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**Question Paper Code: REG74**

B.E. DEGREE EXAMINATION, NOV 2025

Professional Elective

Artificial Intelligence & Data Science

R21ADVG74 – DATA AND INFORMATION SECURITY

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Explain the evolution of Information Security from classical to modern times. Highlight key developments that led to the emergence of cyber security CO1-U (20)  

Or

(b) Identify and explain the seven critical characteristics of information. Why are they important for maintaining secure systems? CO1-U (20)
  
2. (a) Assume a scenario where a company stores large-scale sensor data. Explain how HDFS would manage and store this data efficiently. CO2-App (20)  

Or

(b) Compare the use of Hadoop and MongoDB in a real-time analytics system. When would you choose one over the other? CO2-App (20)
  
3. (a) Discuss the importance of risk identification in information security. Illustrate with real-world examples CO2-App (20)  

Or

(b) Explain the Confinement Problem in information security. How does it impact secure system design? Give examples CO2-App (20)
  
4. (a) Explain the VISA International Security Model. How is it used to protect payment systems? CO1- U (20)  

Or

(b) Explain the importance of a blueprint for security. What are its essential components? CO1- U (20)

5. (a) Discuss Intrusion Detection Systems (IDS) and their role in CO2- App (20)  
securing networks.

Or

(b) Explain scanning and analysis tools used in information security. CO2- App (20)