

**END SEMESTER EXAMINATION, JUNE- 2025****B. Sc. (Hons.) in Data Science Semester - VI****Course Name: Entrepreneurship Development****Course Code: GDS362****Time allotted: 03 Hours****Max. Marks: 100****Note: Read all the instructions carefully.**

| <b>Q.1</b> | <b>VERY SHORT ANSWER QUESTIONS – Attempt All.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>(2x10 = 20 Marks)</b> |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| a.         | Industry analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CO1                      |
| b.         | Idea feasibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CO1                      |
| c.         | Project uncertainty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CO1                      |
| d.         | Equity capital                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CO1                      |
| e.         | Angel investor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CO1                      |
| f.         | IPO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CO1                      |
| g.         | Political Implication                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CO1                      |
| h.         | Financial feasibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CO1                      |
| i.         | Franchising                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CO1                      |
| j.         | MSME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CO1                      |
| <b>Q.2</b> | <b>SHORT ANSWER QUESTIONS – Attempt any Five.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>(4x5 = 20 Marks)</b>  |
| a.         | Explain financial feasibility analysis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CO2                      |
| b.         | Write note on NSIC, NRDC and SIDBI.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CO4                      |
| c.         | What are various elements of business plan?                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CO1                      |
| d.         | What are major sources of idea generation?                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CO1                      |
| e.         | What are common ways of resolving conflicts?                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CO5                      |
| f.         | What is PESTLE analysis?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CO2                      |
| g.         | Explain entrepreneurship development process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CO2                      |
| <b>Q.3</b> | <b>STRUCTURED QUESTIONS – Attempt any Three.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>(3x10 = 30 Marks)</b> |
| a.         | Mr. Harsh has started a pilot project of renting bicycles in area near university. He had developed miniature cycle tracking and prepaid device to control the usage of bicycle. From last six months the feedback from user is positive and Mr. Harsh is willing to expand his business at other nearby university. He is confused what type of legal entity he should register for under Indian legal system. Critically compare types of business forms or legal entities the entrepreneur should select. | CO3                      |
| b.         | What are various market segmentation techniques for running a business? Tell specific characteristics of each segment (eg demographic segmentation)                                                                                                                                                                                                                                                                                                                                                          | CO3                      |
| c.         | Tell the role of e-commerce in promoting the entrepreneurship. Tell various advantages of these platforms to startups.                                                                                                                                                                                                                                                                                                                                                                                       | CO5                      |
| d.         | Explain why project crashing is helpful for entrepreneurs. Also explain how project crashing is applied.                                                                                                                                                                                                                                                                                                                                                                                                     | CO3                      |
| <b>Q.4</b> | <b>Case Analysis/ Situation Based QUESTIONS – Attempt any Two.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>(2x15 = 30 Marks)</b> |
| a.         | Explain prominent theories of entrepreneurship. Also give a detailed overview of classification/types of entrepreneur. Tell major reasons of difference between entrepreneurship in Uttarakhand and that of Gujarat.                                                                                                                                                                                                                                                                                         | CO3                      |
| b.         | Miss. Tammana has an idea for a unique android application for tourist which will provide detail weather reports and current situation of most visited places. She is desiring to be listed as the Most Successful entrepreneur. Explain her the entrepreneurship concept. Also explain various reasons the entrepreneurs fails, so that she can take care those things in future.                                                                                                                           | CO5                      |
| c.         | Two graduates from SRHU are planning to implement their idea for a unique android application for tourist which will provide detail weather reports and current situation of most visited places in Uttarakhand. Develop detailed Business plan for their idea.                                                                                                                                                                                                                                              | CO3                      |

