PERIODIC TEST - 01 (2025-26)
ARTIFICIAL INTELLIGENCE (843) / SUBJECT-05

Class : XII A/B/C   **Duration : 60 mins**
Date   : 03-07-2025   **Max. Marks : 25**
Admission No.:   **Roll No.:**

General Instructions:

Try to attempt all questions as per given order.

All questions are compulsory.

The Question Paper is divided into three sections Section A to C.

- Section A has 10 questions. It carries 1 mark each.
- Section B has 10 questions. It carries 2 marks each.
- Section C has 4 questions. It carries 3 marks each.

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

1. Which Python platform offers GPU and TPU acceleration for faster execution of deep learning models ?   1

   (a) Visual Studio Code (b) Python IDLE (c) Jupyter Notebook (d) Google Colab

2. In negative indexing, what index represents the last element of a Numpy array ?   1

   (a) 0   (b) -1   (c) 1 (d) -2

3. Who introduced the Data Science Methodology, also known as the Foundational Methodology for Data Science ?   1

   (a) Andrew Ng (b) John Rollins   (c) Geoffrey Hinton   (d) Yann LeCun

4. Which of the following is an example of a secondary data source ?   1

   (a) Focus Groups (b) Experiments and Observations (c) Books, Journals & Research Papers
   (d) Oral Histories

5. What is the main goal of Computer Vision (CV) ?   1

   (a) To make computers understand spoken languages. (b) To improve internet speed
   (c) To enable computers to see, observe and understand the visual world
   (d) To teach computers how to write poetry.

6. Which preprocessing technique enhances image contrast ?   1

   (a) Noise reduction (b) Histogram equalization (c) Feature extraction (d) Image segmentation

7. Which strategy do supermarkets use to manage stock during festive seasons ?   1

(a) They reduce product variety to focus on essentials.
(b) They rely on customer feedback after sales.
(c) They analyse past shopping trends and track real-time sales data.
(d) They guess customer preferences based on previous advertisements.

8. Which of the following is a common example of semi-structured data ?   1

(a) SQL database   (b) XML file   (c) Audio recording   (d) Printed document.

9. Which of the following everyday applications is powered by Neural Networks ?   1

(a) Facial recognition on smart phones   (b) Manual calendar entries
(c) Static road maps without updates   (d) Basic text editors without predictive features.

10. What happens when a neural network has more hidden layers ?   1

(a) The network becomes faster but less accurate. (b) The network's learning process becomes simpler. (c) The learning process becomes deeper and more complex. (d) The network stops learning altogether.

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

11. What are some common methods for handling missing data in Pandas, and when should they be used ?   2

12. **Assertion & Reasoning :**   2

Assertion (A): The .tail() method displays the first n rows of the DataFrame.
Reasoning (R) : The .tail() method shows the last n rows and by default displays 5 rows if n is not specified.
(a) Both A and R are True   (b) A is true but R is false   (c) A is false but R is true.

13. Differentiate between Train-Test Split and Cross Validation.   2

14. What is the main difference between classification and regression problems ?   2

15. What are the different stages involved in the Computer Vision process ? Explain each type briefly.   2

16. List the stages of Preprocessing of computer Vision Process. Briefly describe each type.   2

17. What is Big Data and why does it require special tools and techniques for processing ?   2

18. A government wants to predict and prevent traffic congestion in a smart city using big data analytics. (a) What data sources should be considered ? (b) Which characteristics of big data (6Vs) is most relevant in this scenario ? (c) How can machine learning help in predicting traffic patterns ?   2

19. Define a Neural Network. Name the different types and describe each type.   2

20. What are the three main layers of a Convolutional Neural Network (CNN) ? Explain any two.   2

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

21. Can you identify and explain at least two real-life scenarios where linear regression is applied ?   3

22. To predict the demand for different grocery items and to avoid running out of stock or overstocking for the supermarket, let's consider the analytical approach and consider the following questions: 3
(a) What type of analytics is being used ?
(b) What approach should we use ? Regression Approach

(c) Which algorithm is best suited for demand prediction ?

23. Discuss various career opportunities in the field of Bid Data Analytics and their key roles.   3

24. What are some societal impacts of Neural Networks, and how can the associated risks be addresses ?   3

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