

## **MODULE-IV**

### **CONTENTS**

#### **Global Ethical Issues:**

##### **6.1 Different ethical issues in:**

- Business,
- Environment,
- IT, Bioethics,
- Intellectual Property Rights (IPR),
- Research, Media,
- Corporate Social Responsibility (CSR) etc.

#### **Ethical Codes:**

7.1 Meaning and the significance of ethical codes

7.2 The limitations of ethical codes.

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**OBJECTIVE TYPE QUESTIONS & ANSWERS: [Each Carries 01 Mark]**

**1. Intellectual Property Rights (IPR) protect the use of information and ideas that are of**

- A. Ethical value
- B. Moral value
- C. Social value
- D. Commercial value

**Ans: D**

**2. The term 'Intellectual Property Rights' covers**

- A. Copyrights
- B. Know-how
- C. Trade dress
- D. All of the above

**Ans: D**

**3. The following cannot be exploited by assigning or by licensing the rights to others.**

- A. Patents
- B. Designs
- C. Trademark
- D. All of the above

**Ans: C**

**4. Trade mark**

- A. is represented graphically
- B. is capable of distinguishing the goods or services of one person from those of others
- C. may includes shapes of goods or combination of colours
- D. All of the above

**Ans: D**

## **SHORT QUESTIONS & ANSWERS: [Each Carries 02 Marks]**

### **1. What are the essential elements of IPR?**

Ans: The essential elements of IPR are:

- i. Patents
- ii. Copyrights
- iii. Trademarks
- iv. Trade secrets

### **2. What are the requirements of Patents?**

Ans: The requirements of Patents are:

- a) Problem of invention
- b) Current report of the problems to address
- c) Solution or procedure to the problem
- d) Extent of novelty or inventive
- e) Application or uses
- f) Details of the inventor
- g) Resources of funds

### **3. What are the types of Patents?**

Ans: The types of Patents are:

- a. Utility patents
- b. Design patents
- c. Plant patents

### **4. What is the need for Protection to IPR?**

Ans: The need for protection to IPR are:

- a) Prevent plagiarism.
- b) Prevent others using it.
- c) Prevent using it for financial gain.
- d) Fulfill as an obligation to funding agency.
- e) Support income generation strategy.

### **5. What is the Importance of IPR?**

Ans: The importance of IPR are:

- a. Give the inventors exclusive rights of dealing.
- b. Permit avoiding pf competitors and raise entry barriers.
- c. Permit entry to a technical market.
- d. Generate steady income by issuing license.

### **6. What is a Trade secret?**

Ans: A trade secret is a secret formula, pattern, or device that is used in a business and provides a commercial advantage.

### **7. Give some of the Environmental issues of concern to engineers?**

Ans: The environmental issues of concern to engineers are:

- a. Releasing harmful substance into air and water.
- b. Using toxic substance in food processing.
- c. Disturbing land and water balances.

### **8. What are the issues in Computer ethics?**

Ans: The issues involved in Computer ethics are:

- Power Relationship
  - Job Elimination
  - Customer Relations
  - Biased Software
  - Stock Trading
  - Unrealistic Expectations
  - Political Power
  - Military Weapons
- Property
  - Embezzlement
  - Data and Software
- Privacy
  - Cyber crimes
  - Computer Virus
  - Techno stress
  - Cyber Scams and Frauds
  - Internet Defamation
  - Software Piracy
  - Cyber Squatting
  - Inappropriate Access
  - Hackers
- Professional Issues
  - Computer Failures
  - Computer Implementation
  - Health conditions

### **9. What are the problems of Defense industry?**

Ans: The problems of Defense industry are:

- a) Problem of waste and huge cost in implementing and maintaining a weapons system.
- b) Problem of Technology creep.
- c) Problems in maintaining secrecy.
- d) Every country allocates large amount of its resources to defense sector [India spent ¼ of its resource for defense]

### **10. What are ways to promote an Ethical climate?**

Ans: Ways to promote an Ethical Climate are:

- a. Ethical values in their full complexity are widely acknowledged and appreciated by managers and employees alike.
- b. The sincere use of ethical language has to be recognized as a legitimate part of corporate dialogue.
- c. The top level management must establish a moral tone in words, in policies, by personal example etc.
- d. The management has to establish some procedures for resolving conflicts.

