**Total No. of Questions: 06** **Enrollment No.** EN22CS301175

MEDICAPS UNIVERSITY

Faculty of Engineering

Mid Sem Test-I September-2025

CS3ED03 DATA VISUALIZATION

**Programme: B.Tech** **Branch/Specialization: CSE**

**Duration: 50 Minutes** **Maximum Marks: 20**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| Q.1 | | Define time series in DATA visualization? | 2 | $BL_1$ | $CO_1$ |
| Q.2 | | What is the key consideration is required for mapping atheistic? | 3 | BL1 | $CO_1$ |
| Q.3 | (a) | Define colour encoding? Explain some ways to encode data with colour and size? | 5 | $BL_2$ | $CO_1$ |
| | | **OR** | | | |
| | (b) | What is the key components of good data visualization and? Explain different Types of data visualization? | 5 | $BL_2$ | $CO_1$ |
| Q.4 | | Define data cleaning with proper example? | 2 | $BL_1$ | $CO_2$ |
| Q.5 | | What is missing values? How missing values is handled? | 3 | $BL_1$ | $CO_2$ |
| Q.6 | (a) | Define outliners? Discuss potential method of handling them? | 5 | $BL_2$ | $CO_2$ |
| | | **OR** | | | |
| | (b) | Define pie chart? Explain when it suitable for the visualizing data? | 5 | $BL_2$ | $CO_2$ |

******

Total No. of Questions: 06

Enrollment No. EN22CS301175

MEDICAPS UNIVERSITY

Faculty of Engineering

Mid Sem Test-II November-2025

CS3ED14 Data Visualization

**Programme: B. Tech** **Branch/Specialization: CSE**

**Duration: 50 Minutes** **Maximum Marks: 20**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| Q.1 | | What is a scatter plot? Mention one situation where it is most useful. | 2 | $BL_{03}$ | $CO_{03}$ |
| Q.2 | | What is the difference between a Stacked Bar Chart and a Grouped Bar Chart? | 3 | $BL_{02}$ | $CO_{02}$ |
| Q.3 | (a) | Describe area chart and its types with examples. | 5 | $BL_{02}$ | $CO_{02}$ |
| | | **OR** | | | |
| | (b) | Discuss the construction and interpretation of a Box Plot. How does it help in identifying data distribution and outliers? Illustrate with a diagram. | 5 | $BL_{04}$ | $CO_{04}$ |
| Q.4 | | What is a Heatmap, and what type of data is best represented using it? | 2 | $BL_{03}$ | $CO_{03}$ |
| Q.5 | | Define Word Cloud and mention one key limitation of this visualization technique. | 3 | $BL_{04}$ | $CO_{04}$ |
| Q.6 | (a) | Compare and contrast Network Diagrams and Fisheye Views in terms of their objectives, design approach, and user interaction. | 5 | $BL_{04}$ | $CO_{04}$ |
| | | **OR** | | | |
| | (b) | Explain how Geographic Maps can be used to visualize spatial data. Give an example application. | 5 | $BL_{04}$ | $CO_{04}$ |

*****

**Total No. of Questions: 06** **Enrollment No.** EN.22CS301175

# MEDICAPS UNIVERSITY

Faculty of Engineering
Mid Sem Test-I September-2025
CS3ED13 Generative AI

**Programme: B.Tech** **Branch/Specialization: CSE**
**Duration: 50 Minutes** **Maximum Marks: 20**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| Q.1 | | Define Generative AI? | 2 | 1 | 1 |
| Q.2 | | What are the key differences between generative and discriminative models? | 3 | 2 | 2 |
| Q.3 | (a) | How can individuals maintain privacy and control over their personal data in a world increasingly influenced by generative AI? | 5 | 4 | 4 |
| | | **OR** | | | |
| | (b) | What is probability? Let E and F are events of a experiment such that P(E) = 3/10 P(F) = ½ and P(F\|E) = ⅖<br>Find the value of (i) P(E ∩ F)<br>(ii) P(E\|F) (iii) P(E ∪ F) | 5 | 5 | 5 |
| Q.4 | | Define latent space? | 2 | 1 | 1 |
| Q.5 | | Suppose you have a simple autoencoder with one input layer of 3 neurons and one hidden layer of 2 neurons (the bottleneck). The input vector is:<br>x = [4, 1, 7]. The encoder compresses x into a latent vector z, and the decoder tries to reconstruct x from z, producing: x' (reconstructed) = [3.5, 1.2, 6.8]<br>Calculate the reconstruction error using Mean Squared Error (MSE). | 3 | 5 | 5 |
| Q.6 | (a) | Discuss regularization techniques? | 5 | 3 | 3 |
| | | **OR** | | | |
| | (b) | Explain how autoencoders can be applied to image denoising tasks. What changes are made to the training process? | 5 | 3 | 3 |

