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Question Paper Code : 70059

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Seventh Semester

Artificial Intelligence and Data Science

AD 8701 – DEEP LEARNING

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate supervised and unsupervised deep learning procedures.

2. Define Stochastic Gradient Descent with merits and demerits.

3. What is the need for pooling layer in CNN?

4. Write the formula to find how many neurons are needed to fit a network.

5. Define Linear Associative Network.

6. What are the components of perceptron?

7. Mention the responsibilities of data scientist.

8. List the various data science tools.

9. What is depth image fusion?

10. Write any two applications of deep learning.

PART B — (5 × 13 = 65 marks)

11. (a) Describe the Gradient-based optimization in deep learning.

Or

(b) Elaborate over fitting and under fitting with an example.

12. (a) Explain the different types of loss functions in deep learning.

Or

(b) Explain in detail on different regularization techniques using CNN?

13. (a) Present an elaborate note on Auto encoders.

Or

(b) Describe about the back propagation algorithm in a neural network.

14. (a) Describe the life cycle of data science.

Or

(b) Describe the various tools/methodologies to visualize the data with suitable example.

15. (a) Outline the role of deep learning in computer aided diagnosis from X-ray images.

Or

(b) Outline time series forecasting with an example.

PART C — (1 × 15 = 15 marks)

16. (a) Explain how to build a CNN model from a scratch for any real time application such as Stock Market Prediction, Epidemic outbreak prediction etc.

Or

(b) Analyse, why to use Adam optimizer for CNN model for training purpose than to use Gradient Descent or Stochastic Gradient Descent? Justify your answer.

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