### **11. How can Deceptive advertising be done?**

Ans: Deceptive advertising can be done in the following manner:

- o By outright lies.
- o By half-truths.
- o Through exaggeration.
- o By making false innuendos, suggestions or implications.
- o Through obfuscation created by ambiguity, vagueness or incoherence.
- o Through subliminal manipulation of the unconscious.

### **12. Give the usage of the code of conduct?**

Ans: The usage of the code of conduct are:

- o The code of conduct will help the engineers to have a set of standards of behavior.
- o They act as guidelines for their behavior.
- o It helps to create workplaces where employees are encouraged to make ethical implications.

### **13. What is Greenhouse effect?**

Ans: Greenhouse Effect is defined as the progressive warming up of earth's surface due to blanketing effect of man made CO<sub>2</sub> in the atmosphere. A greenhouse is that body which allows the short wavelength incoming solar radiation to come in, but does not allow the long wave outgoing infra red radiation to escape. The earth's atmosphere bottles up the energy of the sun and it acts like a green house, where CO<sub>2</sub> acts like a glass windows.

### **14. How is environment degraded?**

Ans: Environment is degraded by:

1. By causing injuries to nature
  - i. Usually this damage is caused slowly
  - ii. Sometimes this also happens in sudden strikes
2. Misuse of our resources, fouling our environment
3. Practicing growths in consumptions and population leading to non-availability of resources
4. Industrial activity denudes land(to destroy all plant and animal life), pollutes atmosphere and water, reduces the yield from sea and land

### **15. What are the other problems caused to the environment?**

Ans: The other problems caused to the environment are :-

- Build-up of CO<sub>2</sub> from the use of fossil fuels by Industrial nations could result in Greenhouse effect.
- Damage to protective OZONE layer due to the release of Freon is related to technological products used by the people of these nations.

### **16. What do you mean by computer ethics?**

Ans: Computer ethics deals with the procedures, values and practices that govern the process of consuming computing technology and its related disciplines without damaging or violating the moral values and beliefs of any individual, organization or entity.

Computer ethics is a concept in ethics that addresses the ethical issues and constraints that arise from the use of computers, and how they can be mitigated or prevented.

## LONG QUESTIONS & ANSWERS :

### 1. Discuss on the pros and cons of multinational companies from the point of view of ethics? [10 Marks]

Ans: Multinational corporations provide the developing countries around the world with the necessary financial infrastructure to achieve economic and social development. But though they bring about several benefits to such nations, they also come with ethical conducts that happen to exploit the neediness of these countries. So, are multinational corporations really good for both the country of origin and the country of operation? Let us take a closer look at their pros and cons.

#### List of Pros of Multinational Corporations

1. Their size benefits consumers. :- The operational size and scale of these corporations can give them the chance of taking advantage of the economies of scale, which paves the way for lower average costs and prices for consumers. This is particularly important to industries that carry extremely high fixed costs, such as car manufacturers and airlines.

2. They can help a country in many ways.:- Multinational corporations have the ability to bring advanced technology to poorer countries, while bringing low-cost products to the wealthier ones.

3. They are cost-effective.:- By utilizing labor in parts of the world where the low cost of living does not require high wages for production, these companies can keep consumer costs down. As a result, many industries can also benefit.

4. They can create jobs and wealth. :-

These global companies' inward investments offer the much needed foreign currency for developing economies, which in turn help with creating jobs and increasing expectations of things that will likely happen.

5. They help other companies. :- Through merger and acquisition, multinational companies can help other commercial organizations with achieving economies of scale in distribution and marketing, allowing well-managed businesses to take over those that are poorly managed.

6. They adhere to the best brand standards. :- This is one of the best qualities of these corporations. For example, McDonalds is still McDonalds wherever it is operating in the world. There is a standard that this restaurant chain is expected to adhere to. The same goes to the manufacturing sector, where standards are set and are expected to be adhered to. This builds trust and confidence among consumers, which is then converted to consumer loyalty.

7. They ensure minimum standards.:- Somehow connected to the previous pro, the main reason for the success of multinationals is that consumers would usually purchase products and services on which they can go for minimum standards.

8. They help improve standard of living.:- Multinational corporations have the capability to improve the world's standard of living, providing people with access of quality products regardless of the place.

9. Their large profits are consumed for development and research. :- Taking into consideration pharmaceutical companies, they can easily afford to pour millions of dollars into their research and development efforts. The same goes for automobile manufacturers and other large corporate entities. Without their global presence and large profit margins, they will not be able to do this. Another good example is oil exploration, which is both costly and risky. As such, only large firms can undertake it by using significant amount of money and other resources.

