B.K. BIRLA CENTRE FOR EDUCATION

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

MID-APRIL EXAMINATION 2025
ARTIFICIAL INTELLIGENCE (843)

Class : XII A/B/C (SUBJECT-05)   **Duration : 1 Hr**
Date : 17-04-2025   **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 7 questions and carry 1 mark each.
- Section B has 6 questions and carry 2 marks each.
- Section C has 2 questions and carry 3 marks each.

Section-A

1. To create an empty series object, we can use:
   (a) pd.Series(empty)   (b) pd.Series(np.NaN)   (c) pd.Series() (d) All of these   1

2. To get the size of the datatype of the items in Series object, we can display ___ attribute.
   (a) index   (b) size   (c) itemsize   (d) ndim   1

3. To get the number of elements in a Series object, ___ attribute is displayed.
   (a) index   (b) size   (c) itemsize   (d) ndim   1

4. Which is the hardest stage in the foundational methodology of Data Science?
   (a) Business Understanding (b) Data collection (c) Modelling (d) Evaluation   1

5. Match the following and choose the correct options: 1
   i. Descriptive approach   A. Statistical Analysis
   ii. Diagnostic approach   B. Current Status
   iii. Predictive approach   C. How to solve it?
   iv. Prescriptive approach   D. Probabilities of action
   (a) (i)—A , (ii)—B, (iii) – C , (iv)—D (b) (i)—B , (ii)—A, (iii) – D , (iv)—C
   (c) (i)—D , (ii)—B, (iii) – A , (iv)—C (d) (i)—A , (ii)—C, (iii) – B , (iv)—D

6. The process of capturing a digital image or video using a digital camera, a scanner, or other
   imaging devices is related to _____.   1
   (a) Image Acquisition (b) Pre-processing (c) Feature Extraction (d) Detection

7. Choose the incorrect statement related to pre-processing stage of computer vision :
   (a) It enhances the quality of acquired image   1
   (b) Noise reduction and Image normalization is often employed with images
   (c) Techniques like histogram equalization can be applied to adjust the distribution of pixel
   intensities
   (d) Edge detection and corner detection are ensured in images.

Section - B

8. How **Series** data Structure is different from **dataframe** ? Give example also. 2

9. Write a python a code to create a Series S1 object using an array. Write all the necessary libraries for the same. 2

10. How can we add new rows and columns to an existing DataFrame 'df1'? Explain with code examples. 2

11. How many steps are there in Data Science Methodology? Name them in order. 2

12. Write a comparative study on train-test split and cross validation. 2

13. Write any four applications of computer vision. Explain each type. 2

Section-C

14. (a) Name the methods used to import & export CSV file from local drive and back to back to drive. 3
    (b) Write a python code to create a DataFrame df1 object from a dictionary.
    Column labels : Admno, Name, Marks1
    Row index: 0,1,2,3
    Values for Admno = 11,12,13,14
    Values for Name = Rajat, Amrita, kartik, Shiva
    Values for Marks1 = 22,21,19,25

15. Calculate MSE and RMSE values for the data given below: 3

Actual (A)	Predicted (P)
100	110
120	125
150	145
170	165
200	190
210	205
220	225
250	240
300	310
350	340

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