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**END SEMESTER EXAMINATION, JUNE- 2025****B. Sc. (Hons.) in Data Science Semester - VI****Course Name: Business Intelligence Tools and Applications****Course Code: BDS362****Time allotted: 03 Hours****Max. Marks: 100****Note: Read all the instructions carefully.****Q.1. Attempt all.****(10×2=20)**

| QN | Questions                                             | CO | PO |
|----|-------------------------------------------------------|----|----|
| a. | What is OLAP?                                         | 2  | 1  |
| b. | What is the role of a classifier?                     | 2  | 1  |
| c. | Is data mart a subset of data warehouse?              | 2  | 1  |
| d. | Define the term data integration.                     | 3  | 1  |
| e. | Differentiate between database & data warehouse.      | 1  | 1  |
| f. | Write full form of ROLAP and MOLAP.                   | 2  | 1  |
| g. | Explain the term data smoothing.                      | 3  | 1  |
| h. | What do you mean by perspective analytical technique? | 4  | 1  |
| i. | Explain the term operational intelligence?            | 5  | 1  |
| j. | Describe the term business intelligence.              | 1  | 1  |

**Q.2. Attempt any five out of Seven.****(5×4=20)**

|    |                                                                                              |     |         |
|----|----------------------------------------------------------------------------------------------|-----|---------|
| a. | Explain multitier architecture of data warehouse.                                            | 2   | 1,2     |
| b. | What are the components of a data warehouse system?                                          | 2   | 1,2     |
| c. | Why do we need to develop a data warehouse?                                                  | 1,2 | 1,2     |
| d. | What is data cube? Explain with a suitable example.                                          | 2,3 | 1,2,3   |
| e. | Describe all the components of Business Intelligence Architecture.                           | 1   | 1,2     |
| f. | Compare data, information and knowledge. Also explain the role of mathematical models in BI. | 1   | 1,2,3,4 |
| g. | Differentiate operational Intelligence and business intelligence.                            | 5   | 1,2,3   |

**Q.3. Attempt any three out of four.****(3×10=30)**

|    |                                                                                                         |     |         |
|----|---------------------------------------------------------------------------------------------------------|-----|---------|
| a. | What do you mean by data mart? Explain all types of a data mart.                                        | 2,3 | 1,2     |
| b. | What do you mean by knowledge discovery in databases? Explain its process.                              | 2   | 1,2     |
| c. | What are data mining functionalities? Explain in brief.                                                 | 2   | 1,2     |
| d. | What is the requirement of data analytics process? Explain all the phases involve in analytics process. | 4   | 1,2,3,4 |

**Q.4. Attempt any two out of three.****(2×15=30)**

|    |                                                                                                                     |     |         |
|----|---------------------------------------------------------------------------------------------------------------------|-----|---------|
| a. | i. What are the phases of data cleaning? Explain.                                                                   | 2,3 | 1,2     |
|    | ii. Explain the following terms: <ul style="list-style-type: none"><li>• OLAP</li><li>• OLTP</li></ul>              |     |         |
| b. | i. Explain multi-dimensional data model.                                                                            | 2,5 | 1,2,3   |
|    | ii. What do you mean by business activity monitoring? Explain.                                                      |     |         |
| c. | What is the importance of analytics process in business intelligence? Explain all types of analytics process in BI. | 4   | 1,2,3,4 |

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**END SEMESTER EXAMINATION, JUNE- 2025****B. Sc. (Hons.) in Data Science Semester – VI****Course Name: Introduction to Deep Learning****Course Code: BDS361****Time allotted: 03 Hours****Max. Marks: 100****Note: Read all the instructions carefully.****Q.1. Attempt all.****(10×2=20)**

| S.No | Questions                                                            | CO | PO |
|------|----------------------------------------------------------------------|----|----|
| a.   | What is a neural network?                                            | 4  | 1  |
| b.   | Define "deep learning."                                              | 4  | 4  |
| c.   | What is the purpose of an activation function?                       | 1  | 4  |
| d.   | Explain the term "backpropagation."                                  | 1  | 3  |
| e.   | Describe a convolutional neural network (CNN).                       | 4  | 1  |
| f.   | What is the difference between supervised and unsupervised learning? | 2  | 2  |
| g.   | Define "overfitting" in deep learning.                               | 1  | 3  |
| h.   | What is a hyperparameter?                                            | 1  | 5  |
| i.   | Explain the concept of transfer learning.                            | 2  | 1  |
| j.   | What is data augmentation?                                           | 3  | 3  |