10. They allow for a wider market.:- With these big businesses, huge markets have been created both domestically and internationally.

#### List of Cons of Multinational Corporations

1. They might unfavorably dominate the market. :- Remember that the market dominance of multinational corporations would make it hard for smaller local companies to thrive and succeed. For example, arguments state that the larger supermarkets can squeeze out local corner stores' notable margin, leading to lesser diversity.

2. They might exploit the workforce. :- These corporations are not well-known for treating people fairly and are instead known for ignoring rules and regulations, as well as turning a blind eye to injustice in the workplace. They are put into the spotlight for outsourcing to the lowest bidders and for skimping on quality. They are not known for having what smaller businesses have—the “human” touch. Many of them are even found exploiting workers and natural resources without considering the economic well-being of any country. In fact, some of them are criticized for using slave labor, where workers are paid with very small wages.

3. They take advantage of consumer expense. :- Usually, companies are interested at consumers' expense, but multinational companies, with more power, is taking this to another level.

4. They can push local firms out of business. :- Giant multinationals use the scale of developing economies to push the local firms out of their business.

5. They are willing to gain ridiculous profits at any cost. :- These companies are able to realize tremendous profits and do not share their wealth. For example, these organizations that have manufacturing plants in China, where wages are very low, do not increase worker salaries when actually they have very huge amounts of extra revenues.

6. They strive for a monopolized business. :- Naturally, many of the largest corporations are monopolizing their industries. They are very powerful, which makes it very difficult, if not impossible, for start-ups and smaller businesses to compete. By monopolizing, they cut out the competition, which eventually stunts economic growth. Plus, authorities might put power in the hands of these global corporations, so they will be able to set the rules.

7. They a great environmental threat.:- In the name of profit, multinational corporations commonly contribute to pollution and make use of non-renewable resources, which can pose a threat to the environment. They often abuse the environment and are typically not very careful when using their resources. Moreover, they are well known for leaving an environmental mess in their wake and even have a strong reputation for dumping waste and utilizing natural resources until they are depleted. In general, they are not being very good as keepers of the earth.

#### Conclusion

While it is a fact that multinational corporations bring a lot of benefits, we cannot also deny that they can cause of some major issues in the economy. On your end, do you think they are beneficial or a big threat in countries, based on the pros and cons listed above?

## 2. What are the professional issues that are related with computer ethics? [10 Marks]

Ans: With the changing social landscape that naturally follows changes in technology comes a new wave of ethical issues. These issues must be addressed and resolved for computers, technology and the Internet to have a positive influence in society. Internet privacy, electronic communication and computer crimes add a new layer of ethical issues that plague those who use computers and technology on a daily basis. By identifying the main societal issues in computer usage, we can take a stand for electronic ethics.

**INFORMATION AND PRIVACY:-** The Internet is a veritable smorgasbord of personal information. If we need someone's phone number, we look it up. If we need to learn more about a company, we visit the website. If we want to find an old friend, we use social networking. The sheer amount of personal information make it easy to breach the boundary between using the Internet for learning and information and using the Internet to invade another's privacy. we can protect ourself by being vague about ourself online and ensuring your identity is ambiguous and nonspecific.

**COPYRIGHT AND PRIVACY:-** Certain items of media, such as public domain books, movies and music, are available for all to enjoy and even download. Items of media which are copyrighted are not in the public domain and downloading and distributing them is illegal. Unfortunately, online piracy is widespread and notoriously difficult to prosecute, so it often goes without consequence. The same could be said for plagiarism, which is made easier to do and harder to track with the number of resources online.

**COMPUTER CRIME:-** The availability of information that can be accessed with a computer paired with a lax attitude toward security means credit card numbers and identities are constantly at risk. Entering our credit card on a seemingly innocuous website may seem like an everyday activity, but that site could be a clever scam designed to fraud you out of your hard-earned money. While the amount and extent of computer crime is frightening, it's a reality and therefore it's necessary for consumers to protect themselves by purchasing from trusted retailers or using third-party payment services to protect their money.

**COMMUNICATION ISSUES:-** Computers have completely altered the way humans interact with each other. With the invention of electronic mail, online messaging and social networking sites, face-to-face conversation seems to be a dying art. Because the communication landscape has changed over time, so have the challenges and ethics that accompany proper communication, such as discussing certain issues via email, exchanging personal information without the proper security and forming relationships online.

**COMPUTER THEFT :-** It is defined as the unauthorized used of another person's property such as transfer of payment to the wrong accounts, get online material with no cost and tap into the data transmission lines.

