CBSE | DEPARTMENT OF SKILL EDUCATION

ARTIFICIAL INTELLIGENCE (SUBJECT CODE - 843)

MARKING SCHEME FOR CLASS XII (SESSION 2025-2026)

Max. Time: 2 Hours **Max. Marks: 50**

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **21 questions** in two sections – Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (5 + 16 =) 21 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted (maximum) time of 2 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (24 MARKS):**
   - **i.** This section has 05 questions.
   - **ii.** There is no negative marking.
   - **iii.** Do as per the instructions given.
   - **iv.** Marks allotted are mentioned against each question/part.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
   - **i.** This section contains 16 questions.
   - **ii.** A candidate has to do 10 questions.
   - **iii.** Do as per the instructions given.
   - **iv.** Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/PSSCIVE/ CBSE Study Material)	Unit / Chap. No.	Page no. of source material	Marks
Q. 1	**Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)**				
i.	d) Wait until Priya finishes speaking, then respond to her points.	NCERT	1	6	**1**
ii.	Neuroticism	NCERT	2	34	**1**
iii.	a) 1 → b, 2 → c, 3 → a	NCERT	2	23	**1**
iv.	a) The arrangement of content (text, images, shapes) changes	NCERT	3	76	**1**
v.	a) Both A and R are correct, and R is the correct explanation of A	NCERT	4	79,80	**1**
vi.	True	NCERT	5	117, 118	**1**

Q. 2	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)				
i.	b) 1 → d, 2 → c, 3 → b, 4 → a	CBSE Study material	2	19 – 27	**1**
ii.	Machine Vision	CBSE Study material	3	44	**1**
iii.	d) Moore's Law	CBSE Study material	5	93	**1**
iv.	Deep Neural Network	CBSE Study material	6	105	**1**
v.	1 → user prompt; 2 → training data	CBSE Study material	7	129	**1**
vi.	c) Insight	CBSE Study material	8	151	**1**

Q. 3	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)				
i.	Feature Engineering	CBSE Study material	2	26	**1**
ii.	d) False Negative, False Positive	CBSE Study material	2	35	**1**
iii.	c) 1 → b, 2 → a, 3 → c, 4 → d	CBSE Study material	3	50,51	**1**
iv.	a) Printed Library catalogue data	CBSE Study material	5	87	**1**
v.	d) Linear Regression	CBSE Study material	6	105	**1**
vi.	Change	CBSE Study material	8	153	**1**

Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)				
i.	a) Both A and R are correct, and R is the correct explanation of A.	CBSE Study material	2	29	**1**
ii.	Pixels	CBSE Study material	3	45	**1**

iii.	b) Quantum Computing	CBSE Study material	5	99	**1**
iv.	b) Learning rule	CBSE Study material	6	106	**1**
v.	Generator, Discriminator. (½ mark for each correct answer)	CBSE Study material	6	111	**1**
vi.	c) 1 → d, 2 → b, 3 → c, 4 → a	CBSE Study material	7	127, 128	**1**

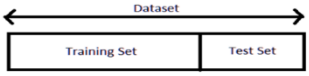
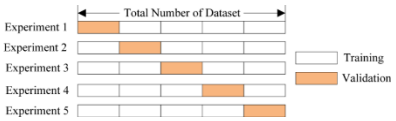
Q. 5	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**				
i.	True	CBSE Study material	2	30	**1**
ii.	a) Both A and R are correct, and R is the correct explanation of A.	CBSE Study material	3	49	**1**
iii.	b) Object Detection	CBSE Study material	3	52	**1**
iv.	b) 1 → a, 2 → b, 3 → c	CBSE Study material	6	110, 111	**1**
v.	Latent space	CBSE Study material	7	125	**1**
vi.	d) Candle stick chart	CBSE Study material	8	156	**1**

