

biasness. It lies between **deliberate deception (fraud)** and **unintentional error (simple sloppiness)**. Self deception is of two types :

- (i) **Motivated irrationality** : Commitment to the research without understanding the subject.
- (ii) **Purposeful evasion** : Deliberately arriving at the results without empirical verification.

8.3.3 Advertising

Deceptive advertising normally occurs when products or services are made to look better than they actually are. Customers are impressed by using fake performance data with no reference standard. A “puffery” of the positive aspect is done, i.e., only positives are highlighted and not negatives.

8.3.4 Competitive Bidding

Engineers are prohibited from engaging in competitive bidding, i.e., competing for jobs on the basis of submitting priced proposals, i.e., negotiating with the prospective employer by giving false account of one's salary in the previous job.

8.3.5 Being Dishonest as an Expert Witness

In disasters or accidents, engineers are called as witnesses to provide factual account of the incident. They should provide impartial information.

8.4 INTELLECTUAL PROPERTY RIGHT (IPRS)

Intellectual Property is a class of property emanating primarily from the activities of the human intellect. Any property, movable or immovable, is legally protected to prevent it from being stolen. Similarly, the rights in an intellectual property created need also to be protected to prevent infringement.

8.4.1 Types of Intellectual Properties

- **Patents** : These are legal rights granted for new inventions employing scientific and technical knowledge. Examples: A new drug for the treatment of AIDS and a new cell phone.
- **Industrial designs** : A design is an idea or conception as to the features of shape, configuration pattern, ornament of composition of lines or colors applied to any article, two or three - dimensional or both by any industrial process or

means which in the finished article appeals to and is judged solely by the eye or product. Example: Design as applied to shoes, TV, textiles.

- **Trade marks** : A trade mark is a visual symbol in the form of a word, service or label applied to an article of a manufacturer or commerce with a view to indicating to the public the origin of manufacture of the goods affixed with that mark. It distinguishes such goods from others in the trade. Examples: Coca Cola in soft drinks, SONY in electronic goods.
- **Copyrights** : A copyright is basically the right to copy and make use of literary, dramatic, musical, artistic works, cinematographic films, records and broadcasts. It is proprietary right and comes into existence as soon as the work is created. Examples: poems, artistic drawings, paintings, computer/programs.
- **Protection for new plant varieties**
- **Geographical indications** : Geographical indications identify goods as originating in the territory of a country, an origin or a locality in that territory, where a specific quality, reputations or other characteristics of the goods is essentially attributed to their geographical origin. Example: Darjeeling tea, Kancheepuram sari.

8.5 ENVIRONMENTAL ETHICS

The expression environmental ethics refers to the study of moral issues concerning the environment, and moral perspectives, beliefs, and attitudes concerning those issues.

8.5.1 Aspects of Environmental Ethics

The Invisible Hand and the Commons

Two powerful metaphors have dominated thinking about the environment: the invisible hand and the tragedy of the commons. One is optimistic and the other is cautionary regarding the impacts of the technology on environment.

Invisible hand refers to the market and the role of demand & supply, i.e., impact of economic activities to fulfill the needs of humans.

Tragedy of commons : Destruction of natural resource may be done by few, but the cost is borne by all. Excessive exploitation of environment using technology leads to following impacts :