**COMPUTER ATTACK:-**It is defined as any activities taken to disrupt the equipments of computers systems, change processing controls and corrupt stored data

## 3. Write a note on Intellectual Property Rights (IPR)? [10 Marks]

Ans: Intellectual Property Rights:-

- Intellectual Property is a product of the human intellect that has commercial value
- Many of the rights of the ownership common to real and personal property are also common to

Intellectual Property

- Intellectual Property can be bought, sold, and licensed
- Similarly it can be protected against theft and infringement by others

### **Patent, Design & Trademark together with Copyright form TOTAL INTELLECTUAL PROPERTY**

#### **Patent**

1. Derived from the Latin word „LITTERAE PATENTES“ which means „Open Letters“ or „Open Documents“ to confer rights and privileges.
2. A contract between an Inventor and the Government
3. An exclusive privilege monopoly right granted by the Government to the Inventor
4. Invention may be of an Industrial product or process of manufacture
5. Invention should be new, non-obvious, useful and patentable as per Patents Act

6. The right to the inventor is for limited period of time and valid only within the territorial limits of a country of grant.

Examples: a drug compound, a tool, maybe software effects

#### **DESIGN**

- Meant for beautifying an industrial product to attract the consumer public
- Shaping, Configuration or Ornamentation of a vendible Industrial product
- Exclusive „Design Rights“ to the originator for a limited term
- Patents & design embrace the production stage of an industrial activity

#### **TRADE MARK**

- Trade Mark is a name or symbol adopted for identifying goods
- Public can identify from the Trade Mark from whom the product is emanating
- Trade Marks protection is given for an industrial product by the Government

Examples: Channel No.5“s smell, Jacque Villeneuve“s face!

#### **COPY RIGHTS**

- The right to original literary and artistic works
  - Literary, written material
  - Dramatic, musical or artistic works
  - Films and audio-visual materials
  - Sound recordings
  - Computer Programmes/software
  - SOME databases

Example: Picasso“s Guernica, Microsoft code, Lord of the Rings

#### **Need For A Patent System**

- Encourages an inventor to disclose his invention
- Encourages R & D activities as the industries can make use of the technology,& avoids redundant research
- Provides reasonable assurance for commercialisation.
- Provides an inducement to invest capital in the new lines of production and thus, help for technical development and upgradation.
- One may get a very good return of income through Patent Right on the investment made in R & D.

#### **Effect of Patent**

- A patentee gets the exclusive monopoly right against the public at large to use,sell or manufacture his patented device.
- A patentee can enforce his monopoly right against any infringement in the court of law for suitable damages or profit of account.
- The Government ensures full disclosure of the invention to the public for exchange of exclusive monopoly patent right to the inventor

**4. Define Computer Ethics? What shifts are caused in power relationships by Computers Also discuss Professional Issues arise in Computer ethics. [10 Marks]**

Ans: Computer Ethics deals with ‘the evaluation of and decision making in a variety of moral problems caused by computers’.

Power relationship caused by Computers:

1. Job Elimination: Computers still continue to lead to elimination of jobs. While employees cannot be paid when there is no work, all attempts are to be made by employers to readjust work assignments and retain employees. The absence of this practice creates an employee or public backlash against introduction of Computers.

2. Customer Relations: It is very easy for a customer to notice an error in a computer printout, of the price difference between what is shown at the shelf and what is shown in cash receipt register. Here moral sense and long term business requirement requires that the policies should be made favourable to consumers.

3. Biased Software: A group of people with known convictions, may tend to produce software which favours their views rather than views from all angles to let the user decide finally.

4. Stock Trading: Automatic, hands-off trading of stocks and currency can be performed, benefiting the trading community but it will harm the intended purposes.

5. Unrealistic Expectations: Sales personnel have a tendency to oversell systems that are too large for customers’ requirements; sometimes even those which are not ready for delivery.

6. Political Power: By obtaining information about different groups of people regarding their attitudes and values, the computers can be made to help politicians to make speeches, send mails, etc. which would be appealing selectively to these groups.

7. Military Weapons: Computerised military weapons, even if perfected, will only make opposing countries to develop their striking or responding capability which is not healthy for the world.

Owing to the high degree of job complexity and technical proficiency required, a lot of issues arise in engineering ethics.

