UNIT – 8   **6 Hours**
Coalitional Games and Bargaining: Coalitional games. The Core.
Illustrations: Ownership and distribution of wealth, Exchanging homogeneous
items, Exchanging heterogeneous items, Voting, Matching. Bargaining as an
extensive game; Illustration of trade in a market; Nash's axiomatic model of
bargaining

Text Books:
1. Martin Osborne: An Introduction to Game Theory, Oxford
   University Press, Indian   Edition, 2004.
    (Listed topics only from Chapters 1 to 11, 13, 14, 16)

Reference Books:
1. Roger B. Myerson: Game Theory: Analysis of Conflict, Harvard
   University Press, 1997.
2. Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green:
   Microeconomic Theory. Oxford University Press, New York, 1995.
3. Philip D. Straffin, Jr.: Game Theory and Strategy, The Mathematical
   Association of America, January 1993.

ARTIFICIAL INTELLIGENCE

Subject Code: 10IS764   I.A. Marks   : 25
Hours/Week : 04   Exam Hours: 03
Total Hours : 52   Exam Marks: 100

PART – A

UNIT – 1   **7 Hours**
Introduction: What is AI? Intelligent Agents: Agents and environment;
Rationality; the nature of environment; the structure of agents. Problem-
solving: Problem-solving agents; Example problems; Searching for solution;
Uninformed search strategies.

UNIT – 2   **7 Hours**
Informed Search, Exploration, Constraint Satisfaction, Adversial Search:
Informed search strategies; Heuristic functions; On-line search agents and
unknown environment. Constraint satisfaction problems; Backtracking search
for CSPs. Adversial search: Games; Optimal decisions in games; Alpha-Beta
pruning.

UNIT – 3   **6 Hours**

Logical Agents: Knowledge-based agents; The wumpus world as an example world; Logic; propositional logic Reasoning patterns in propositional logic; Effective propositional inference; Agents based on propositional logic.

UNIT – 4   **6 Hours**
First-Order Logic, Inference in First-Order Logic – 1: Representation revisited; Syntax and semantics of first-order logic; Using first-order logic; Knowledge engineering in first-order logic. Propositional versus first-order inference; Unification and lifting

PART – B

UNIT – 5   **6 Hours**
Inference in First-Order Logic – 2: Forward chaining; Backward chaining; Resolution.

UNIT – 6   **7 Hours**
Knowledge Representation: Ontological engineering; Categories and objects; Actions, situations, and events; Mental events and mental objects; The Internet shopping world; Reasoning systems for categories; Reasoning with default information; Truth maintenance systems.

UNIT – 7   **7 Hours**
Planning, Uncertainty, Probabilistic Reasoning: Planning: The problem; Planning with state-space approach; Planning graphs; Planning with propositional logic.
Uncertainty: Acting under certainty; Inference using full joint distributions; Independence; Bayes' rule and its use.
Probabilistic Reasoning: Representing knowledge in an uncertain domain; The semantics of Bayesian networks; Efficient representation of conditional distributions; Exact inference in Bayesian networks.

UNIT – 8   **6 Hours**
Learning, AI: Present and Future: Learning: Forms of Learning; Inductive learning; Learning decision trees; Ensemble learning; Computational learning theory.
AI: Present and Future: Agent components; Agent architectures; Are we going in the right direction? What if AI does succeed?

Text Books:
1. Stuart Russel, Peter Norvig: Artificial Intelligence A Modern Approach, 2nd Edition, Pearson Education, 2003.
   (Chapters 1.1, 2, 3.1 to 3.4, 4.1, 4.2, 4.5, 5.1, 5.2, 6.1, 6.2, 6.3, 7, 8, 9, 10, 11.1, 11.2, 11.4, 11.5, 13.1, 13.4, 13.5, 13.6, 14.1, 14.2, 14.3, 14.4, 18, 27)

Reference Books:
1. Elaine Rich, Kevin Knight: Artificial Intelligence, 3rd Edition, Tata McGraw Hill, 2009.
2. Nils J. Nilsson: Principles of Artificial Intelligence, Elsevier, 1980.

STORAGE AREA NETWORKS

Subject Code: 10IS765	**I.A. Marks : 25**
Hours/Week : 04	**Exam Hours: 03**
Total Hours : 52	**Exam Marks: 100**

PART –A

UNIT - 1   **7 Hours**
Introduction to Information Storage and Management, Storage System Environment: Information Storage, Evolution of Storage Technology and Architecture, Data Center Infrastructure, Key Challenges in Managing Information, Information Lifecycle
Components of Storage System Environment, Disk Drive Components, Disk Drive Performance, Fundamental Laws Governing Disk Performance, Logical Components of the Host, Application Requirements and Disk Performance.

UNIT - 2   **6 Hours**
Data Protection, Intelligent Storage system: Implementation of RAID, RAID Array Components, RAID Levels, RAID Comparison, RAID Impact on Disk Performance, Hot Spares
Components of an Intelligent Storage System, Intelligent Storage Array

UNIT - 3   **7 Hours**
Direct-Attached Storage, SCSI, and Storage Area Networks: Types of DAS, DAS Benefits and Limitations, Disk Drive Interfaces, Introduction to Parallel SCSI, Overview of Fibre Channel, The SAN and Its Evolution, Components of SAN, FC Connectivity, Fibre Channel Ports, Fibre Channel Architecture, Zoning, Fibre Channel Login Types, FC Topologies.

UNIT - 4   **6 Hours**
NAS, IP SAN: General – Purpose Service vs. NAS Devices, Benefits of NAS, NAS File I / O, Components of NAS, NAS Implementations, NAS File-Sharing Protocols, NAS I/O Operations, Factors Affecting NAS Performance and Availability. iSCSI, FCIP.