B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

PRE MID-TERM EXAMINATION (2025-26)
ARTIFICIAL INTELLIGENCE (843) / SUBJECT-05
MARKING SCHEME

Class : XII A/B/C   **Duration : 60 mins**
Date : 02-08-2025   **Max. Marks : 25**
Admission No.:   **Roll No.:**

Section-A
(Answer any 7 out of 10 MCQs)

1. Which technique does Generative AI commonly used to create content ?   1

   (a) Spreadsheets **(b) Deep Learning and neural networks** (c) Binary Coding
   (d) Data Compression

2. What type of AI model is ChatGPT ?   1

   (a) Large Language Model (b) Image recognition model (c) Data Analysis tool
   (d) Voice recognition system.

3. Which of the following models is often used for sequential data like speech or time series ?   1

   (a) Gaussian Mixture Models (GMM) (b) Decision Trees **(c) Hidden Markov Models (HMM)**
   (d) Support Vector Machines

4. Which of the following best describe the purpose of story telling ?   1

   (a) To teach cooking skills **(b) To express emotions and share ideas.**
   (c) To improve handwriting (d) To memorise historical dates

5. Which of the following is a key benefit of storytelling ?   1

   (a) Supports Psychological well-being (b) Encourages Ethical and Moral narrative.
   (c) Both a and b (d) None of these.

6. Which element in data storytelling connects data insights in a structured and engaging manner ?   1

   (a) Graph **(b) Narrative** (c) Infographic (d) Dataset

   Fill in the blanks:

7. VAE stands for _____. (Variational Adversarial Encoders)   1

8. _____ is Google's AI model that can generate text, answer questions, and assist with various tasks.(Gemini)   1

9. _____ refers to individual facts, statistics, or pieces of information, which may be numerical or categorical in nature. (Data)   1

10. High quality data ensures that the analysis is accurate, _____ and relevant to the audience. (meaningful)   1

SECTION – B
(Answer any 6 out of 10 Short Answer Questions)

11. List three applications of text generation and explain each type.   2

Ans: a) Content creation b) Creating writing c) Customer support

Assertion & Reasoning

Direction: 12-15, consist of four statements – Assertion (A) and Reasoning (R). Answer these questions by selecting the appropriate option given below:

(a) Both A and R are True, and R is the correction explanation of A.
(b) Both A and R are True , but R is not the correction explanation of A.
(c) A is true but R is false (d) A is false but R is true.

12. **Assertion (A):** Mistral AI's Mixtral 8x7B is a cost effective AI model designed for high performance with fewer resources.   2
Reason (R) : Mixtral 8x7B is particularly effective in edge computing and mobile applications that require efficient AI processing.

Ans: **(a)**

13. **Assertion (A):** Speech-to-text models convert spoken language into written text, while text-to-speech models generate natural-sounding speech from written text.   2
Reason (R) : Both Speech-to-text and text-to-speech models are designed to improve language translation accuracy.

Ans: (c)

14. **Assertion (A):** Freytag's Pyramid helps structure data stories by providing a clear framework for storytelling.   2
Reason (R) : Freytag's Pyramid includes stages like introduction, rising action, climax, falling action and conclusion.

Ans: (a)

15. **Assertion (A):** Data visualization makes raw data easier to interpret and understand.   2
 Reason (R) : Line graphs and bar charts are the only tools used for data visualization.

Ans: (c)

16. Differential between Generative AI and Discriminative AI .   2

Ans:

Generative AI	Discriminative AI
Creates new data similar to original; detects anomalies	Classifies or predicts labels; separates classes
Learns full data distribution; generates new data	Learns decision boundary; distinguishes classes
Understands data structure to generate new instances	Learns function to predict class labels accurately
Can use labelled or unlabelled data	Requires labelled data
Used in image/music generation, data augmentation, anomaly detection	Used in email filtering, image recognition, sentiment analysis
Examples: GANs, VAEs, GPT, Naive Bayes (generative use)	Examples: SVM, Logistic Regression, Random Forests, Decision Trees

17. Explain the risks associated with LLMs.   2

Ans: Some risks associated with LLMs are as follows:
Bias in responses: LLMs may reflect social and cultural biases from their training data,leading to unfair or offensive outputs.
Privacy risks: They might accidentally reveal sensitive or personal information from training data, especially in sectors like healthcare and finance.

