



Delhi Public School, Howrah

PERIODIC ASSESSMENT II (2024 – 2025)

CLASS – IX

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence.

SUBJECT: DATA SCIENCE (SUBJECT CODE 419)

THEORY EXAMINATION

Time Allowed:-2 Hours

F.M.-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.	Interpersonal communication takes place - (a) Between two individuals (b) In our mind (c) In a small group (d) In public speaking	(1)
ii.	Smileys/ Emojis used in a communication is part of - (a) Visual communication (b) Verbal communication (c) Non-verbal communication (d) Written communication	(1)
iii.	Thinking about activities that we commonly find difficult to do is a step towards identifying our - (a) Strength (b) Weakness (c) Belief (d) Emotions	(1)
iv.	_____ refers to the talent, skill or proficiency in a particular area. (a) Interest (b) Commitment (c) Ability (d) Strength	(1)
v.	_____ is a type of ROM where the contents can be erased by ultraviolet light and then reprogrammed again. (a) PROM (b) EEPROM (c) PPR0M (d) EPROM	(1)
vi.	Google calendar is an app that belongs to the category of _____ apps. (a) utility (b) productivity (c) entertainment (d) communication	(1)

Q. 2 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)		
i.	_____ is anything that we can see, read, speak or observe. (a) Data (b) Information (c) Knowledge (d) Wisdom	(1)
ii.	_____ carries a specific and logical meaning as it is obtained after data processing or data interpretation. (a) Data (b) Information (c) Knowledge (d) Wisdom	(1)
iii.	A _____ can be used to trace and keep the record of all information gathered by you after visiting a website. (a) database (b) data (c) data log (d) data footprint	(1)
iv.	A data footprint is said to be _____ if the user has deliberately shared personal information through a social networking platform. (a) direct (b) indirect (c) active (d) passive	(1)
v.	Which of the following statements is not an advantage of data footprint? (a) Personalised customer experience (b) Fraud or legal issues can be easily detected (c) Invasive advertisements (d) Recruiter can easily find the right candidate for a job	(1)
vi.	Which of the following can be a possible reason for data loss due to hardware failure? (a) Software corruption (b) Phishing attack (c) Improper connection (d) Formatting hard drive	(1)

Q. 3 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)		
i.	The first step of data processing is data _____. (a) analysis (b) collection (c) interpretation (d) visualization	(1)
ii.	Which level of DIKW model gives a clear view about the goal of collected data through systematic analysis of data? (a) Data (b) Information (c) Knowledge (d) Wisdom	(1)
iii.	Which kind of data footprint would be created when a user doesn't know that his/her activities has been monitored by a company on the internet? (a) direct (b) indirect (c) active (d) passive	(1)
iv.	Numerical or _____ variable is the type of variable that holds a data value in the form of numbers or count. (a) quantitative (b) qualitative (c) categorical (d) semi-categorical	(1)
v.	Weight of a child is data of _____ variable. (a) Nominal (b) Ordinal (c) Continuous (d) Discrete	(1)
vi.	_____ data is a type of data which is subjective in nature. (a) Quantitative (b) Qualitative (c) Categorical (d) Semi-categorical	(1)

Q. 4 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)		
i.	Frequency distribution table is one of the several ways of conducting _____ analysis. (a) Univariate (b) Bivariate (c) Trivariate (iv) Multivariate	(1)
ii.	Which of the following is/are the advantages of quantitative data? (i) It is highly reliable and more accurate (ii) The process of analyzing quantitative data is quite easy (iii) The process of analyzing quantitative data may require certain expertise of statistics (iv) Quantitative data provides larger datasets to get more accurate results (a) only (i) and (iv) (ii) only (i), (ii) and (iii) (c) only (i), (ii) and (iv) (d) all (i), (ii), (iii) and (iv)	(1)
iii.	Which of the following data would be used to recognize the sale of items per month in a shop? (a) Quantitative (b) Qualitative (c) Nominal (d) Ordinal	(1)
iv.	Books, magazines, newspapers are the sources of - (a) Secondary data (b) Primary data (c) Big data (d) Real time data	(1)

v.	In data science, _____ algorithms are commonly used to identify or recognize the rare observation which is suspicious as compared to normal behaviour. (a) Data Analysis (b) Information Retrieval (c) Anomaly Detection (d) Pattern Recognition	(1)
vi.	In statistical data analysis, _____ analysis is a common and widely used method to segregate groups with similar traits and assign them into groups. (a) image (b) pattern (c) variable (d) cluster	(1)