******

**Total No. of Questions: 06**

**Enrollment No** EN22CS301175

MEDICAPS UNIVERSITY

Faculty of Engineering

Mid Sem Test-II November-2025

CS3ED13 Generative AI

**Programme: B.Tech** **Branch/Specialization: CSE**

**Duration: 50 Minutes** **Maximum Marks: 20**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| Q.1 | | Define Generator and Discriminator in a GAN. | 2 | 1 | 1 |
| Q.2 | | Demonstrate the working of a DCGAN with a simple diagram | 3 | 3 | 3 |
| Q.3 | (a) | Compare and contrast DCGAN, WGAN, and CycleGAN in terms of architecture, objectives, and applications. | 5 | 4 | 4 |
| | | **OR** | | | |
| | (b) | Examine the ethical and societal concerns associated with GAN-generated deepfakes and AI-generated art. | 5 | 4 | 4 |
| Q.4 | | Explain PixelRNN and PixelCNN in terms of structure and operation. | 2 | 2 | 2 |
| Q.5 | | Demonstrate the architecture and generation process of a Diffusion Model. Include how noise is added and removed during training. | 3 | 3 | 3 |
| Q.6 | (a) | Examine the working principle of Flow-based models with reference to RealNVP architecture. | 5 | 4 | 4 |
| | | **OR** | | | |
| | (b) | Sketch the architecture of Transformer-based generative models such as GPT or DALL·E. | 5 | 4 | 4 |

*****

**Total No. of Questions: 06** **Enrollment No...EN.22CS301195**

# MEDICAPS UNIVERSITY

Faculty of Engineering

Mid Sem Test-I September-2025

OE00056 CLOUD SECURITY

**Programme: B.Tech** **Branch/Specialization: CSE**

**Duration: 50 Minutes** **Maximum Marks: 20**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| Q.1 | | State the meaning of privacy in cloud services. | 2 | BL1 | CO1 |
| Q.2 | | How does defense in depth improve cloud security? | 3 | BL3 | CO2 |
| Q.3 | (a) | Define public-key cryptography in the cloud context. | 5 | BL2 | CO3 |
| | | **OR** | | | |
| | (b) | Compare stream ciphers and block ciphers with respect to their use in cloud data transmission. | 5 | BL4 | CO3 |
| Q.4 | | State any two cloud security design principles. | 2 | BL1 | CO2 |
| Q.5 | | Explain the role of disaster recovery in cloud business continuity. | 3 | BL3 | CO3 |
| Q.6 | (a) | Define the CIA triad and explain its importance in cloud computing. | 5 | BL2 | CO1 |
| | | **OR** | | | |
| | (b) | Describe any three Cloud Security Design Principles. | 5 | BL2 | CO1 |

******

**Total No. of Questions: 06**

**Enrollment No.** EN22CS301175

MEDICAPS UNIVERSITY

Faculty of Engineering

Mid Sem Test-II November-2025

OE00056 Cloud Security

**Programme: B. Tech** **Branch/Specialization: CSE**

**Duration: 50 Minutes** **Maximum Marks: 20**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO |
|---|---|---|---|---|---|
| Q.1 | | Demonstrate as a cloud security auditor, which IAM activity would you review first and why — failed logins, privilege escalations, or unusual access at 2 AM? | 2 | $BL_{03}$ | $CO_{03}$ |
| Q.2 | | Explain the concept of Authentication in cloud environments. Identify the common authentication factors used in daily life and compare their strength with suitable justification. | 3 | $BL_{02}$ | $CO_{03}$ |
| Q.3 | (a) | Describe the Identity and Access Management (IAM) architecture and practices in a cloud environment. Illustrate your answer with a suitable example scenario — for instance, how IAM is applied when a new employee joins an organization. | 5 | $BL_{02}$ | $CO_{03}$ |
| | | **OR** | | | |
| | (b) | Analyze the major Identity and Access Management (IAM) standards and protocols such as Enterprise SSO, OpenID, SAML, and OAuth. Discuss how each protocol operates and provide suitable examples illustrating their use in cloud environments | 5 | $BL_{04}$ | $CO_{04}$ |

| | | | | | |
|---|---|---|---|---|---|
| **Q.4** | | What do you understand by Security Management Standards in cloud computing? Give one relevant example. | **2** | $BL_{02}$ | $CO_{04}$ |
| **Q.5** | | Illustrate Security Vulnerability and Patch Management in the context of cloud computing. Explain how patch management helps in mitigating vulnerabilities. | **3** | $BL_{03}$ | $CO_{04}$ |
| **Q.6** | **(a)** | Analyze how Access Control mechanisms differ across various cloud service models — SaaS, PaaS, and IaaS. Compare their implementation approaches, associated challenges, and techniques used to ensure secure and authorized access to cloud resources. | **5** | $BL_{04}$ | $CO_{04}$ |
| | | **OR** | | | |
| | **(b)** | Analyze how Availability Management is implemented across different cloud service models — SaaS, PaaS, and IaaS. Compare their approaches, challenges, and techniques used to ensure continuous service availability. | **5** | $BL_{04}$ | $CO_{04}$ |

*****