Unit 4: Introduction to Generative AI

Part A: Multiple Choice Questions (MCQs)

1. **What is Generative AI?**
   a) AI that only classifies data
   b) AI that generates new content such as text, images, or music
   c) AI that only stores and retrieves data
   d) AI used only in robotics
   Answer: b) AI that generates new content such as text, images, or music

2. Which of the following is an example of **Generative AI**?
   a) ChatGPT creating essays
   b) Google Maps showing directions
   c) Excel creating bar charts
   d) Antivirus scanning files
   Answer: a) ChatGPT creating essays

3. **Conventional AI** mainly focuses on:
   a) Creating new content
   b) Learning from patterns and generating original data
   c) Following pre-defined rules and performing specific tasks
   d) Designing images and music automatically
   Answer: c) Following pre-defined rules and performing specific tasks

4. Which of the following is **NOT** a type of Generative AI?
   a) Text Generation
   b) Image Generation
   c) Music Generation
   d) Route Navigation
   Answer: d) Route Navigation

5. **Generative Adversarial Networks (GANs)** are commonly used in:
   a) Image Generation
   b) Sorting data
   c) Storing passwords
   d) Solving equations
   Answer: a) Image Generation

6. Which of the following is a **benefit** of Generative AI?
   a) Saves time in content creation
   b) Enhances creativity
   c) Provides personalized outputs
   d) All of the above
   Answer: d) All of the above

7. One of the **limitations** of Generative AI is:
   a) It can only work offline
   b) It may generate biased or incorrect content
   c) It cannot be used for creative tasks
   d) It always requires human approval
   Answer: b) It may generate biased or incorrect content

8. Which of the following is an **ethical issue** with Generative AI?
   a) Data Privacy
   b) Deepfakes
   c) Copyright and Plagiarism
   d) All of the above
   Answer: d) All of the above

Part B: Case-based Questions

Case 1: Real vs. AI-generated Image
During an activity in class, students are shown two images of a cat – one real and one generated by AI. The AI-generated image looks very realistic.

Questions:

1. Which type of AI is used to generate the fake cat image?
   a) Conventional AI
   b) Generative AI
   c) Data Science
   d) Probability Models
   Answer: b) Generative AI

2. Which technique is often used for creating such images?
   a) GANs (Generative Adversarial Networks)
   b) Linear Regression
   c) Sorting Algorithms
   d) Data Cleaning
   Answer: a) GANs (Generative Adversarial Networks)

3. What ethical concern arises here?
   Answer: Risk of deepfakes and spreading misinformation.

Case 2: Content Creation with Generative AI
A student uses a Generative AI tool to create a story for a school competition. The story is unique and well-written, but later it is found that some parts were very similar to a published book.

Questions:

1. Which **benefit** of Generative AI did the student experience?
   Answer: Help in content creation / saving time.

2. What is the **limitation** shown in this case?
    Answer: Possibility of plagiarism or copyright violation.

3. What ethical practice should the student follow?
    Answer: Cite AI assistance, check for originality, and avoid copying without permission.

Part C: Assertion & Reasoning

1. **Assertion (A):** Generative AI is capable of creating original content like poems, images, and music.
    Reason (R): It learns patterns from existing data and generates new outputs.
    a) Both A and R are true, and R is the correct explanation of A.
    b) Both A and R are true, but R is not the correct explanation of A.
    c) A is true but R is false.
    d) A is false but R is true.
    Answer: a) Both A and R are true, and R is the correct explanation of A

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2. **Assertion (A):** Conventional AI and Generative AI are the same.
    Reason (R): Both only follow fixed instructions to solve problems.
    a) Both A and R are true, and R is the correct explanation of A.
    b) Both A and R are true, but R is not the correct explanation of A.
    c) A is true but R is false.
    d) A is false but R is true.
    Answer: d) A is false but R is true

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3. **Assertion (A):** Generative AI can sometimes generate biased or false information.
    Reason (R): This happens because it learns from large datasets which may themselves contain biases.
    a) Both A and R are true, and R is the correct explanation of A.
    b) Both A and R are true, but R is not the correct explanation of A.
    c) A is true but R is false.
    d) A is false but R is true.
    Answer: a) Both A and R are true, and R is the correct explanation of A

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4. **Assertion (A):** Ethical concerns in Generative AI include deepfakes, plagiarism, and privacy violations.
    Reason (R): Generative AI always produces 100% accurate and unbiased results.
    a) Both A and R are true, and R is the correct explanation of A.
    b) Both A and R are true, but R is not the correct explanation of A.
    c) A is true but R is false.
    d) A is false but R is true.
    Answer: c) A is true but R is false