

CBSE | DEPARTMENT OF SKILL EDUCATION

ARTIFICIAL INTELLIGENCE (SUBJECT CODE - 843)

Blue-print for Sample Question Paper for Class XII (Session 2025-2026)

Max. Time: 2 Hours

Max. Marks: 50

PART A - EMPLOYABILITY SKILLS (10 MARKS):

UNIT NO.	NAME OF THE UNIT	OBJECTIVE TYPE QUESTIONS	SHORT ANSWER TYPE QUESTIONS	TOTAL QUESTIONS
		1 MARK EACH	2 MARKS EACH	
1	Communication Skills – IV	1	1	2
2	Self-Management Skills – IV	2	1	3
3	ICT Skills – IV	1	1	2
4	Entrepreneurial Skills – IV	1	1	2
5	Green Skills – IV	1	1	2
TOTAL QUESTIONS		6	5	11
NO. OF QUESTIONS TO BE ANSWERED		Any 4	Any 3	Any 7
TOTAL MARKS		1 x 4 = 4	2 x 3 = 6	10 MARKS

PART B - SUBJECT SPECIFIC SKILLS (40 MARKS):

UNIT NO.	NAME OF THE UNIT	OBJECTIVE TYPE QUESTIONS	SHORT ANSWER TYPE QUESTIONS	DESCRIPTIVE/ LONG ANS. TYPE QUESTIONS	TOTAL QUESTIONS
		1 MARK EACH	2 MARKS EACH	4 MARKS EACH	
2	Data Science Methodology: An Analytic Approach to Capstone Project	5	1	1	7
3	Making Machines See	5	1	***	6
5	Introduction to Big Data and Data Analytics	3	1	1	5
6	Understanding Neural Networks	5	1	1	7
7	Generative AI	3	1	1	5
8	Data Storytelling	3	1	1	5
TOTAL QUESTIONS		24	6	5	35
NO. OF QUESTIONS TO BE ANSWERED		Any 20	Any 4	Any 3	Any 27
TOTAL MARKS		1 x 20 = 20	2 x 4 = 8	4 x 3 = 12	40 MARKS

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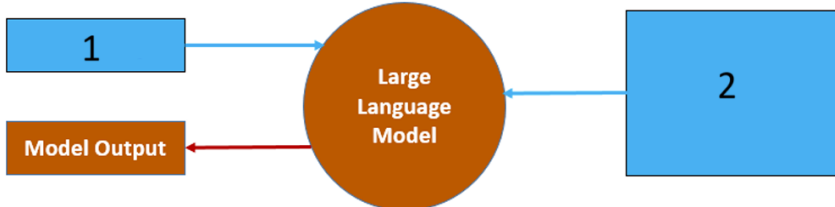
Max. Marks: 50

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. Marks allotted are mentioned against each question/part.
 - iii. There is no negative marking.
 - iv. Do as per the instructions given.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
 - i. This section has 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.

