CBSE | DEPARTMENT OF SKILL EDUCATION

DATA SCIENCE (SUBJECT CODE - 419)

Blue-print for Sample Question Paper for Class X (Session 2026-2027)

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 -II	1	1	2
2	Self-Management Skills -II	2	1	3
3	ICT Skills -II	1	1	2
4	Entrepreneurial Skills -II	1	1	2
5	Green Skills -II	1	1	2
TOTAL QUESTIONS		**6**	**5**	**11**
NO. OF QUESTIONS TO BE ANSWERED		**Any 4**	**Any 3**	**07**
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	
1	Use of statistics in Data Science	4	1	1	6
2	Distributions in Data Science	4	1	1	6
3	Identifying Patterns	4	1	1	6
4	Data Merging	7	2	1	10
5	Ethics in Data Science	5	1	1	7
TOTAL QUESTIONS		**24**	**6**	**5**	**35**
NO. OF QUESTIONS TO BE ANSWERED		**Any 20**	**Any 4**	**Any 3**	**27**
TOTAL MARKS		**1 x 20 = 20**	**2 x 4 = 8**	**4 x 3 = 12**	**40 MARKS**

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DATA SCIENCE (SUBJECT CODE - 419)

SAMPLE QUESTION PAPER – 1 FOR CLASS X (SESSION 2026-2027)

Max. Time: 2 Hours **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.	Riya sends her project details to her teacher by e-mail. Here, the e-mail acts as: a) Message b) Channel c) Feedback d) Receiver	**1**
ii.	Sonia got fewer marks than expected (Adversity). She thought, "It's okay, I will ask my teacher for help and do better next time" (Belief). As a result, she felt motivated to study more (Consequence). Sonia's motivation to study more represents which part of the ABC of stress management? a) Adversity b) Belief c) Consequence d) Reaction only	**1**
iii.	Neha wants to score better in Mathematics. Instead of just saying "I will study more," she plans: "I will **solve 10 problems daily** from my Mathematics book and complete the entire **Algebra chapter in 2 weeks**." Which SMART element does "complete Algebra chapter in 2 weeks" represent? a) Relevant b) Achievable c) Time-bound d) Specific	**1**
iv.	Abhay is typing his project report. By mistake, he deletes one full paragraph. He wants to bring it back quickly. Which shortcut key should he use? a) Ctrl + X b) Ctrl + V c) Ctrl + Z d) Ctrl + C	**1**
v.	Karan wants to open a sports shop. He carefully studied the market, compared locations, and decided to open it near a stadium. Which entrepreneurial function is he applying? a) Innovation b) Decision-making c) Risk-bearing d) Laziness	**1**
vi.	Meena's company introduced eco-friendly packaging made from recycled paper. Customers appreciated the idea and sales increased. Which Sustainable Development Goal (SDG) does this support? a) Quality Education b) Responsible Consumption and Production c) Zero Hunger d) Clean Water and Sanitation	**1**
Q.2	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	Standard Deviation measures_____. a) The middle value of the dataset b) The average of squared differences from the mean c) The total of all data points d) The highest and lowest values difference	**1**