1. Computer failures:

- Failures can occur due to either hardware or software
- Hardware errors do not occur frequently.
- Software errors are the major failures of the computers.
- Hardware errors are easily detected.
- Software errors are difficult to detect.
- Trial runs are absolutely essential to check the program.

2. Computer Implementation:

- New computer system should be attempted successfully before the old one becomes inoperative. Many failure cases have been reported while switching over to a new system.

### 3. Health Conditions:

- Ergonomic conditions should be implemented to reduce back problems, provide wrist support, to become good looking.

### 5. Define Corporate Governance? Discuss the ethical aspects of corporate governance. [10 Marks]

Ans: Corporate governance is the system of rules, practices and processes by which a company is directed and controlled. Corporate Governance essentially involves balancing the interests of the many stakeholders in a company, and these include its shareholders, management, customers, suppliers, financiers, government and the community where the company is working. In narrow sense, Corporate Governance deals with maximizing the shareholders wealth, and in broader prospective, it considers the welfare of the all stakeholders and the society.

Corporate Governance also provides the framework for attaining a company's objectives, and it encompasses practically every sphere of management from action plans and internal controls to performance measurement and corporate disclosure.

Following are the aspects which should be covered by Management of any organization in its Corporate Governance Policy:

1. Rights of Shareholders and equality treatment to shareholders:- Every Organization should respect the rights of shareholders and should help them exercise their rights properly, openly and effectively. There should be a proper communication by organization aiming to encourage shareholders' rights.
2. Other stakeholders:- Organizations should fix their responsibilities. legal, contractual, social, and market driven responsibilities, for shareholders including other stakeholders such as investors, employees, creditors, customers, suppliers, local communities and policy makers.
3. Roles and responsibilities of the Board of Directors:- The board of any organization should be inclusive of proper and sufficient management skills, educational qualifications and understanding to review of policies and challenges of management performance. Furthermore, there should be a proper and appropriate commitment.
4. Integrity and ethical behavior:- Integrity is the important factor of success for any of the organizations. Integrity is the fundamental requirement of organization, corporate officers and board members who are required to follow the principle of integrity. Every Organization should develop its code of conduct for its employees, executives directors and promoters, respectively.
5. Transparency and Disclosure:- Organizations should follow the principles of transparency and disclosure for the best interest of organizational stake holders. Transparency and disclosure are the responsibilities of board and management of organization. This function provides accountability to stakeholders.
6. Communication Mechanism:- Communication mechanism must be present for lateral, top-down, and bottom-up communication to ensure transparent functioning. Information must be available to all to the extent that it does not hamper business progress.
7. Respect all governing rules and regulations:- The business must respect all governing rules and regulations put forth by the government. It must ensure that all ethical practices are followed and are within government regulations.
8. Formulate an ethical policy:- Every corporate entity should formulate an ethical policy for its own functions and those of its employees, covering various issues related to its business and social responsibility.

**6. Explain the guidelines for researchers to conduct research ethically? Discuss the issues related to research ethics. [10 Marks]**

Ans: Research ethics involves the application of fundamental ethical principles to a variety of topics involving scientific research.

The application of fundamental ethical principles to a topics like

1. The design and implementation of research involving human experimentation, animal experimentation
2. Various aspects of academic scandal, including scientific misconducts (such as fraud, fabrication of data and plagiarism),
3. Whistle blowing (wrongdoing within an organization to the public or to those in positions of authority); regulation of research, etc. Research ethics is most developed as a concept in all the scientific research.
4. Research in the social sciences presents a different set of issues than those in medical research.

The following is a rough and general summary of some ethical guidelines/ principles for researchers to conduct research are:-

1. **Honesty:** Strive for honesty in all scientific communications. Honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data. Do not deceive colleagues, granting agencies, or the public.
2. **Objectivity:** Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.
3. **Integrity:** Keep your promises and agreements; act with sincerity; strive for consistency of thought and action.
4. **Carefulness:** Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities, such as data collection, research design, and correspondence with agencies or journals.
5. **Openness:** Share data, results, ideas, tools, resources. Be open to criticism and new ideas.
6. **Respect for Intellectual Property:** Honor patents, copyrights, and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give credit where credit is due. Give proper acknowledgement or credit for all contributions to research. Never plagiarize.
7. **Confidentiality:** Protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records.
8. **Responsible Publication:** Publish in order to advance research and scholarship, not to advance just your own career. Avoid wasteful and duplicative publication.
9. **Responsible Mentoring:** Help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.

