

Prof. Ajay Pashankar

Department Of Computer
Science & Information
Technology



ajaypashankar7



Prof. Ajay Pashankar



www.profajaypashankar.com

TYCS SEM V IKS IN COMPUTATIONAL SYSTEM QUESTION BANK

=====

NOTE: QUESTIONS MARKED IN RED MOST IMPORTANT

QUESTION BANK PREPARED AS PER BEST OF MY KNOWLEDGE, STUDENTS ARE REQUESTED TO PREPARE ACCORDING TO THEIR COMFORT AND UNDERSTANDING.

=====

TY B.Sc. Computer Science (TYCS)

Indian Knowledge Systems in Computational Systems

MODULE I

1. Explain Śāstra as a formal knowledge system and discuss its relevance to knowledge representation.
2. Explain the Sūtra method as a form of compressed symbolic encoding.
3. Explain Pramāṇa with reference to Pratyakṣa, Anumāna and Āgama, and discuss their role in knowledge validation.
4. Explain Laghu–Guru representation and its relationship with binary encoding.
5. Explain Prastāra and its role in systematic generation of patterns.
6. Explain Naṣṭa and Uddiṣṭa as index-to-pattern and pattern-to-index retrieval methods.
7. Explain the construction and role of Meru-Prastāra.
8. Explain the relationship between Meru-Prastāra and Pascal’s Triangle without treating them as historically identical.
9. Explain Pāṇini’s Aṣṭādhyāyī as a rule-based generative grammar.
10. Explain meta-rules/Paribhāṣā and their role in the application of grammatical rules.
11. Explain rule precedence and conflict resolution in Pāṇinian grammar and its conceptual relationship with computer science.
12. Explain context-sensitive operations and rewrite systems in Pāṇinian grammar.
13. Explain the conceptual relationship between Pāṇinian grammar and Context-Free Grammar (CFG).
14. Explain parsing algorithms and their conceptual relationship with Pāṇinian grammar.
15. Discuss the conceptual relationship among Pāṇinian grammar, automata theory and Natural Language Processing (NLP).

MODULE II

1. Explain the five-member Nyāya syllogism with a suitable example.
2. Explain Anumāna using the concepts of Pakṣa, Sādhya, Hetu and Vyāpti.
3. Explain Vyāpti and discuss its importance in valid inference.
4. Explain forward chaining and backward chaining in the context of Nyāya computational reasoning.
5. Explain Vāda, Jalpa and Vitaṇḍā and discuss their conceptual relationship with validation and reasoning.
6. Explain Padārtha as a categorical ontology and discuss its relationship with knowledge representation in computer science.

- 7.** Explain the Tridoṣa framework and its conceptual relationship with classification.
- 8.** Explain symptom–feature mapping and how it can be converted into computational features.
- 9.** Explain multi-attribute classification with a suitable example.
- 10.** Explain Ayurveda as a rule-based expert system with reference to knowledge base, features, inference and decision.
- 11.** Explain the decision principles in Ayurvedic diagnosis and their representation using rules and inference.
- 12.** Explain secret communication techniques described in Arthaśāstra and their role in information protection.
- 13.** Explain substitution and transposition systems and their conceptual relationship with modern cipher techniques.
- 14.** Explain concealment and coded messaging and discuss their conceptual relationship with basic steganography.
- 15.** Explain information protection mechanisms in Arthaśāstra and their conceptual relationship with secure communication and cybersecurity.