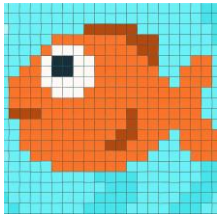
SECTION A: OBJECTIVE TYPE QUESTIONS

Q. 1	Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)									
i.	During a group discussion, Priya is explaining her point of view on a project idea. Midway through her explanation, Arun interrupts and starts sharing his own thoughts without letting Priya complete her sentence. If you were in Arun’s place and wanted to follow the T of RESPECT in active listening, what should you do? a) Interrupt politely if you feel your point is important. b) Start speaking as soon as you think you understand her point. c) Speak at the same time so both ideas are heard together. d) Wait until Priya finishes speaking, then respond to her points.	1								
ii.	_____ is a trait, wherein, individuals show tendency towards anxiety, self-doubt, depression, shyness and other similar negative feelings. (Fill in the blank)	1								
iii.	Match the following skills with their correct descriptions: <table><tr><th>Skills</th><th>Description</th></tr><tr><td>1. Positive thinking</td><td>a. To be aware of your strengths and make the best out of them.</td></tr><tr><td>2. Result orientation</td><td>b. To think that one can get things done and be happy.</td></tr><tr><td>3. Self-awareness</td><td>c. To dream big and achieve the desired or set goals.</td></tr></table> a) 1 → b, 2 → c, 3 → a b) 1 → a, 2 → b, 3 → c c) 1 → b, 2 → a, 3 → c d) 1 → c, 2 → a, 3 → b	Skills	Description	1. Positive thinking	a. To be aware of your strengths and make the best out of them.	2. Result orientation	b. To think that one can get things done and be happy.	3. Self-awareness	c. To dream big and achieve the desired or set goals.	1
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2. Result orientation	b. To think that one can get things done and be happy.									
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iv.	What happens when you change the layout of a slide? a) The arrangement of content (text, images, shapes) changes b) The format of the text changes c) New slide is inserted d) The title gets aligned to the center of the slide	1								
v.	Assertion (A): Economists, psychologists, sociologists, and management experts define entrepreneurs differently. Reason (R): The definition of an entrepreneur varies depending on whether the focus is on resources, psychological drive, societal contribution, or vision with action. a) Both A and R are correct, and R is the correct explanation of A b) Both A and R are correct, but R is not the correct explanation of A c) A is correct, but R is incorrect d) A is incorrect, but R is correct	1								
vi.	Appropriate technology is small-scale, environment-friendly technology suited to local needs. It gets the job done using locally available resources in a sustainable manner. (State whether this is True/False)	1								

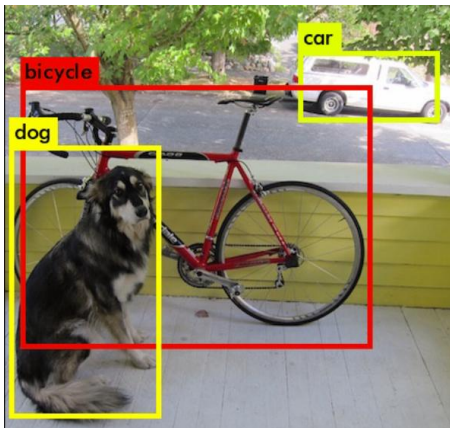
Q. 2	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)											
i.	Match the correct question from Column A to the correct step of the Data Science Methodology in Column B. <table><thead><tr><th>Column A</th><th>Column B</th></tr></thead><tbody><tr><td>1. In what way can the data be visualized to get to the required answer?</td><td>a. Data Understanding</td></tr><tr><td>2. How can you use the data to answer the question?</td><td>b. Business understanding</td></tr><tr><td>3. What is the problem that you are trying to solve?</td><td>c. Analytic approach</td></tr><tr><td>4. Is the data collected representative of the problem to be solved?</td><td>d. AI Modelling</td></tr></tbody></table> a) 1 → a, 2 → b, 3 → c, 4 → d b) 1 → d, 2 → c, 3 → b, 4 → a c) 1 → b, 2 → a, 3 → d, 4 → c d) 1 → c, 2 → b, 3 → a, 4 → d	Column A	Column B	1. In what way can the data be visualized to get to the required answer?	a. Data Understanding	2. How can you use the data to answer the question?	b. Business understanding	3. What is the problem that you are trying to solve?	c. Analytic approach	4. Is the data collected representative of the problem to be solved?	d. AI Modelling	1
Column A	Column B											
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3. What is the problem that you are trying to solve?	c. Analytic approach											
4. Is the data collected representative of the problem to be solved?	d. AI Modelling											
ii.	 The given diagram shows the working of a vision-based system that identifies objects in an image. What is the other name for this technology?	1										
iii.	Which law suggests that increasing computing power over time makes it easier to handle large volumes of data? a) Boyle's Law b) Murphy's Law c) Newton's Law d) Moore's Law	1										
iv.	An Artificial Neural Network (ANN) with two or more hidden layers is known as a _____ (Fill in the blank)	1										
v.	 What will come in place of '1' and '2'?	1										
vi.	In the context of data storytelling, a valuable and meaningful observation or understanding derived from analysing data is called: a) Prediction b) Pattern c) Insight d) Correlation	1										