ii.	In data science, distribution represents_____. a) How data is collected from surveys b) How probable values for a variable occur and how often c) The average of a dataset d) The spread of data around the mean	**1**
iii.	What is the Data Science term used to describe partiality, preference, and prejudice? a) Bias b) Favoritism c) Influence d) Unfairness	**1**
iv.	In one-to-one join, each row in one table is linked to a single row in another table using a ___column.	**1**
v.	What is the main purpose of a Data Governance Framework? a) To reduce computation speed b) To ensure proper handling, security, and usage of data c) To increase storage cost d) To visualize large datasets	**1**
vi.	If an organization collects health data without informing patients, which principle is ignored? a) Informed consent b) Anonymization c) Data stewardship d) Data duplication	**1**
Q3.	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	A two-way relative frequency table differs from a two-way frequency table because it shows: a) Counts only b) Percentages c) Graphical values d) Averages	**1**
ii.	Which type of data is represented by "depth of an ocean"? a) Discrete b) Continuous c) Categorical d) Binary	**1**
iii.	Choose the correct set of matches. (i) Survivor Bias — (A) Assumes proportional change in two related quantities. (ii) Recall Bias — (B) Outcome of seeing only what you want to see in the data. (iii) Confirmation Bias — (C) Labeling similar type of data inconsistently. (iv) Linearity Bias — (D) Occurs when we only focus on successful examples and ignore failures. a) (i)-(A), (ii)-(B),(iii)-(C), (iv)-(D) b) (i)-(D), (ii)-(C),(iii)-(B), (iv)-(A) c) (i)-(B), (ii)-(D),(iii)-(A), (iv)-(C) d) (i)-(B), (ii)-(A),(iii)-(D), (iv)-(C)	**1**

iv.	**What is a z-score?** a) It is the number of standard deviations a particular score lies above or below the mean of the set of scores. b) It is a standardised measure of the mean of a set of data c) It is the average frequency of scores in a sample d) It is the measure of central tendency in the data	**1**
v.	i. The z-score is always negative if the value of the z-score lies above the mean. ii. The z-score is positive if its value is below the mean. iii. The z-score is always positive if the value of the z-score lies above the mean. iv. The z-score is negative if its value is below the mean. Identify the correct statements. a) i and ii b) i and iv c) ii and iii d) iii and iv	**1**
vi.	**Assertion (A):** Discarding unnecessary data after use is part of ethical guidelines. **Reason (R):** Storing all data permanently ensures fairness and transparency. a) Both A and R are true, and R is the correct explanation of A b) Both A and R are true, but R is not the correct explanation of A c) A is true, but R is false d) A is false, but R is true	**1**
Q. 4	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	You have a dataset with 50 columns. You only need "Age," "Height," and "Weight." Which type of subsetting is best? a) Row-based subsetting b) Column-based subsetting c) Data-based subsetting d) None of the above	**1**
ii.	The main purpose of the statistical problem-solving process is to: a) Create surveys b) Collect and analyze data to answer questions c) Draw graphs only d) Eliminate variability completely	**1**
iii.	The p^{th} percentile of a distribution is such that: a) p percent of the observations fall at it b) p percent of the observations fall below it c) p percent of the observations fall at or below it d) the value is p.	**1**
iv.	Which of the following mathematical formula is used to calculate the Decile? a) i * (n + 1)/10^{th} Data b) i * (n + 10)/10^{th} Data c) i + (n + 1)/10^{th} Data d) (n + i)/10^{th} Data	**1**

v.	A financial company stores thousands of customer loan applications containing sensitive details like PAN number, salary slips, and bank account details. After the loan approval process is completed, the company decides to discard unnecessary files. The data protection officer suggests shredding the physical copies of these documents. Why did the company choose shredding of documents? a) To save money on paper b) To protect sensitive information from misuse c) To improve data visualization d) To increase transparency only	**1**
vi.	Assertion (A): Discarding unused data reduces the risks during cyber-attacks. Reason (R): Hackers cannot steal what does not exist in storage. a) Both A and R are true, and R is the correct explanation of A b) Both A and R are true, but R is not the correct explanation of A c) A is true, but R is false d) A is false, but R is true	**1**
Q.5	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	Which of the following best describes the **role of median** in data science? a) It helps in finding the most repeated observation b) It shows the spread of data around the mean c) It accurately shows the middle of the dataset even with outliers d) It always matches the average in every dataset	**1**
ii.	If a card is chosen at random from a standard deck, what is the probability of drawing a King? a) 1/52 b) 2/52 c) 4/52 d) 13/52	**1**
iii.	**Statement:** The Central Limit Theorem says that the distribution of sample means approaches a normal distribution as the sample size increases. **(True/False)**	**1**
iv.	Which of the following is considered one of the simplest join techniques, where each row in one table is linked to a single row in another table? a) One to Many Joins b) One to One Joins c) Many to Many Joins d) All the above	**1**
v.	What is the percentile for the element 22 in the sorted data set [10, 12, 13, 15, 16, 17, 20, 22, 23, 24]? a) 70^{th} percentile b) 80^{th} percentile c) 22^{nd} percentile d) 100th percentile	**1**
vi.	Encrypting data ensures that even if stolen, it cannot be _____ without a key.	**1**

