Unit III — Artificial Intelligence, IoT & Computer Vision

Emerging Technologies for Business | BMB IT 02

Unit III: Artificial Intelligence, IoT and Computer Vision

Syllabus: Artificial Intelligence — machine learning, deep learning, business applications; IoT — architecture, devices, enabling networks and business implementations; use of IoT in supply chain, healthcare, smart cities, manufacturing; Computer Vision — fundamentals, business applications in quality control, retail and automation; integration of AI and IoT for intelligent products and smart services.

Exam Blueprint (2025-26 paper)

Topic	2025-26 paper	Marks
AI + competitive advantages in business	Section C	7
Machine Learning	Section C	7
IoT device and how it works	Section B	7
Smart cities	Section A	2

YE QUESTION BAAR-BAAR AAYA HAI

Section C ka **poora question 3** is unit se tha — AI aur Machine Learning. Aur Section B me IoT. Ye unit chhota hai (6 hours) par marks acche dete hai.

1. Artificial Intelligence

DEFINITION - RATTA MAARO

Artificial Intelligence (AI) is the branch of computer science concerned with building systems that can perform tasks **normally requiring human intelligence** — such as learning, reasoning, problem solving, perception, understanding language and decision making.

1.1 Types of AI

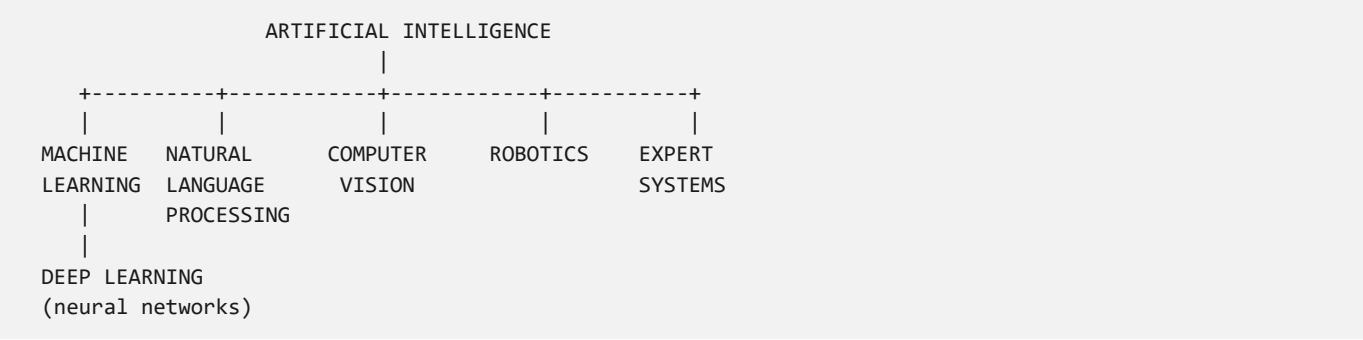
A. By capability:

Type	Meaning	Status
ANI — Artificial Narrow AI (Weak AI)	Performs **one specific task** well	**All AI today** — Siri, ChatGPT, recommendation engines, self-driving
AGI — Artificial General AI (Strong AI)	Human-level intelligence across **any** task	Theoretical; not yet achieved

Type	Meaning	Status
ASI — Artificial Super Intelligence	Surpasses human intelligence in every field	Hypothetical

B. By functionality: *Reactive machines* (no memory — IBM Deep Blue), *Limited memory* (uses recent data — self-driving cars), *Theory of mind* (understands emotions — in research), *Self-aware* (hypothetical).

1.2 Branches / Subfields of AI



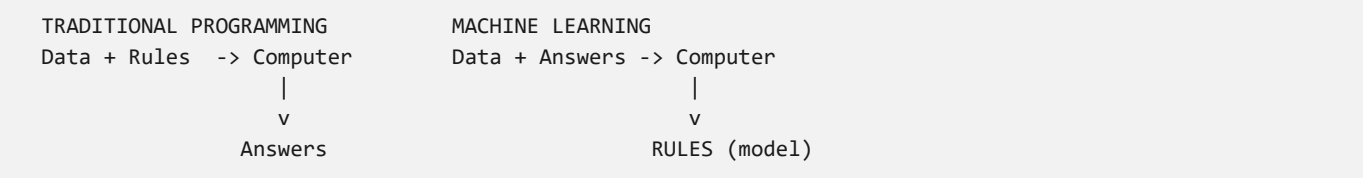
- **Machine Learning (ML)** — systems that learn from data
- **Deep Learning** — ML using multi-layer neural networks
- **Natural Language Processing (NLP)** — understanding and generating human language
- **Computer Vision** — interpreting images and video
- **Robotics** — intelligent physical machines
- **Expert Systems** — rule-based systems capturing human expertise

> YAHAN 90% STUDENTS GALTI KARTE HAIN
>
> **AI ? ML ? Deep Learning.** AI sabse bada hai, uske andar machine learning, aur uske andar deep learning. Ye relationship exam me poocha jaata hai — ulta mat likh dena.

1.3 Machine Learning — 7-mark question

> DEFINITION - RATTA MAARO
>
> **Machine Learning** is a subset of AI in which systems **learn patterns from data and improve their performance with experience, without being explicitly programmed** for each rule. — Arthur Samuel coined the term in 1959.

The key difference from traditional programming:



*In traditional programming you write the rules. In ML the machine **discovers the rules** from examples.*

Types of machine learning:

Type	How it learns	Used for	Examples
Supervised learning	Trained on **labelled** data (input + correct answer)	Prediction and classification	Spam detection, credit scoring, price prediction. *Algorithms:* linear/logistic regression, decision trees, random forest, SVM