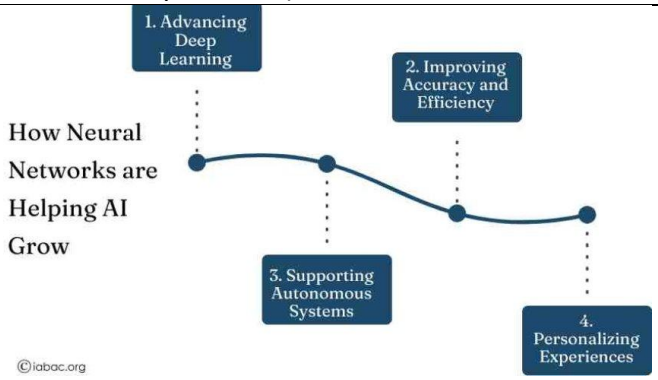
SECTION B: SUBJECTIVE TYPE QUESTIONS

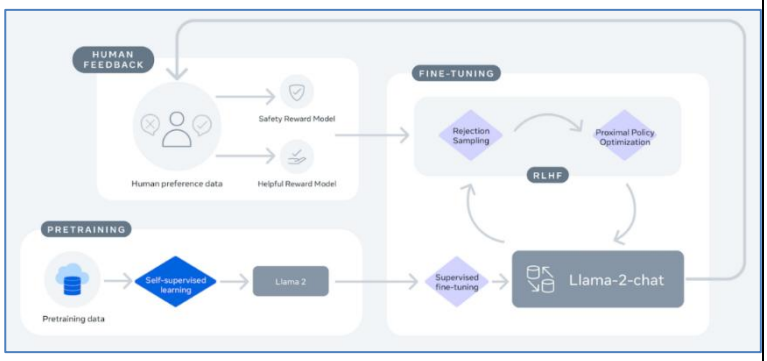
Q. No.	**QUESTION**	**Source Material (NCERT/ PSSCIVE/ CBSE Study Material)**	**Unit / Chap. No.**	**Page no. of source material**	**Marks**
Answer any 3 out of the given 5 questions on Employability Skills in 20 – 30 words each **(2 x 3 = 6 marks)**					
Q. 6	The *words* — ***"Wow!", "Oh no!", "Thanks!", "Help!"*** — are known as **interjections**. They are words that express strong emotions, such as happiness, surprise, anger or pain. (1 mark for identifying the word *interjection*; 1 mark for explanation)	NCERT	1	13	**2**

Q. 7	• Talk to someone. Most often, it helps to share your feelings. • Look after your physical health. A healthy body can help you maintain a healthy mind. • Build confidence in your ability to handle difficult situations. • Engage in hobbies, such as music, dance and painting. These have a therapeutic effect. • Stay positive by choosing words like 'challenges' instead of 'problems'. (any 2 points; 1 mark per point)	NCERT	2	37	**2**
Q. 8	a) **Alignment** feature. b) Default Positioning: • Text is **left-aligned** by default. • Numbers are **right-aligned** by default. (1 mark for identifying the term alignment; ½ mark each for correctly stating the default text alignment and number alignment.)	NCERT	3	54, 57	**2**
Q. 9	a) Taking initiative b) Perseverance (1 mark each)	NCERT	4	101, 103	**2**
Q. 10	Waste exchange is when the waste product of one process becomes the raw material for another. It helps in reducing waste disposal by reusing waste, thereby minimizing the amount sent to landfills. (1 mark for explaining the meaning of waste exchange. 1 mark for explaining how it helps in reducing waste disposal.)	NCERT	5	120	**2**
Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)					
Q. 11	Data Science Methodology is a process with a prescribed sequence of iterative steps that data scientists follow to approach a problem and find a solution. It consists of ten steps. (prescribed sequence of iterative steps – ½ mark data scientists follow – ½ mark approach a problem and find a solution – ½ mark 10 steps – ½ mark)	CBSE Study material	2	18	**2**
Q. 12	1. **Reasoning and Analytical Issues:** Computer vision relies on more than just image identification; it requires accurate interpretation. Robust reasoning and analytical skills are essential for defining attributes within visual content. Without such capabilities, extracting meaningful insights from images becomes challenging, limiting the effectiveness of computer vision systems. 2. **Difficulty in Image Acquisition:** Image acquisition in computer vision is hindered by various factors like lighting variations, perspectives, and scales. Understanding complex scenes with multiple objects and handling occlusions adds to the complexity.	CBSE Study material	3	55	**2**

<table>
<tr><td></td><td>Obtaining high-quality image data amidst these challenges is crucial for accurate analysis and interpretation.
3. Privacy and Security Concerns: Vision-powered surveillance systems raise serious privacy concerns, potentially infringing upon individuals' privacy rights. Technologies like facial recognition and detection prompt ethical dilemmas regarding privacy and security. Regulatory scrutiny and public debate surround the use of such technologies, necessitating careful consideration of privacy implications.
4. Duplicate and False Content: Computer vision introduces challenges related to the proliferation of duplicate and false content. Malicious actors can exploit vulnerabilities in image and video processing algorithms to create misleading or fraudulent content. Data breaches pose a significant threat, leading to the dissemination of duplicate images and videos, fostering misinformation and reputational damage.
(any 2 points; ½ mark for each challenge; ½ mark for its relevant explanation)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Q. 13</td><td><table><tr><th>Batch Processing</th><th>Stream Processing</th></tr><tr><td>Processes large volumes of data all at once within a specific time span.</td><td>Processes continuous streams of data immediately as it is produced.</td></tr><tr><td>Takes more time to process data.</td><td>Takes less time (seconds or milliseconds) to process data.</td></tr></table>(½ mark for each point)</td><td>CBSE Study material</td><td>5</td><td>93</td><td>2</td></tr>
<tr><td>Q. 14</td><td>$\hat{\mathbf{y}} = \sum w_i x_i + \text{bias}$
$= w_1x_1 + w_2x_2 + w_3x_3 + \text{bias}$
Substituting values of w_1, x_1 , w_2, x_2 ,w_3 , x_3, bias, we get
$\hat{\mathbf{y}} = (6 \text{ X } 1) + (3 \text{ X } 0) + (2 \text{ X } 1) - 2$
$= 6 + 0 + 2 - 2$
$= 6$
(1 mark for formula; 1 mark for calculations)</td><td>CBSE Study material</td><td>6</td><td>106 – 108</td><td>2</td></tr>
<tr><td>Q. 15</td><td>Generative models aim to understand and replicate the underlying data distribution to generate new samples, while discriminative models focus on distinguishing between different data classes.
(1 mark each for a correct difference)</td><td>CBSE Study material</td><td>7</td><td>125</td><td>2</td></tr>
<tr><td>Q. 16</td><td>• Collect and organize the data.
• Use proper visualization tools to present the data.
• Observe relationships between data.
• Create a simple narrative hidden in the data for the audience.
(½ mark for each point)</td><td>CBSE Study material</td><td>8</td><td>157</td><td>2</td></tr>
</table>

Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)					
Q. 17	<table><tr><th>Train-Test Split</th><th>Cross Validation</th></tr><tr><td>  </td><td>  </td></tr><tr><td>Normally applied on large data sets</td><td>Normally applied on small data sets</td></tr><tr><td>Divides the data into training data set and testing data set.</td><td>Divides a dataset into subsets (folds), trains the model on some folds, and evaluates its performance on the remaining data.</td></tr><tr><td>Clear demarcation on training data and testing data.</td><td>Every data point at some stage could be in either testing or training data set.</td></tr></table> (½ mark for each diagram; ½ mark for each correct point)	CBSE Study material	2	32,33	**4**
Q. 18	a) **Velocity** • Velocity refers to the speed at which data is generated, delivered, and analyzed. • In the present digital world, millions of people are accessing and storing information online, leading to high-speed data flow. *Eg:* The website recording thousands of clicks, searches, and transactions every second reflects high data generation speed. b) **Volume** • Volume refers to the massive quantity of data generated daily, which may range from terabytes to exabytes. • As online platform usage grows, the quantity of data stored increases exponentially. *Eg:* Petabytes of orders, payment details, and product listings stored over years represent the large volume characteristic. c) **Variety** • Variety refers to the different types and formats of data in Big Data — structured, semi-structured, and unstructured. • These diverse formats provide richer information but require different processing techniques. *Eg:* Structured product databases, semi-structured XML/JSON order files, and unstructured reviews, images, and videos.	CBSE Study material	5	90,91	**4**

	d) **Veracity** • Veracity deals with the accuracy, quality, and trustworthiness of data. • Not all collected data is useful; data cleaning is essential to remove errors and inconsistencies before analysis. *Eg:* Removing incomplete or duplicate records to ensure the dataset is reliable. (½ mark for identifying each correct term ; ½ mark for each relevant explanation)				
Q. 19	 • **Advancing Deep Learning** → Neural Networks with multiple layers power Deep Learning, helping machines understand complex patterns in large datasets. • **Improving Accuracy and Efficiency** → They analyze vast data and make highly accurate predictions (e.g., detecting diseases from medical images), boosting efficiency in real-world tasks. • **Supporting Autonomous Systems** → Neural networks provide the perception and decision-making capabilities needed for autonomous systems (e.g., self-driving cars, robots, drones), enabling real-time sensing, control, and safe automation. • **Personalizing Experiences** → By analyzing user preferences, Neural Networks power recommendation systems (shopping, music, movies), creating tailored experiences. (1 mark for each point)	CBSE Study material	6	112	**4**
Q. 20	• **Disruptive Training Approach :** LLaMA is trained on publicly available text and code, unlike traditional LLMs that rely on proprietary datasets. This promotes transparency in AI research and makes the model more accessible. Additionally, it uses efficient training techniques, requiring less computational power, which improves scalability across devices. • **Flexibility Through Multi-Model Design:** Meta released LLaMA in multiple versions, ranging from 7 billion to 65 billion parameters. This provides flexibility — smaller models can run on devices with limited resources for everyday tasks, while larger models handle complex NLP applications with higher performance.	CBSE Study material	7	130, 131	**4**

	• **Impressive Results Despite Public Data:** Even though it uses open-source data, LLaMA delivers results that are competitive with or better than larger proprietary LLMs. It performs strongly in tasks like text summarization and question answering, proving the effectiveness of its training approach.  (1 mark for diagram; 1 mark for each point)				
Q. 21	2. **Rising action**: The series of events that build up to the climax of the story. 3. **Climax**: The most intense or important point within the story. It is often an event in which the fortune of the protagonist turns for the better or worse in the story. 4. **Falling action**: The rest of the events that unravel after the main conflict has occurred, but before the final outcome is decided. 5. **Conclusion**: The conclusion of the story where all of the conflicts are resolved and outstanding details are explained. (½ mark for identifying the term; ½ mark for brief explanation)	CBSE Study material	8	154	**4**