to ensure data privacy in system design and implementation. (6+7)

14. (a) Identify and analyze ethical issues in an ICT society. Discuss the impact of ICT on individuals, communities and society at large. (6+7)

Or

(b) Analyze the significance of Ethics in Science and Technology. Discuss the ethical considerations and challenges faced by scientists, engineers and technologists in their work. (6+7)

15. (a) Examine national and international strategies on AI. Discuss policies, initiatives and collaborations aimed at promoting AI research, development and adoption globally. (7+6)

Or

(b) Analyze the role of AI in decision-making processes across industries. Discuss how AI influences strategic decisions, operations and business outcomes. (7+6)

2 40446

PART C — (1 × 15 = 15 marks)

16. (a) Design a futuristic healthcare robot that adheres to ethical guidelines. Describe its features, functions and how it addresses the potential ethical concerns. Discuss the benefits it brings to healthcare while ensuring patient safety and privacy.

Or

(b) Imagine you are designing a new robotic technology. Develop a creative plan incorporating Roboethics principles to ensure ethical development and deployment. Discuss potential ethical challenges and how will it be addressed.

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