10. Respect for colleagues: Respect your colleagues and treat them fairly.
11. Social Responsibility: Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.
12. Non-Discrimination: Avoid discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.
13. Competence: Maintain and improve your own professional competence and expertise through lifelong education and learning; take steps to promote competence in science as a whole.
14. Legality: Know and obey relevant laws and institutional and governmental policies.
15. Animal Care: Show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed animal experiments.
16. Human Subjects Protection: When conducting research on human subjects minimize harms and risks and maximize benefits; respect human dignity, privacy, and autonomy; take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly.

## ETHICAL ISSUES IN RESEARCH

1. Sustainability: The ethical dilemmas arise when short term problems are preferred over long term ones. Institutional capacities to address long term problems require different kinds of reinforcement than otherwise. Ethical dilemma also arises when certain sectors, segments, social classes and seasons are preferred over others while choosing problems, or locating them, solving them or diffusing the solutions obtained. Inter species and inter sectoral concerns also influence the sustainability of the outcomes. Not all local practices need to be sustained. Sustainability is as much about continuity as about discontinuity (that is innovations or fundamental change in values).
2. Eco system health: When scientists know about the concomitants of the eco system health and yet develop technologies which impair the health, they are not only making a trade off but also passing a value judgment. Transferring costs of near term trade offs over the longer term stakeholders may neither be ethical nor economically very judicious. Eco system health is also affected when long term consequences of certain chemical inputs are known or anticipatable, and yet these are continued to be used. Judgments are involved when chemicals banned in western countries are allowed to be used in developing countries, when the precautionary principle is applied or not applied, and while technologies are transferred to countries which may or may not have capacity to assess the consequences.
3. Responsiveness: In any context, not everybody's problem is equally important. Michael Lipton once drew attention to the biases that existed in favour of interesting pests" vis-à-vis the relevant ones. When certain problems remain unsolved or unaddressed for centuries, surely it says something about the dominant ethics in the society which does not generate a dilemma or a discomfort despite sustained inertia and indifference. A good example is the cooking stove used by millions of women or carrying water pots on the head for long distance, transporting grass or twigs on head on the hill slopes by women or transplanting paddy by keeping feet under water and thus getting fungal infections, etc.
4. Accountability: Researchers seldom share their findings with the people from whom they collect the data. Not only that. They often do not even calibrate their criteria of relevant or not so relevant research by involving the users of research in calibration. Ethical dilemma also arise when a large multi national corporations inform the consumers of its chemical inputs about a desirable resource use practice in west but which they do not share in the developing countries. The community of corporations has to evolve its own code of conduct censoring such behaviour.

5. Capacity building: Any society which has to grapple with risk and uncertainty inherent in agricultural resource management has to learn to create capacity not only to anticipate but also address the future problems. The education and training of young minds thus becomes a very important determinant of the capacity to face emerging challenges in future. When the education system does or does not include content or pedagogical means which make a potential leader aware of the challenges, an ethical judgment has been made. When certain crops and/or other agricultural products are deliberately portrayed as inferior in the educational curriculum, on cultural grounds rather on nutritional or other scientific grounds, values have already been expressed. Lack of periodic review of the skills that are being developed to address such concerns about externality, diversity, inter sectoral linkages, etc., invariably involve making trade offs about what should be told and what should young people learn on their own.

6. Location specificity: It is well known that agro ecological environment in rainfed regions is much more heterogeneous. Developing technologies which would diffuse only in a small region poses an institutional challenge apart from technological challenge. Organization incentives are often provided, commensurate with the diffusion or potential reach of a solution. If a technology is addressing problems of small community, it may not invoke a significant encouragement or incentive. Consequently, either such problems don't get addressed or the people who address such problems become marginalized. In either case ethical judgments have to be made by the decision makers. When research infrastructure, allocation of human resources and priority in research are biased in favour of better endowed regions and communities, the ethics of neglecting the bypassed communities and regions has to be made explicit. When hand tools receive less attention than energy intensive technologies, judgments have been made.

7. Asymmetry in rights of and responsibilities towards knowledge holders: No agricultural research council in developed or developing countries ever requires the asymmetry between rights and responsibilities towards the knowledge holders of informal sectors be deliberately overcome. The respondents in research with communities are not acknowledged, do not receive the findings of the research for which they provide data and do not receive any share in the benefits that are generated from the application or commercialization of the knowledge provided by the respondents/knowledge providers.

