# 23 PGDY1CSNLPC1/ 24

# PG DIPLOMA IN COMPUTOR SCIENCE AND NATURAL LANGUAGE PROCESSING

## I Paper

## व्याकरण, भाषाविज्ञान एवं शाब्दबोध

**Time: 2 Hrs.** **M.M.-60**

### SECTION - A

**Answer any ten questions in one word / 1-3 sentences each :** **(10 × 2 = 20)**

1. Who wrote Ashtadhyayi?
2. What is Morphology?
3. What do you mean by Phonetics?
4. What do you mean by Karaka?
5. How many karakas are identified in Ashtadhyayi?
6. What are homonyms and synonyms?
7. For which karaka Tileshu Tailam (तिलेषु तैलम्) is an example?
8. What do you mean by Pratibandha ? Give one example.
9. What is a Syntax?
10. Give an example for Kāraka Relation.
11. What is tokenization?
12. What is word sense disambiguation?
13. What is a sandhi? Give an example.

### SECTION - B

**Answer any four questions in about 10-20 sentences each :** **(4 × 5 = 20)**

14. What should be there in an ideal Vakya? Explain all the components of a Vakya.

15. Explain compounding and Suffixation in word formation of Ashtadhyayi with an example for each.

16. Write about the Approaches and Methods to Word Sense Disambiguation (WSD).

17. Explain 3-tier tagging system with an example.

18. Explain intra-sentential and inter-sentential tagging systems with example for each.

19. Explain tagging system with an example when there is वीप्सा relation.

## SECTION - C

**Answer any two questions in about 30-35 sentences :** **(2 × 10 = 20)**

20. Write about the Paninian Approach to Natural Language Process.

21. Explain about Language Ambiguities.

22. Explain tagging system using any one sentence.

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# PG DIPLOMA IN COMPUTOR SCIENCE AND NATURAL LANGUAGE PROCESSING

## II Paper

## Natural Language Processing

**Time: 2 Hrs.** **M.M.-60**

## SECTION - A

**Answer any ten questions in one word / 1-3 sentences each : (10 × 2 = 20)**

1. Write the full form of NLP.
2. What is morpheme?
3. What is Machine Translation?
4. What is phoneme?
5. What is a syntax?
6. Write about any two POS Taggers.
7. Write any one application of NLP.
8. What do you mean by Tokenisation?
9. What is Rules-Based Machine Translation (RBMT)?
10. How many types of Karaka Relations are there?
11. What is a free morpheme?
12. Write an example for derivational morpheme.
13. What are compounds?

## SECTION - B

**Answer any four questions in about 10-20 sentences each : (4 × 5 = 20)**

14. With an example, explain the necessity of POS tagging.
15. With an example, explain machine learning-based machine translation system.

16. What are the benefits of Machine Translation? Explain any one.

17. With an example, explain Local Word Grouper (LWG) and its relevance to Indian Languages.

18. Explain any one Tagging Scheme.

19. With an example, explain the concept of Parsing.

## SECTION - C

**Answer any two questions in about 30-35 sentences : (2 × 10 = 20)**

20. Explain the need and applications of Machine Translation.

21. What are the applications of NLP? Explain.

22. Explain the following with relation to morphemes.

    (i) Root morpheme

    (ii) Derivational morphemes

    (iii) Inflectional morphemes

    (iv) Affixes, Prefixes and suffixes

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# PG DIPLOMA IN COMPUTOR SCIENCE AND NATURAL LANGUAGE PROCESSING

## III Paper

## Computer Programming

**Time: 2 Hrs.** **M.M.-60**

### SECTION - A

**Answer any ten questions in one word / 1-3 sentences each : (10 × 2 = 20)**

1. What is a Program?
2. What is the use of a Translator in Programming?
3. Give an example for OOP Language.
4. What is the full form of HML?
5. What are text Editors? Give an example.
6. What are Loops?
7. What is an Operating System? Give an example.
8. What is a Corpus?
9. What are data structures?
10. Write the syntax and an example for accepting a number in Python.
11. What are Variables and Constants?
12. What is the use of <META> in HTML?
13. What is the % of operator in Python?

