



Series Σ HEFG/C



Set-4

Q.P. Code **367**

Roll No.

Candidates must write the Q.P. Code on the title page of the answer-book.

ARTIFICIAL INTELLIGENCE

Time allowed : 2 hours

Maximum Marks : 50

- Please check that this question paper contains **11** printed pages.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **21** questions.
- **Please write down the serial number of the question in the answer-book before attempting it.**
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

General Instructions :

- Please read the instructions carefully.*
- This question paper consists of **21** questions in **two** sections : **Section A** and **Section B**.*
- Section A** has Objective Type Questions whereas **Section B** contains Subjective Type Questions.*
- 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.*
- All questions of a particular section must be attempted in the correct order.*



(vi) **Section A : Objective Type Questions (24 marks) :**

- (a) This section has **5** questions.
- (b) There is no negative marking.
- (c) Do as per the instructions given.
- (d) Marks allotted are mentioned against each question/part.

(vii) **Section B : Subjective Type Questions (26 marks) :**

- (a) This section has **16** questions.
- (b) A candidate has to do **10** questions.
- (c) Do as per the instructions given.
- (d) Marks allotted are mentioned against each question/part.

Section A

(Objective Type Questions)

24 Marks

1. Answer any 4 out of the given 6 questions on Employability Skills. $4 \times 1 = 4$

(i) _____ is a term used to describe a person's ability to recognise what results are important and the steps needed to be taken to achieve them.

- (a) Self-reflection
- (b) Result orientation
- (c) Motivation
- (d) Inspiration

(ii) Which of the following personality disorders is characterised by distrust for others, including friends, family members and partners ?

- (a) Antisocial
- (b) Schizoid
- (c) Paranoid
- (d) Narcissistic



- (iii) _____ refers to the process of enhancing entrepreneurial skills and knowledge through structured training and institution building programmes.
- (a) Entrepreneur's work culture
 - (b) Entrepreneurship development
 - (c) Entrepreneurship selection
 - (d) Entrepreneur management
- (iv) In a spreadsheet software, an arrangement of cells in a horizontal manner is known as :
- (a) Worksheet
 - (b) Workbook
 - (c) Column
 - (d) Row
- (v) Which of the following is **not** an example of a presentation software ?
- (a) LibreOffice Impress
 - (b) Microsoft Office - PowerPoint
 - (c) Notepad
 - (d) Google Slides
- (vi) Individuals, who focus on developing solutions that benefit the society, are called _____.
- (a) Social entrepreneurs
 - (b) Industrial entrepreneurs
 - (c) Agricultural entrepreneurs
 - (d) Technical entrepreneurs

2. Answer any 5 out of the given 6 questions.

5×1=5

- (i) Which of the following is the first step of an AI project ?
- (a) Problem definition
 - (b) Data gathering
 - (c) Feature definition
 - (d) AI model construction



- (ii) Data storytelling involves a combination of _____ key elements.
- (a) two (b) three
(c) four (d) five
- (iii) A _____ set is a set of historical data in which the outcomes are already known.
- (a) current (b) instant
(c) training (d) output
- (iv) The first fundamental step, when starting an AI initiative is _____ and selecting the relevant use cases, that the AI model will be built to address.
- (a) scoping (b) deployment
(c) thinking (d) designing
- (v) The train-test procedure is appropriate when there is a sufficiently _____ dataset available.
- (a) small (b) moderate
(c) large (d) average
- (vi) In AI development, which of the following frameworks is used ?
- (a) Python (b) Visual Basic
(c) XGBoost (d) C++

3. Answer any **5** out of the given **6** questions.

5×1=5

- (i) Expand the term RMSE.
- (a) Rational Median Square Error
(b) Root Median Square Estimate
(c) Root Mean Squared Error
(d) Root Median Sequential Estimate



- (ii) When the _____ is accompanied with data, it helps to explain the audience what's happening in the data and why a particular insight has been generated.
- (a) visuals
 - (b) narrative
 - (c) project
 - (d) graphs
- (iii) Which of the following is **not** True for Testing ?
- (a) Data validation is important.
 - (b) The volume of test data can be large.
 - (c) Your testing team should test the AI and ML algorithms keeping model validation.
 - (d) Regulatory compliance testing and security testing are not so important.
- (iv) A narrative shows the audience where to look and what not to miss and also keeps the audience _____.
- (a) happy
 - (b) confused
 - (c) engaged
 - (d) enlightened
- (v) In _____ stage, the data scientist will play around with different algorithms to ensure that the variables in play are actually required.
- (a) Evaluation
 - (b) Data Modelling
 - (c) Data requirement
 - (d) Problem scoping



- (vi) Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer from the code given below :

Assertion (A) : The first fundamental step when starting an AI initiative is building the model.

Reason (R) : First stage of AI initiative involves the planning and motivational aspects of your project.

Code :

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.

4. Answer any 5 out of the given 6 questions.

5×1=5

- (i) Which of the following is **not** a development tool in building an AI model ?

- (a) DataRobot
- (b) H2O
- (c) Watson Studio
- (d) Visual Basic

- (ii) Which of the following is a key element of a data story ?

- (a) audience
- (b) information
- (c) engage
- (d) narrative

- (iii) If there is no _____ in the data, then the problem cannot be solved with AI technology.

