

FIELDS OF ARTIFICIAL INTELLIGENCE)

What is AI used for?

AI helps by quickly analysing large amounts of data, automating repetitive tasks, and giving insights that improve decisions. This increases efficiency, accuracy, and innovation across many areas like finance, healthcare, education, and transportation.



AI in Smartphones & Apps –

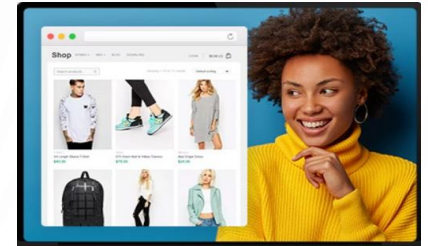
- ✓ Face recognition uses Computer Vision to unlock phones.
- ✓ Voice assistants (Siri, Google Assistant, Alexa) use Natural Language Processing to understand speech.
- ✓ Photography features use Machine Learning and Deep Learning for night mode, scene detection, and image enhancement.

Example apps : Grammarly (writing help), ELSA (speech practice), Socratic (homework help), Youper (mental-health assistant), Fyle (manage expenses, real-time policy etc.)

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AI in Social Media & E-commerce -

- Social media uses AI to show personalised content and detect harmful content. (Facebook uses AI to detect content having graphic violence etc)
- E-commerce uses AI to recommend products, personalise shopping, predict customer demand, and enable cashierless stores.



AI in Banking, Finance & Security –

- ❑ Banks use AI to predict trends, detect fraud, and help customers with chatbots. (Chatbots and NLP)
- ❑ Security and surveillance use Computer Vision to identify people, objects, and suspicious activity and send alerts.



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Autonomous Vehicles & Drones -

- Self-driving cars use cameras, radars, sensors, and AI to make driving decisions. The systems analyse huge amounts of sensor data.
- Autonomous drones use Computer Vision to avoid obstacles and can deliver packages (example: delivery pilots by companies).



AI in Healthcare –

- Used to diagnose ailments, treat patients, monitoring and developing new drugs. Products include mental health care chatbots like Shim, Woebot, Wyse, Toss and Therachat, which track the emotions of the patients and suggest exercises and psycho education.



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Smart Living & Smart Homes -

- Smart living - Integrates sensors and connected devices to make life easier and more efficient.
- Smart homes: Internet-connected devices for remote monitoring and control (lights, thermostat, locks, cameras).

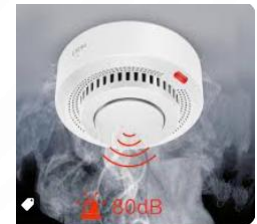
Benefits : Power saving, increased energy efficiency, home protection, one-point access, flexibility and remote control, climate control.



Smart Home Devices & how they help –

Common devices and roles:

- Smart hubs:** connect devices and act as gateways.
- Video doorbells:** let owners see and talk to visitors remotely.
- Smart cameras:** monitor and send alerts for suspicious movement.
- Smart smoke detectors:** detect fire and sound alarms.
- Smart thermostats:** learn preferences and save energy.



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Smart Cities -

Smart Cities use sensors and data to manage resources and services (traffic, water, waste, energy, public safety).

Benefits: Smarter traffic management, efficient energy grids, improved public services, and economic growth.

Challenges: funding, digital security, connectivity, digital awareness, and policy implementation.

ICT – Information and Communication Technology

The objective of Smart cities mission is to drive economic growth, and improve the quality of the people by developing local areas and blending technologies and AI that could lead to smart outcomes.



ASSESS YOURSELF – PAGE 149)

1. Tick (✓) the correct option.

- a. In which industry are AI-powered chatbots commonly used to provide personalised financial advice?
- | | | | |
|-----------------|--------------------------|-----------------------------------|--------------------------|
| (i) Healthcare | ☐ | (ii) Banking and financial sector | ☐ |
| (iii) Education | ☐ | (iv) E-commerce | ☐ |
- b. Which of the following technologies do smartphones utilise for face recognition to unlock devices?
- | | | | |
|-----------------------|--------------------------|----------------------------------|--------------------------|
| (i) Machine Learning | ☐ | (ii) Natural Language Processing | ☐ |
| (iii) Computer Vision | ☐ | (iv) Deep Learning | ☐ |
- c. Identify the ways in which Smart Cities utilise technology to achieve their core objectives.
- | | |
|--|--------------------------|
| (i) Decrease economic growth opportunities | ☐ |
| (ii) Increase digital security issues | ☐ |
| (iii) Improve the quality of living through technology integration | ☐ |
| (iv) Reduce transportation facilities | ☐ |
- d. Evaluate the capabilities of the following AI-powered applications and identify which one helps users track their emotional health and have quick conversations.
- | | | | |
|----------------------|--------------------------|----------------|--------------------------|
| (i) Google Assistant | ☐ | (ii) Grammarly | ☐ |
| (iii) Youper | ☐ | (iv) Siri | ☐ |
- e. Identify the technology which is most commonly associated with decision-making in autonomous vehicles.
- | | | | |
|---------------------------------|--------------------------|-----------------------|--------------------------|
| (i) Natural Language Processing | ☐ | (ii) Deep Learning | ☐ |
| (iii) Computer Vision | ☐ | (iv) Machine Learning | ☐ |

2. Write 'T' for true and 'F' for false.

- a. AI in smartphones is primarily dedicated to gaming and entertainment features.
- b. Smart Homes cannot be controlled remotely using smartphones.
- c. Smart Cities aim to improve the quality of living by integrating technology and AI.
- d. Smart cameras are not essential devices for home security in Smart Homes.

3. Fill in the blanks using the words from the help box.

Voice, Information, Smart Cities, Monitoring, Interactive



- a. Smart Homes use Internet-connected devices for _____ and management of appliances.
- b. AI in e-commerce helps in providing _____ buying experiences.
- c. Financial challenges and lack of proper funds are obstacles in establishing _____.
- d. Google Assistant is a voice-enabled AI-powered virtual assistant that supports both _____ and text entries.
- e. Smart Cities utilise _____ from different types of electronic applications and sensors to manage resources, services, and assets efficiently.

4. Answer in one or two words.

- a. Name an expense management app. _____
- b. Which sector utilises AI for predicting future scenarios by analysing past user experiences? _____
- c. Which virtual assistant from Amazon is used to control multiple smart devices in smart home systems? _____
- d. Name an app which helps students with their home work. _____
- e. Which online retail giant uses drones to deliver products to customers' doorsteps? _____