Q. 3	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)											
i.	_____ is the process of selecting, modifying, or creating new features from raw data to improve the performance of machine learning models. (Fill in the blank)	1										
ii.	Classified as Positive Negative 1 2 Positive Negative Really is What will come in place of 1 and 2? a) True Positive, False Positive b) False Positive, True Negative c) True Negative, False Negative d) False Negative, False Positive	1										
iii.	Match the image processing technique in Column A with its correct description in Column B <table><tr><th>Column A</th><th>Column B</th></tr><tr><td>1. Edge Detection</td><td>a. Finds points where two or more edges meet</td></tr><tr><td>2. Corner Detection</td><td>b. Identifies boundaries between regions with large intensity change</td></tr><tr><td>3. Texture Analysis</td><td>c. Extracts features like smoothness or repetition</td></tr><tr><td>4. Colour-based Feature Extraction</td><td>d. Measures colour distribution to distinguish objects</td></tr></table> a) 1 → a, 2 → b, 3 → c, 4 → d b) 1 → a, 2 → c, 3 → b, 4 → d c) 1 → b, 2 → a, 3 → c, 4 → d d) 1 → c, 2 → b, 3 → a, 4 → d	Column A	Column B	1. Edge Detection	a. Finds points where two or more edges meet	2. Corner Detection	b. Identifies boundaries between regions with large intensity change	3. Texture Analysis	c. Extracts features like smoothness or repetition	4. Colour-based Feature Extraction	d. Measures colour distribution to distinguish objects	1
Column A	Column B											
1. Edge Detection	a. Finds points where two or more edges meet											
2. Corner Detection	b. Identifies boundaries between regions with large intensity change											
3. Texture Analysis	c. Extracts features like smoothness or repetition											
4. Colour-based Feature Extraction	d. Measures colour distribution to distinguish objects											
iv.	Big Data refers to extremely large and complex datasets that regular computer programs and databases cannot handle. Which of the following is NOT one of its main sources? a) Printed Library catalogue data b) Transactional data c) Machine data d) Social data	1										
v.	Identify the odd one out from the following activation functions: a) Sigmoid Function b) Tanh Function c) ReLU (Rectified Linear Unit) d) Linear Regression	1										

vi.	Refer to the Venn diagram that illustrates the three key elements of Data Storytelling: Narrative, Visuals, and Data. What term should replace the question mark (?) in the center, where all three elements intersect? 	1
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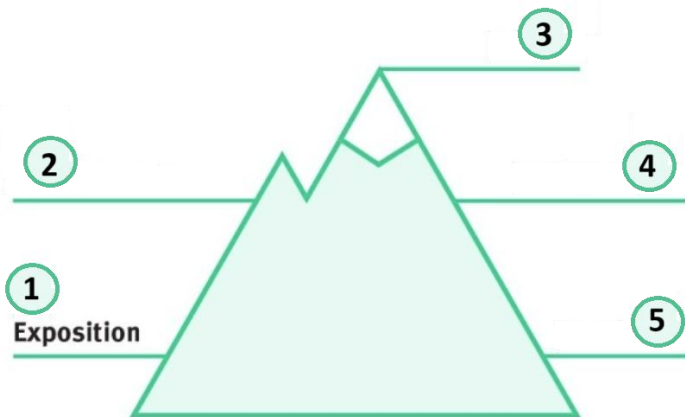
Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	Assertion(A): The diagnostic measures phase is used to ensure that the model is working as intended and to refine it if necessary. Reason (R): In this phase, predictive models can be evaluated using decision trees, while descriptive models can be tested with known outcomes to check alignment with the design. a) Both A and R are correct, and R is the correct explanation of A. b) Both A and R are correct, but R is not the correct explanation of A. c) A is correct, but R is incorrect. d) A is incorrect, but R is correct.	1
ii.	 When a computer processes an image, it perceives it as a collection of tiny squares known as _____.	1
iii.	Which emerging technology in Big Data analytics promises unprecedented processing power and can solve complex problems much faster than classical computers? a) Cloud Computing b) Quantum Computing c) Edge Computing d) Parallel Processing	1
iv.	In a neural network, which component defines how weights and biases are adjusted during training? a) Activation function b) Learning rule c) Loss function d) Hidden layer	1
v.	Name the two neural networks used in a Generative Adversarial Network (GAN).	1