8. Empowerment of informal innovators and knowledge holders: It is obvious that creativity exists in formal as well as informal sectors. Just as the scientists can generate a creative and innovative solution to a problem, a farmer or an artisan can too. The global bias against innovations in informal sector is very obvious. Inability of formal research system to listen to and learn from informal innovators not only deprives the organized sector of agricultural research and technology of the insights from the margin but also prevents it from being inspired by the values of many of the grassroots innovators.

The ethical trade offs in such matters invariably affect the efficiency, equity, excellence and environmental consequences of resource and institutional management.

### **7. What is Bioethics? Discuss the areas of bioethics and its ethical issues. [10 Marks]**

Ans: Bioethics is a branch of "applied ethics" and requires the expertise of people working in a wide range disciplines including: law, philosophy, theology, medicine, the life sciences, nursing and social science. Bioethics is concerned with questions about basic human values such as the rights to life and health, and the rightness or wrongness of certain developments in healthcare institutions, life technology, medicine, the health professions and about society's responsibility for the life and health of its members.

#### **AREAS OF BIOETHICS**

Bioethics covers a wide range of areas which are as follows:

1. Abortion:- Also called medical termination of pregnancy, is ending the life of a foetus before birth. While medical termination of pregnancy is allowed before a certain period into pregnancy,

this has become a serious issue in India because of a spurt in female foeticide. The ethical questions arising out of this are as follows:

- Does one have the right to take the life of a child?
  - Can abortion be ethical? What mitigating circumstances can make this practice legal.
  - Which is more desirable, legal protection for the child or a mass movement to educate the parents?
2. Euthanasia:- Euthanasia or mercy killing is the termination of life for a variety of reasons. In India, euthanasia is illegal but question is being raised on many grounds. The arguments for euthanasia are that it relieves the person from extreme pain or the quality of life of the person is so poor that continuing life in that form is worthless and also the medical care is so expensive that incurring that expenditure bears no fruit due to the condition of the patient. The ethical questions arising out of this are:
- Can the quality of life be a sufficient reason to allow a person or his/her relatives to end his/ her life?
  - Can suffering from pain eternally be a reason for allowing mercy killing?
  - To what extent should the quality of life deteriorate for one to decide that life is not worth living?
3. Surrogacy:- It means substitute, is a term used to refer to the concept of someone substituting for the mother and taking the burden of pregnancy and delivery. Once the task is over, the role of the surrogate mother ends. Surrogacy is commonly done through embryo transplantation through other methods are also available. The ethical issues with regards to surrogacy are:
- There are genuine cases where the biological parents are not able to conceive and bear a child.
  - The relation between the surrogate mother and the child who will be brought up by the biological parents needs to be considered, both on legal , and social & emotional aspects.
  - There is a need for legal protection for both surrogate mother and the biological parents.
4. Cloning:- In biology, cloning is the process of producing similar populations of genetically identical individuals that occurs in nature when organisms such as bacteria, insects or plants reproduce asexually. Cloning in biotechnology refers to processes used to create copies of DNA fragments (molecular cloning), cells (cell cloning), or organisms. The term also refers to the production of multiple copies of a product such as digital media or software. The ethical issues with this regards are:
- Can cloned humans be used as resources to help normal humans survive?
  - Can cloning be used to create manpower for fighting wars?
  - Is research in cloning an ethical process?
5. Genetics:- Genetics or genetic engineering deals with genes, their transplantation and creation of new life forms, and crossing species boundaries. It can be defined as a collection of techniques used to isolate genes, modify genes so that they function better, prepare genes that can be inserted into new species and develop transgenes. The ethical issues in this regards are:
- The long-term effect on health and environment of the species on the planet.
  - Research in this area can lead to unintended outcomes in the form of personal, social and cultural effects.
  - The blending of human and non-human DNA can have consequences that are not known.

**8. Write notes on: [05 Marks Each]**

- a. Acid Rain**
- b. Green House Effect**
- c. Corporate Social Responsibility**

Ans:

a . Acid rain:

- pH of normal rain is 5.6
- pH of rainfall in north eastern areas of North America is 3.9 to 4.3.
- It is 10 to 100 times more acidic than normal. This is „acid rain“.
- Snowmelt into water releases huge amount of acid which got frozen during winter.