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2 x 3 = 6 marks) Answer each question in 20 – 30 words.

Q. 6	Explain the principles of completeness and courtesy in communication with workplace examples.	**2**
Q. 7	Ravi's books and notes are scattered on his bed and table. He wastes 20 minutes daily searching for things before he can start studying. (a) Which step of time management is Ravi missing? (b) How will organising help Ravi?	**2**
Q. 8	Explain two measures to protect your computer data from theft and viruses.	**2**
Q. 9	Why are decision-making and risk-taking important functions of an entrepreneur?	**2**
Q. 10	Why is water becoming a problem for sustainable development?	**2**

Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)

Q. 11	In a class test, the marks (out of 50) were recorded: 10, 15, 18, 20, 21, 22, 47 (a) If the teacher uses the mean to represent the class performance, will it reflect the true performance? (b) Which measure should the teacher use instead, and why?	**2**
Q. 12	Explain uniform distribution with the help of an example.	**2**
Q. 13	A business analyst studies companies that survived for 20 years and tries to identify the "success formula." They ignore the companies that failed during the same period. (i) Which bias is present here? (ii) Why does this lead to wrong conclusions?	**2**
Q. 14	Suppose heights of 2nd graders follow a normal distribution with a mean of 48 inches and a standard deviation of 2 inches. What is the z score of a 2nd grader who is 40 inches tall?	**2**
Q. 15	Do you think it is helpful to standardize the values of a normal distribution by converting them into the z-score? Explain	**2**
Q. 16	Confidential data is maintained in the form of digital as well as physical copies. Suggest two ways in which we can discard the physical copies of confidential data.	**2**

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

Q. 17	Weather Forecasts report shows City X: Mean temperature = 30°C, Standard Deviation = 2°C City Y: Mean temperature = 30°C, Standard Deviation = 9°C (a) Which city has the same average temperature? (b) Which city has more reliable forecasts? (c) What does a higher Standard Deviation mean in weather prediction? (d) If you were planning a trip, which city would you prefer and why?	**4**

Q. 18	Explain the four components of the Statistical Problem-Solving Process. (Components only; include brief detail with example for each.)	**4**
Q. 19	A news channel wants to predict the average income of people in a city with 10 lakhs residents. Instead of surveying the entire population, they collect data from 500 randomly chosen households. (a) What does the Central Limit Theorem state? (b) Why is taking a sample of 500 households valid in this case? (c) How does increasing the sample size affect the accuracy of the prediction? (d) What problem might occur if only 20 households are surveyed?	**4**
Q. 20	We can perform data merging by implementing data joins on the databases in frame. How many types of joins are there? Explain.	**4**
Q. 21	A government office maintains physical records of employees, including salary details, identity proofs, and medical reimbursements. After 10 years, these records are no longer required. The office stores them in cupboards without disposal. Later, a visitor finds some of these files and leaks employee information online. After this incident, the office adopts stricter measures: • All outdated paper files are cut up or shredded before disposal. • Digital files are permanently deleted when no longer required. • Staff are trained in responsible data governance to avoid future risks. (a) Which ethical guideline did the office ignore initially? (b) What risk occurred due to improper disposal of old employee records? (c) How does cutting up or shredding documents protect sensitive data? (d) Suggest two measures (other than shredding) to strengthen data governance in such offices.	**4**