**Q.2. Attempt any five out of Seven.****(5×4=20)**

| S.No | Questions                                                                                                                                                                      | CO | PO |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|
| a.   | How does the architecture of a convolutional neural network (CNN) differ from that of a recurrent neural network (RNN), and what types of tasks are they typically suited for? | 1  | 12 |
| b.   | What are the advantages of using pre-trained models in deep learning, and how are they commonly utilized?                                                                      | 2  | 1  |
| c.   | Explain the concept of "data augmentation" in deep learning, and how does it contribute to model generalization?                                                               | 4  | 4  |
| d.   | Describe the role of regularization techniques such as L1 and L2 regularization in preventing overfitting in deep learning models.                                             | 3  | 1  |
| e.   | What are some challenges associated with training deep learning models on limited or noisy data, and how can these challenges be addressed?                                    | 3  | 2  |
| f.   | Discuss the concept of "unsupervised pre-training" in deep learning and its relevance in learning meaningful representations from unlabeled data.                              | 3  | 1  |
| g.   | How do recurrent neural networks (RNNs) handle sequential data, and what are some of their limitations compared to other architectures?                                        | 1  | 2  |

**P.T.O./-**



**Q.3. Attempt any three out of four.**

| S.No | Questions                                                                                                                                                                                                                                                                                       | (3×10=) |    |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----|
|      |                                                                                                                                                                                                                                                                                                 | CO      | PO |
| a.   | Explore the concept of transfer learning in deep learning, including its principles, methods, and applications across various domains, and discuss how pre-trained models, fine-tuning, and feature extraction techniques can facilitate knowledge transfer between related tasks and datasets. | 4       | 4  |
| b.   | Discuss the challenges and advancements in multimodal deep learning, which integrates information from multiple modalities such as text, images, audio, and video, and analyze its applications in tasks such as visual question answering, image captioning, and emotion recognition.          | 5       | 3  |
| c.   | Evaluate the role of attention mechanisms in deep learning architectures, including self-attention mechanisms such as the Transformer model, and discuss their applications in sequence modeling, natural language processing, and image generation tasks.                                      | 5       | 1  |
| d.   | Describe the principles of meta-learning and few-shot learning in deep learning, including approaches such as model-agnostic meta-learning (MAML) and prototypical networks, and discuss their potential for enabling rapid adaptation to new tasks and learning from limited data.             | 3       | 2  |

**Q.4. Attempt any two out of three.**

| S.No | Questions                                                                                                                                                                                                                                                                                                                                                        | (2×15=30) |    |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|
|      |                                                                                                                                                                                                                                                                                                                                                                  | CO        | PO |
| a.   | Explore the challenges and advancements in adversarial machine learning, including the generation of adversarial examples, defense mechanisms against adversarial attacks, and the implications for model robustness, security, and reliability in real-world applications.                                                                                      | 1         | 4  |
| b.   | Discuss the role of explainable AI (XAI) in deep learning, including methods for interpreting, visualizing, and understanding model predictions and decisions, and analyze their importance for building trust, transparency, and accountability in AI systems.                                                                                                  | 1         | 1  |
| c.   | Evaluate the current state of federated learning and decentralized machine learning approaches, which enable collaborative training of deep learning models across distributed data sources and devices, and discuss their potential for preserving data privacy, reducing communication costs, and scaling machine learning to large-scale distributed systems. | 3         | 5  |

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**END SEMESTER EXAMINATION, JUNE- 2025****B. Sc. (Hons.) in Data Science Semester – VI****Course Name: Fundamental of Big Data Analytics****Course Code: DDS361**

Time allotted: 03 Hours

Max. Marks: 100

Note: Read all the instructions carefully.