### SECTION - B

**Answer any four questions in about 10-20 sentences each : (4 × 5 = 20)**

14. What are Branching Statements? Explain any one.
15. Explain Logical Operators in Python.

16. Write about the differences between XML and HTML.

17. What are the differences between a Compiler and a Translator?

18. What are the functions of an Operating System?

19. Explain List tags available in HTML.

## SECTION - C

**Answer any two questions in about 30-35 sentences :** **(2 × 10 = 20)**

20. Explain following HTML Tags.

    (i) < HEAD >

    (ii) < TABLE >

    (iii) < BODY >

    (iv) < STYLE >

21. What is a software? Explain System and Application software with example for each.

22. Write about the application of computers in linguistics and language studies.

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# PG DIPLOMA IN COMPUTOR SCIENCE AND NATURAL LANGUAGE PROCESSING

## IV Paper

## MACHINE LEARNING (INTRODUCTORY)

**Time: 2 Hrs.** **M.M.-60**

### SECTION - A

**Answer any ten questions in one word / 1-3 sentences each : (10 × 2 = 20)**

1. What is Machine Learning?
2. What are Neural networks?
3. What is regression?
4. What is Artificial Intelligence?
5. Write an application of ML.
6. What is the role of Feature Selection?
7. Write any one NLP Application.
8. Autocomplete in Search Engines is an example for..... .
9. Which Machine learning involves training a machine from labeled data?
10. What is Narrow AI?
11. Write one advantage of AI.
12. What is an Algorithm?
13. What is the role of Data in ML?

### SECTION - B

**Answer any four questions in about 10-20 sentences each : (4 × 5 = 20)**

14. Differentiate between Supervised and Unsupervised ML.
15. What is NLP? Explain.

16. Explain Classification in Supervised Learning.

17. What is Naive Bayes Classifiers?

18. Explain the Challenges of Machine Learning.

19. Explain about the Evaluation of Supervised Learning Models.

## SECTION - C

**Answer any two questions in about 30-35 sentences : (2 × 10 = 20)**

20. Explain the Machine Learning process.

21. Explain the applications of Natural Language Processing.

22. Explain the advantages, disadvantages and application of Naive Bayes Classifers.

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# PG DIPLOMA IN COMPUTOR SCIENCE AND NATURAL LANGUAGE PROCESSING

## V Paper

## MACHINE LEARNING - 2 (ADVANCED LEARNING)

**Time: 2 Hrs.** **M.M.-60**

### SECTION - A

**Answer any ten questions in one word / 1-3 sentences each : (10 × 2 = 20)**

1. What is a neural network?
2. In which type of neural network, the output from the previous step is fed as input to the current step?
3. What is ambiguity?
4. What do you mean by a corpus?
5. Give an example for pre-trained model focusing on Indic languages and English.
6. What do you mean by Deep Learning?
7. What is an Algorithm?
8. What do you mean by Narrow AI?
9. What do Syntax and Semantics refers to?
10. What is regression?
11. What is the purpose of tokenization in NLP?
12. Which algorithm is commonly used for text classification in NLP?
13. Define the word ‘linguistics’.

### SECTION - B

**Answer any four questions in about 10-20 sentences each : (4 × 5 = 20)**

14. Explain the working of Neural Network. Explain Forward and Backword propagation.

15. Explain the Types of Word Respresentations.

16. Explain any 3 examples of machine learning in practice.

17. Explain types of Artificial Intelligence.

18. Explain the role of Data in ML.

19. Explain the types of Neural Networks.

## SECTION - C

**Answer any two questions in about 30-35 sentences : (2 × 10 = 20)**

20. Explain the application of Natural Language Processing.

21. Explain the types of RNNs.

22. Differentiate between Machine Learning and Deep Learning.