Susceptibility to manipulation: Malicious users can exploit LLMs with harmful prompts to generate inappropriate or misleading content.
Lack of transparency: LLMs don't explain how responses are generated or cite sources, making fact-checking difficult.
Potential for misuse: LLMs can be used unethically to create deepfakes, spread disinformation, or automate scams.

18. How does data story telling improve the comprehension and impact of data insights ?   2

Ans: Data storytelling combines visuals, context, and narrative to make data insights easier to understand and more engaging. It helps the audience connect with the information, remember key points, and make better decisions based on the data.

19. What simple pattern do most stories, including data stories, follow ?   2

Ans: Most stories, including data stories, follow a simple pattern of **Beginning (Setup), Middle (Conflict or Insights), and End (Resolution or Conclusion)**. This structure helps present data in a logical and engaging way.

20. List the elements of a Story and describe any two.   2

Ans: The main elements of a data story are:

1. Characters
2. Setting/Plot
3. Conflict
4. Resolution
5. Insights / Understanding

Characters: These are the people or groups affected by the data (e.g., customers, users, students).
Conflict: This is the problem or challenge highlighted by the data that needs attention or action.

SECTION – C
(Answer any 2 out of 4 Long Answer Questions)

Competency-based questions:

21. A travel agency "WanderWorld" is using generative AI to create engaging content for promoting vacation packages. The agency leverages AI models to generate captivating destination images, personalized travel itineraries, and interactive chatbots that provide travel tips and booking assistance. As part of their upcoming campaign, they plan to highlight eco-tourism destinations that promotes sustainable travel practices. The success of their campaign delivers visually appealing content while ensuring the information is accurate and engaging.   3
a) What types of AI models can WanderWorld used to generate destination images and personalised travel itineraries ?
b) Identify one challenge WanderWorld may face when using Generative AI to promote eco- tourism ?
c) What is one advantage of using Generative AI for creating visually appealing travel content ?

Ans: a) WanderWorld can use Generative Adversarial Networks (GANs) for creating realistic destination images and Large Language Models (LLMs) for generating personalised travel itineraries and textual content.
b) A challenge may be the risk of spreading inaccurate or biased information, especially when promoting eco-sensitive destinations that require factual accuracy.
c) Generative AI can quickly create high-quality, photorealistic visuals tailored to the target audience's preferences, helping attract attention and improve marketing impact.

22. Why does Large Language Models (LLMs) referred to as "Large", and can you provide some examples of such models ?　　　3

Ans: Large Language Models (LLMs) are called "large" because of two main reasons:
a) Large Training Data:
They are trained on huge datasets — including books, articles, websites, code, and more — from across the internet.
b) Large Number of Parameters:
These models have billions or even trillions of parameters. Parameters are the internal values that help the model understand and generate human-like text.
Examples: GPT-3 / GPT-4, LLaMA 2, BERT, Claude, PaLM 2

23. An educational institute conducted a survey to gather feedback from students on online learning experiences during the COVID-19 pandemic. They collected data on internet connectivity issues, course content satisfaction, and overall learning effectiveness. Using this data, they created a data storytelling presentation to inform future decisions on online course delivery methods.
What motivated the educational institution to conduct the survey and create the data storytelling presentation ?　　　3
a. To analyse student enrollment trends.
b. To assess campus infrastructure needs.
c. To gather feedback on online learning experiences.
d. To evaluate faculty performance in virtual classrooms.

Ans: (c)

24. How are the three essential elements of a data story – data, narrative, and visuals interlinked with each other ?　　　3

Ans: In a data story, **data** provides the facts, the **narrative** explains the meaning behind the data, and **visuals** help present the data clearly. Together, they make insights easier to understand, more engaging, and impactful for decision-making.

***** BEST OF LUCK *****