**Q.1. Objectives Type**

(Very short/ Short Answer, MCQ, One-liners, Fill in the Blank, True/ False) Attempt all. (10×2=20)

| Q<br>N | Questions                                                                                                        | CO   | PO  |
|--------|------------------------------------------------------------------------------------------------------------------|------|-----|
| a.     | Define Big Data?                                                                                                 | CO-1 | PO1 |
| b.     | What is the primary storage system in Hadoop?<br>a) SQL b) RDBMS c) HDFS d) JSON                                 | CO-2 | PO1 |
| c.     | Define Structured Data.                                                                                          | CO-1 | PO1 |
| d.     | Normal distribution is also known as _____ curve.                                                                | CO-2 | PO2 |
| e.     | What is meant by Scientific Visualization?                                                                       | CO-3 | PO2 |
| f.     | Name one real-life Big Data application.                                                                         | CO-5 | PO3 |
| g.     | Define Magnitude and Direction in data analysis.                                                                 | CO-2 | PO1 |
| h.     | Which of these is NOT a Big Data tool?<br>a) Pig b) Hive c) Tableau d) Excel                                     | CO-5 | PO4 |
| i.     | Write one challenge in big data.                                                                                 | CO-1 | PO2 |
| j.     | Bayesian analysis is a _____ technique.<br>a) Data Storage b) Data Analysis c) Machine Learning d) Visualization | CO-2 | PO1 |

**Q.2. Short notes / Short Answer Type (Attempt any five out of Seven)**

(5×4=20)

|    |                                                              |      |     |
|----|--------------------------------------------------------------|------|-----|
| a. | Explain Spread and Range.                                    | CO-2 | PO2 |
| b. | Features of Apache Hive.                                     | CO-5 | PO4 |
| c. | Discuss the importance of data distribution models.          | CO-2 | PO3 |
| d. | Difference between Scientific and Information Visualization. | CO-3 | PO2 |
| e. | What do you know about Mean, Median, and Mode                | CO-2 | PO3 |
| f. | Difference between Structured and Unstructured Data.         | CO-1 | PO2 |
| g. | Explain Task Execution.                                      | CO-5 | PO4 |

P.T.O./-



**Q.3. Structured Question (Attempt any three out of four)**

**(3×10=30)**

|           |                                                                                                                                                                                                   |        |       |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| <b>a.</b> | (i) Describe HDFS concepts and benefits.<br>(ii) Discuss the role of variance and standard deviation.<br>(iii) What are the correlation patterns in data analysis?                                | CO-4,2 | PO3,4 |
| <b>b.</b> | (i) How do you install Hadoop on Ubuntu?<br>(ii) Explain Apache Pig with examples.<br>(iii) Describe the anatomy of a MapReduce job.                                                              | CO-4,5 | PO3,4 |
| <b>c.</b> | (i) Describe Tableau and its features.<br>(ii) Explain the difference between Visual Analytics and Information Visualization.<br>(iii) Describe Big Data Visualization impact in decision making. | CO-3   | PO2,3 |
| <b>d.</b> | (i) Discuss the data appliance and data modelling.<br>(ii) Difference between Range and Outlier.<br>(iii) Write a short note on Bayesian Model.                                                   | CO-1,2 | PO2,3 |

**Q.4. Long Answer / Essay type (Attempt any two out of three)**

**(2×15=30)**

|           |                                                                                                                                          |        |       |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| <b>a.</b> | (i) Discuss types of data with suitable examples.<br>(ii) Explain the working and benefits of Apache Hive and Apache Pig.                | CO-4   | PO3,4 |
| <b>b.</b> | (i) Discuss Big Data advantages and disadvantages.<br>(ii) Explain the impact of visualization.                                          | CO-1   | PO1,3 |
| <b>c.</b> | (i) Define Normal Distribution? Explain in detail.<br>(ii) Write a short note on Variance, Range, Standard Deviation and Task Execution. | CO-5,2 | PO3,4 |