vi.	Match the type of Generative AI application to the correct AI tool.	1										
	<table><tr><th>AI Tool</th><th>Application Type</th></tr><tr><td>1. Stable Diffusion</td><td>a. Audio Generation</td></tr><tr><td>2. ChatGPT</td><td>b. Text Generation</td></tr><tr><td>3. Google's Lumiere</td><td>c. Video Generation</td></tr><tr><td>4. Meta's AI Voicebox</td><td>d. Image Generation</td></tr></table>		AI Tool	Application Type	1. Stable Diffusion	a. Audio Generation	2. ChatGPT	b. Text Generation	3. Google's Lumiere	c. Video Generation	4. Meta's AI Voicebox	d. Image Generation
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c) 1 → d, 2 → b, 3 → c, 4 → a												
d) 1 → c, 2 → b, 3 → d, 4 → a												

Q. 5	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)									
i.	Feedback is the last stage of data science methodology that helps to refine the model and assess it for performance and impact. (State whether this is True/False)	1								
ii.	Assertion (A): Image normalization adjusts the pixel values of an image so they fall within a consistent range, such as 0–1 or -1 to 1. Reason (R): It ensures that all images in a dataset have a similar scale, which helps the model learn better. a) Both A and R are correct, and R is the correct explanation of A. b) Both A and R are correct, but R is not the correct explanation of A. c) A is correct, but R is incorrect. d) A is incorrect, but R is correct.	1								
iii.	 The image shows bounding boxes and labels for multiple objects like a bicycle, dog, and car. Which computer vision task does this represent? a) Image Classification b) Object Detection c) Instance Segmentation d) Semantic Segmentation	1								
iv.	Match the type of neural network in Column A with its corresponding task in Column B. <table><tr><th>Column A</th><th>Column B</th></tr><tr><td>1. Perceptron</td><td>a. Classification</td></tr><tr><td>2. Convolutional Neural Network (CNN)</td><td>b. Object detection</td></tr><tr><td>3. Recurrent Neural Network (RNN)</td><td>c. Machine translation</td></tr></table> a) 1 → c, 2 → a , 3 → b b) 1 → a, 2 → b, 3 → c c) 1 → b, 2 → c, 3 → a d) 1 → c, 2 → b, 3 → a	Column A	Column B	1. Perceptron	a. Classification	2. Convolutional Neural Network (CNN)	b. Object detection	3. Recurrent Neural Network (RNN)	c. Machine translation	1
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2. Convolutional Neural Network (CNN)	b. Object detection									
3. Recurrent Neural Network (RNN)	c. Machine translation									

Q. 15	What distinguishes generative models from discriminative models?	2
Q. 16	List the steps involved in creating a compelling story through data.	2

Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)

Q. 17	<i>Validating the machine learning model during the training and development stages is crucial for ensuring accurate predictions.</i> Differentiate between the Train–Test Split and Cross-Validation methods, and support your answer with a neat, labelled diagram.	4
Q. 18	A global e-commerce company handles millions of transactions every day. Identify the characteristics of Big Data you can relate to in the following scenarios and explain them in detail: - Customers place orders online, and the website records thousands of clicks, searches, and transactions every second. - The company’s servers store petabytes of customer orders, payment details, and product listings collected over years. - The stored data comes in different formats — structured (databases of products), semi-structured (XML, JSON order files), and unstructured (customer reviews, product photos, videos). - Sometimes, the system collects incomplete or duplicate records, and before analysis, the team removes errors to ensure the information is accurate and trustworthy.	4
Q. 19	Explain the role of neural networks in the future of AI.	4
Q. 20	Explain how Meta’s LLaMA is unique compared to traditional LLMs with a neat diagram.	4
Q. 21	 The image illustrates Freytag’s Pyramid, a classic narrative structure. While (1) Exposition introduces the story and characters, identify and briefly explain the stages labeled as 2, 3, 4, and 5 in the diagram.	4