



B.K. BIRLA CENTRE FOR EDUCATION

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



PRE BOARD - 01 (2025-26)
ARTIFICIAL INTELLIGENCE (843) / SUBJECT-05

MARKING SCHEME

Class : XII A/B/C
Date : 07-11-2025
Admission No.:

Duration : 2 Hrs.
Max. Marks : 50
Roll No.:

SECTION A – OBJECTIVE TYPE QUESTIONS (24 Marks)

Q1. Employability Skills (Any 4)

- i. **d)** Post
- ii. **c)** Realistic
- iii. **a)** Schizoid personality disorder
- iv. **a)** Worksheet
- v. **c)** Resources
- vi. **b)** Increasing global demand for clean energy

Q2. AI Concepts (Any 5)

- i. **b)** Pandas
- ii. **d)** Google Colab
- iii. **c)** .drop()
- iv. **b)** 8
- v. **c)** Books, Journals, and Research Papers
- vi. **a)** sklearn.model_selection

Q3. Computer Vision & Big Data (Any 5)

- i. **c)** RGB
- ii. **b)** Region-based Convolutional Neural Network
- iii. **a)** KNN
- iv. **b)** To suggest products or shows based on user preferences
- v. **b)** Hadoop
- vi. **False**

Q4. Neural Networks & Generative AI (Any 5)

- i. **a)** Both A and R are true, and R is the correct explanation of A.
- ii. **b)** Both A and R are true, but R is not the correct explanation of A.
- iii. **True**
- iv. **b)** Hidden layer
- v. **b)** Runway and Stable Diffusion
- vi. **False**

Q5. AI Tools & Data Storytelling (Any 5)

- i. **c)** A is true, but R is false.
- ii. **a)** Both A and R are true, and R is the correct explanation of A.
- iii. **b)** To express emotions and share ideas
- iv. **b)** Narrative
- v. **True**
- vi. **b)** To inform, inspire and connect people

SECTION B – SUBJECTIVE TYPE QUESTIONS (26 Marks)

Q6. Feedback in Communication (2 Marks)

Feedback is the response from the receiver to the sender about the message.
It helps ensure that the message was understood correctly and allows improvement in communication.

Q7. Stress and Steps to Overcome (2 Marks)

Stress is a state of mental or emotional strain.
Steps to overcome:

- Practice relaxation or deep breathing.
- Maintain a healthy lifestyle and rest.
- Manage time and seek social support.

Q8. Cell Address (2 Marks)

A cell address refers to the location of a cell in a worksheet, identified by its column letter and row number.
Example: B2 means column B and row 2.

Q9. Environmental Barriers to Entrepreneurship (2 Marks)

- Lack of infrastructure and financial support.
- Government regulations.
- Limited market opportunities.

Q10. Rainwater Harvesting as a Green Job (2 Marks)

Yes, it is a green job because it conserves water and promotes sustainable environmental practices.

Q11. Confusion Matrix (2 Marks)

It shows the performance of a classification model by comparing actual vs predicted results to identify accuracy, precision, and recall.

Q12. Classification vs Detection (2 Marks)

- **Classification:** Identifies category of an object (e.g., cat vs dog).
- **Detection:** Locates and classifies multiple objects within an image.

Q13. Telecom Company – Big Data (2 Marks)

- a) Collect data on signal strength, call logs, tower usage, location, and customer complaints.
- b) Predictive models: Regression or Time Series forecasting.

Q14. Node Decision in Neural Network (2 Marks)

Each node applies an **activation function** to the weighted sum of inputs to decide whether to pass data to the next layer.

Q15. Applications of Text Generation (2 Marks)

- **Chatbots:** Generate automatic responses.
- **Content Creation:** Produces articles or reports automatically.

Q16. Key Elements of a Story (2 Marks)

Character, Setting, Plot, Conflict, and Theme.

Q17. Pandas DataFrame Operations (4 Marks)

```
import pandas as pd
df = pd.read_csv("student_data.csv")

# Add new row
new_row = {'Student_ID':104, 'Name':'Deepa', 'Marks':88}
df = df.append(new_row, ignore_index=True)

# Update marks
df.loc[df['Student_ID']==102, 'Marks'] = 82
print(df)
```

Q18. Confusion Matrix Calculations (4 Marks)

	Predicted Positive	Predicted Negative
Actual Positive	TP = 50	FN = 10
Actual Negative	FP = 5	TN = 35

Formulas:

- **Precision** = $TP / (TP + FP) = 50 / (50 + 5) = 0.91$
- **Recall** = $TP / (TP + FN) = 50 / (50 + 10) = 0.83$
- **F1 Score** = $2 \times (\text{Precision} \times \text{Recall}) / (\text{Precision} + \text{Recall}) = 2 \times (0.91 \times 0.83) / (0.91 + 0.83) = 0.87$
- **Accuracy** = $(TP + TN) / \text{Total} = (50 + 35) / 100 = 0.85 \text{ (85\%)}$

Q19. Real-world Applications of Computer Vision (4 Marks)

- **Healthcare:** Detecting diseases from scans.
- **Automotive:** Used in self-driving cars.
- **Retail:** Smart checkout and inventory tracking.
- **Security:** Face recognition and surveillance.

Q20. Steps in Neural Network Data Processing (4 Marks)

1. Input data is fed into the input layer.
2. Weights are applied and propagated through hidden layers.
3. Activation functions determine neuron firing.
4. Output layer provides prediction after training and optimization.

Q21. Deepfake Technology (4 Marks)

Definition: Deepfake uses AI (especially GANs) to create realistic fake videos or audio.

Risks: Misinformation, identity theft, privacy invasion.

Solutions: AI-based detection tools, digital watermarking, strong cyber laws, and media verification.

***** ALL THE BEST *****