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**END SEMESTER EXAMINATION, JUNE- 2025****B. Sc. (Hons.) in Data Science Semester - VI****Course Name: Data Visualization Techniques****Course Code: DDS362****Time allotted: 03 Hours****Max. Marks: 100****Note: Read all the instructions carefully.****Q.1. Attempt all.****(10×2=20)**

| QN | Questions                                                | CO  | PO    |
|----|----------------------------------------------------------|-----|-------|
| a. | Define Proximity in data visualization.                  | CO1 | PO1   |
| b. | Discuss GIS Data Visualization.                          | CO5 | PO1,2 |
| c. | What is Visual mapping?                                  | CO2 | PO1   |
| d. | Why do we need Data Preprocessing?                       | CO2 | PO1,2 |
| e. | Define Outliers.                                         | CO2 | PO1   |
| f. | What are the applications of vector fields?              | CO3 | PO1,3 |
| g. | What do you mean by geospatial data?                     | CO5 | PO1   |
| h. | How do we use orientation of an object in visualization? | CO1 | PO1,2 |
| i. | Discuss map visualization.                               | CO4 | PO1   |
| j. | What do you mean by aggregation in data preprocessing?   | CO2 | PO1,2 |

**Q.2. Attempt any five out of Seven.****(5×4=20)**

| QN | Questions                                                        | CO    | PO    |
|----|------------------------------------------------------------------|-------|-------|
| a. | What is Data visualization? Explain                              | CO1,4 | PO1   |
| b. | What is vector and its types? Explain any two vector types.      | CO3   | PO1   |
| c. | What do you understand by Natural Language Processing?           | CO3   | PO1   |
| d. | What is metaphor visualization? Explain.                         | CO4   | PO1   |
| e. | Why do we visualize data? Explain with an example.               | CO1,4 | PO1,2 |
| f. | What are the advantages and disadvantages of data visualization? | CO1   | PO1   |
| g. | What do you mean by syntactic analysis? Explain with an example. | CO3   | PO1   |

**P.T.O./-**



**Q.3. Attempt any three out of four.**

**(3×10=30)**

| QN        | Questions                                                                                        | CO    | PO             |
|-----------|--------------------------------------------------------------------------------------------------|-------|----------------|
| <b>a.</b> | Explain the following terms. <b>(5+5)</b>                                                        |       |                |
|           | (i) Explain about Data transformation techniques.                                                | CO2   | PO1,2          |
|           | (ii) What is the reference model for visualizations?                                             | CO2   | PO1            |
| <b>b.</b> | What do you mean by visual variables? Describe each visual variables with example. <b>(10)</b>   | CO1   | PO1,2,3        |
| <b>c.</b> | Attempt all. <b>(5+5)</b>                                                                        |       |                |
|           | (i) Define clustering? Give one example.                                                         | CO5   | PO1            |
|           | (ii) Describe with an example of Geolocated data visualization.                                  | CO5   | PO2            |
| <b>d.</b> | Attempt all. <b>(10)</b><br>(i) Heat Map<br>(ii) Tree Map<br>(iii) Gantt Chart<br>(iv) Bar Chart | CO1,2 | PO1,2,3,<br>12 |

**Q.4. Attempt any two out of three.**

**(2×15=30)**

| QN        | Questions                                                                                                                       | CO    | PO        |
|-----------|---------------------------------------------------------------------------------------------------------------------------------|-------|-----------|
| <b>a.</b> | (i) Choose two gestalt principles and describe (with examples) how they contribute to our perception.                           | CO1,2 | PO1,2,3,4 |
|           | (ii) What is Information Overload? Why it's important to avoid information overload?                                            | CO5   | PO1       |
| <b>b.</b> | (i) What are the essential skills for evaluating data visualizations in data analytics?                                         | CO3   | PO1,2,3   |
|           | (ii) Compare node link and matrix graph visualization techniques. Under what conditions, is one better or worse than to others? | CO2   | PO1,3     |
| <b>c.</b> | (i) Compare Visualization on location data and time series data.                                                                | CO3   | PO1,2,3   |
|           | (ii) What are the methods available to visualize Network? Explain.                                                              | CO4   | PO1,2,3   |

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