



1. Short Notes

a. Values:



Values are core beliefs or standards that guide our behavior and decisions. Example: Honesty, loyalty, and respect.

b. Ethics:



Ethics are rules or principles that define what is right or wrong in a profession or society. Example: Doctors follow medical ethics like patient confidentiality.

c. Morals:

Morals are personal beliefs about right and wrong,



c. Morals:

Morals are personal beliefs about right and wrong, often shaped by culture or religion. Example: Telling the truth is a moral act.

d. Empathy:

Empathy means understanding and sharing the feelings of others. Example: Feeling sad when your friend is upset.

e. Sympathy:

Sympathy is feeling pity or sorrow for someone's situation. Example: Sending condolences to a



Sympathy is feeling pity or sorrow for someone's situation. Example: Sending condolences to a grieving person.

f/ Civic Virtues:

These are good habits for being a responsible citizen. Example: Voting, obeying laws, and helping the community.

g. Moral Dilemma:

A situation where one must choose between two morally right actions, but only one can be chosen. Example: Choosing between helping a friend or saving a stranger.



2. Types of IPR (Intellectual Property Rights)

- Copyrights: Protect creative works like books, music, and films.
- Patents: Protect inventions or new processes.
- Trademarks: Protect brand names, logos, and slogans.
- Trade Secrets: Protect confidential business information.
- Licenses: Legal permissions to use intellectual



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Licenses: Legal permissions to use intellectual property.

3. Whistle Blowing and Its Types

Whistle blowing is exposing unethical or illegal activities in an organization.

Types:

- Internal: Reported within the company.
- External: Reported to outsiders like media or





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activities in an organization.

Types:



Internal: Reported within the company.



External: Reported to outsiders like media or authorities.



Anonymous: Identity of the whistleblower is hidden.



Open: Whistleblower reveals their identity.





4. Importance of Code of Ethics

- Guides professionals in making ethical decisions.
- Builds trust with society and clients.
- Prevents misconduct and promotes fairness.
- Ensures accountability and responsibility.

5. Globalisation and Its Two Components

Globalisation is the worldwide integration of



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5. Globalisation and Its Two Components

Globalisation is the worldwide integration of markets, cultures, and technologies.

Components:

- Economic Globalisation: Free trade, multinational companies.
- Cultural Globalisation: Sharing of ideas, values, and culture worldwide.



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6/ Essential Skills of Engineers

- Technical knowledge
- Problem-solving
- Communication
- Teamwork
- Ethics and responsibility
- Creativity and innovation



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7. Engineering vs Standard Experiments



Engineering Experiments: Done in real-world conditions, may have uncertainties.



Standard Experiments: Done in labs under controlled conditions.



Factors affecting acceptability:



Accuracy

- Repeatability
- Safety



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Repeatability



Safety



Ethical approval



Reliability

8. Five Ethical Theories in Engineering

1. Utilitarianism: Best action gives the most good for most people.



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8. Five Ethical Theories in Engineering

- 1/ Utilitarianism: Best action gives the most good for most people.
- 2/ Duty Ethics (Deontology): Follow duties and rules.
- 3/ Rights Theory: Respect individual rights.
- 4/ Virtue Ethics: Focus on character and integrity.
- 5/ Justice Theory: Fair treatment and equality.



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9. Two Analytical Methods for Safety Testing

- 1/ Failure Mode and Effect Analysis (FMEA):
Identifies possible failures and their effects.
- 2/ Fault Tree Analysis (FTA): Uses diagrams to find the root cause of system failures.



10. Piaget's Four Stages of Moral Development

1. Sensorimotor (0–2 years): Learning through senses.
2. Pre-operational (2–7 years): Egocentric thinking, beginning of moral understanding.
3. Concrete operational (7–11 years): Understand rules, fairness.
4. Formal operational (12+ years): Abstract thinking, reasoned moral judgments.



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11. Why Include Professional Values and Ethics in Engineering

(or)

- Teaches engineers to act responsibly.
- Helps handle ethical dilemmas in real work.
- Promotes safety, honesty, and public trust.
- Supports sustainable and fair development.