Q. 5	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	Variance analysis is one of the several ways of conducting _____ analysis. (a) Univariate (b) Bivariate (c) Trivariate (d) Multivariate	(1)
ii.	Which of the following terms refers to the process of analyzing large amounts of data to see what patterns or other useful information exists in it? (a) Data Analysis (b) Information Analytics (c) Big data Analytics (d) Data Analytics	(1)
iii.	The sale of ice cream increases during the summer season. Which type of analysis is usually used to calculate the profit? (a) Multivariate Analysis (b) Bivariate Analysis (c) Univariate Analysis (d) Trivariate Analysis	(1)
iv.	Which of the following methods displays hierarchical data in nested format? (a) Tree Maps (b) Charts (c) Graphs (d) Heat Maps	(1)
v.	Which of the following statements is true about Heat Maps? (a) Heat Maps are three-dimensional representations of data (b) Data values in Heat Maps are represented by colours (c) Heat Maps demonstrates data in a column chart form (d) Heat Maps demonstrates data in a row chart form	(1)
vi.	Which of the following approaches is used to recognize trends, patterns and outliers from seemingly meaningless records of data? (a) Data Interpretation (b) Data Visualization (c) Data Representation (d) Data Collection	(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	Non-verbal communication refers to the process of sending and receiving messages without using words – either spoken or written. Explain two advantages and disadvantages of Non-verbal communication.	(2)
Q. 7	Perspective in communication focusses on the way in which our shared meanings and practices are constituted through language and symbol, the construction of messages and their dissemination through media, organizations and society. Discuss two factors that affect perspective in communication.	(2)
Q. 8	Explain two features of self-management skills.	(2)
Q. 9	Define the term computer communication. Differentiate between the communication devices dial-up and wireless modem.	(2)
Q.10	The CPU's logical construct is one of the wonders of modern computing. Handling and processing of data through several units of the CPU is very important for computer to be able to term the system as efficient. Explain (i) Control Unit (ii) Arithmetic logic unit.	(2)

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

Q.11	Raj is a student of class IX and he has opted for Data Science as the 6 th subject. After learning about the concept of data science and the DIKW model, he was wondering how raw data collected is turning into wisdom through the different layers of the DIKW model. Explain Knowledge and Wisdom layers in the DIKW pyramid.	(2)
Q.12	While collecting data from several sources, selection of data sources should be done judiciously. State two characteristics for both primary data source and secondary data source that you need to keep in mind in order to select the proper data source for data collection.	(2)
Q.13	Discuss two real time applications of big data.	(2)

Q.14	Define the term data interpretation. What are the first four simple questions which can help us in the process of data interpretation?	(2)
Q.15	What do you understand by data visualization tools? Give examples.	(2)
Q.16	Data visualization is the backbone of data analysis. Every working sector around us processes huge amount of data everyday to maintain proper work flow in the respective sectors. Discuss the real world applications of data visualization in the sector of (i) E-commerce companies and (ii) Monitoring of usage trends of a website to predict traffic hours.	(2)

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

Q.17	Rajendra is preparing for his PA-II examination and he was learning about the different levels of data analysis. He was surprised to know that data is being related with variables, using which the analysis of data takes place smoothly. What do you understand by variables? What are the levels of data analysis that is associated with data consisting of different number of variables?	(4)
Q.18	Nidhi is preparing for a group discussion based on Big Data. She was gathering information from her friend regarding the same. State the characteristics of big data which are commonly referred to as the four V's.	(4)
Q.19	The term "Data Science" was coined at the beginning of the 21 st Century. For Data Science, usually the data is collected in the form of tables. Define the term Data Science. State and define three commonly used table formats of data.	(1+3)
Q.20	Define the term Data Visualization. Why do you think Data Visualization is an important aspect of Data Science? State four advantages of Data Visualization.	(2+2)
Q.21	The process of data visualization is significantly important for every business as we are living in the digital age where data is created each and every second. In general, Dashboard is a comprehensive snapshot of a company using which a voluminous amount of data can be easily visualized coming from multiple or different sources. Name and explain four common data visualization techniques involved in a business dashboard with its diagram.	(4)