

**BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)**  
**B.Tech.Sem - VIII INFORMATION TECHNOLOGY : SUMMER : 2024**  
**SUBJECT: DATA ENGINEERING**

Day : Monday  
Date : 27/05/2024

S-24773-2024

Time : 02:30 PM-05:30 PM  
Max. Marks : 60

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**N.B:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Assume suitable data if necessary.
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- Q.1 Articulate in detail the Data Engineering lifecycle. [10]  
OR
- Q.1 Discuss the types and components of an ideal data architecture. [10]
- Q.2 Appraise the role of data engineers in the data management of source systems. [10]  
OR
- Q.2 Define source systems in context of data engineering. Discuss in detail the process of data collection from source systems. [10]
- Q.3 Comment on the statement "Storage plays a central storage role in the data engineering lifecycle". [10]  
OR
- Q.3 Enlist and elaborate the raw ingredients of a data storage system in context of data engineering lifecycle. [10]
- Q.4 Discuss at least three methods of data ingestion commonly used in contemporary data architectures. [10]  
OR
- Q.4 Highlight the challenges associate with each method of data ingestion and propose potential solutions to mitigate these challenges. Provide examples where applicable. [10]
- Q.5 Discuss three key applications where machine learning enhances analytics capabilities, providing specific examples or case studies for each application. [10]  
OR
- Q.5 Examine the importance of modelling and data transformations in the field of data science. [10]
- Q.6 Examine the evolving landscape of security and privacy concerns in data engineering practices and their implications for the future of data management. [10]  
OR
- Q.6 Discuss three significant security and privacy challenges faced by data engineers in today's data-driven environments. [10]

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