- (a) language
- (b) pattern
- (c) logic
- (d) program



- (iv) Data _____ is a structured approach for communicating insights drawn from data.
- (a) storytelling
 - (b) representation
 - (c) acquisition
 - (d) exploration
- (v) Which of the following are correct ?
- (a) If the data you collect is not good, you won't be able to build an effective AI algorithm.
 - (b) The testing phase is essentially an iterative process.
 - (c) Test data should not include all relevant subsets of training data.
 - (d) Once the relevant projects have been selected and properly scoped, the next step of the machine learning life cycle is testing.
- (vi) _____ functions predict a quantity, and classification functions predict a label.
- (a) Regression
 - (b) Continuous
 - (c) Algorithm
 - (d) Dataset



5. Answer any 5 out of the given 6 questions.

5×1=5

(i) _____ create engaging experiences that transport the audience to another space and time.

- (a) Stories
- (b) Algorithms
- (c) Visualizations
- (d) Information

(ii) _____ is a method to find the minimum point of a function.

- (a) Objective function
- (b) Focal loss
- (c) Loss function
- (d) Gradient descent

(iii) Which of the following is the most preferred language for building an AI or machine learning model ?

- (a) C++
- (b) TensorFlow
- (c) Python
- (d) DataRobot

(iv) Which of the following is true for Train-Test Split Evaluation ?

- (a) The procedure involves taking a dataset and dividing it into two subsets.
- (b) The train-test procedure is appropriate when there is a small dataset.
- (c) The objective is to estimate the performance of the user.
- (d) It cannot be used for classification or regression problems.

(v) _____ is the last stage of the AI model life cycle.

- (a) Scoping
- (b) Design
- (c) Deployment
- (d) Build



Answer any 4 out of the given 6 questions in 20 – 30 words each.

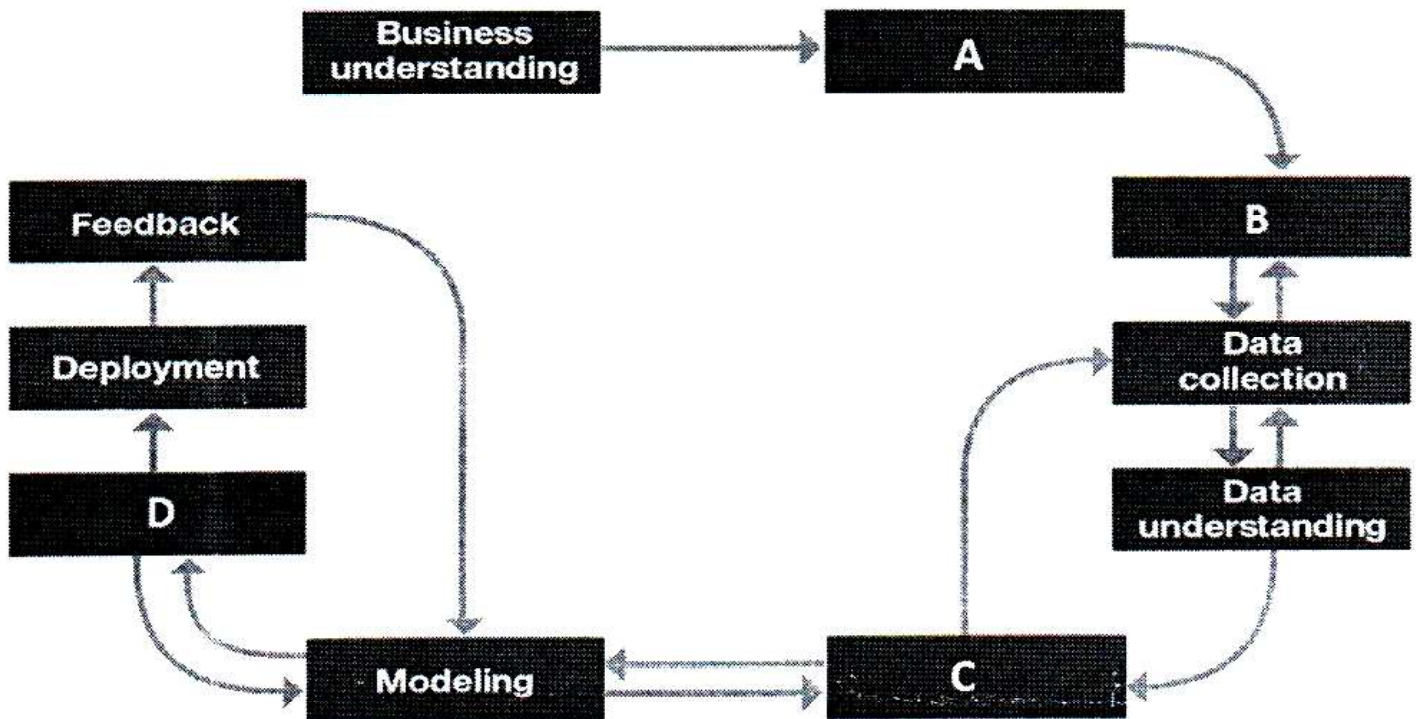
4×2=8

11. What is Design thinking ?
12. Explain the term Train-Test Split Evaluation.
13. Give any two factors that make storytelling a powerful tool.
14. Differentiate between Train dataset and Test dataset.
15. What is Cross-Validation Procedure ?
16. Mention one reason why scoping is one of the most important parts of your AI project.

Answer any 3 out of the given 5 questions in 50 – 80 words each.

3×4=12

17. The following is the diagram depicting the foundational methodology of data science.



The diagram is marked with A, B, C, D. Identify these steps and briefly explain the significance of steps marked as 'A' and 'B'.



18. Mention any four considerations that should be kept in mind during the testing phase.
19. Explain the main stages of the AI Model Life cycle.
20. Mention any four reasons due to which data storytelling has acquired a place of importance.
21. Consider the following graph. Mention the steps that can assist in finding compelling stories in the data sets.