Effects:

- Acid shock from snowmelt causes mass destruction of fish. On long term it also harms fish eggs and sources of food.
- Thousands of lakes were killed by acid rain in Scandinavia and North America.
- The causes are burning of fossil fuels leading to release of SO<sub>2</sub> in particular and Nitrogen oxides.
- Problems of Sweden caused by Industrial plants in England and North Europe.
- Problems of North America caused by utilities in Ohio valley, the largest polluter of SO<sub>2</sub> in USA.
- Some of the potential changes are still unknown.
  - Micro organisms in soil are being affected
  - Groundwater is polluted but its ultimate effects are not known
  - The effects may be known only after another 100 years
- Effect on food sources are also unclear

b. Green House Effect:- Greenhouse Effect is defined as The progressive warming up of earth's surface due to blanketing effect of man made CO<sub>2</sub> in the atmosphere.

A greenhouse is that body which allows the short wavelength incoming solar radiation to come in, but does not allow the long wave outgoing infra red radiation to escape. The earth's atmosphere bottles up the energy of the sun and it acts like a green house, where CO<sub>2</sub> acts like a glass windows.

The effects of Greenhouse are:

- The temperature effect of the CO<sub>2</sub> and water vapour combined together has a long range impact on the global climate.

Because of increased concentration of CO<sub>2</sub> and due to much warmer tropical oceans, there may occur cyclones and hurricanes and early snow melt in mountains will cause more floods during monsoon.

Increase in global temperature can adversely effect the world food production.

At higher altitudes in the atmosphere, CO<sub>2</sub> undergoes photochemical reactions producing CO, which is drastically dangerous.

CFCs are responsible for 20% increase in warming. This may increase the chances of diseases in humans and animals.

c. Corporate Social Responsibility:- Corporate social responsibility (CSR) promotes a vision of business accountability to a wide range of stakeholders, besides shareholders and investors. Key areas of concern are environmental protection and the wellbeing of employees, the community and civil society in general, both now and in the future.

The concept of CSR is underpinned by the idea that corporations can no longer act as isolated economic entities operating in detachment from broader society. Traditional views about competitiveness, survival and profitability are being swept away.

Some of the drivers pushing business towards CSR include:

1. The shrinking role of government: In the past, governments have relied on legislation and regulation to deliver social and environmental objectives in the business sector. Shrinking government resources, coupled with a distrust of regulations, has led to the exploration of voluntary and non-regulatory initiatives instead.

2. Demands for greater disclosure: There is a growing demand for corporate disclosure from stakeholders, including customers, suppliers, employees, communities, investors, and activist organizations.

3. Increased customer interest: There is evidence that the ethical conduct of companies exerts a growing influence on the purchasing decisions of customers. In a recent survey by Environics International, more than one in five consumers reported having either rewarded or punished companies based on their perceived social performance.

4. Growing investor pressure: Investors are changing the way they assess companies' performance, and are making decisions based on criteria that include ethical concerns. The Social Investment Forum reports that in the US in 1999, there was more than \$2 trillion worth of assets invested in portfolios that used screens linked to the environment and social responsibility. A separate survey by Environics International revealed that more than a quarter of share-owning Americans took into account ethical considerations when buying and selling stocks. (More on socially responsible investment can be found in the 'Banking and investment' section of the site.)

5. Competitive labour markets: Employees are increasingly looking beyond paychecks and benefits, and seeking out employers whose philosophies and operating practices match their own principles. In order to hire and retain skilled employees, companies are being forced to improve working conditions.

6. Supplier relations: As stakeholders are becoming increasingly interested in business affairs, many companies are taking steps to ensure that their partners conduct themselves in a socially responsible manner. Some are introducing codes of conduct for their suppliers, to ensure that other companies' policies or practices do not tarnish their reputation.

Some of the positive outcomes that can arise when businesses adopt a policy of social responsibility include:

1. Company benefits:

- Improved financial performance;
- Lower operating costs;
- Enhanced brand image and reputation;
- Increased sales and customer loyalty;
- Greater productivity and quality;
- More ability to attract and retain employees;
- Reduced regulatory oversight;
- Access to capital;
- Workforce diversity;
- Product safety and decreased liability.

2. Benefits to the community and the general public:

- Charitable contributions;
- Employee volunteer programmes;
- Corporate involvement in community education, employment and homelessness programmes;
- Product safety and quality.

3. Environmental benefits:

- Greater material recyclability;
- Better product durability and functionality;
- Greater use of renewable resources;

Integration of environmental management tools into business plans, including life-cycle assessment and costing, environmental management standards, and eco-labelling.

Nevertheless, many companies continue to overlook CSR in the supply chain - for example by importing and retailing timber that has been illegally harvested. While governments can impose embargos and penalties on offending companies, the organizations themselves can make a commitment to sustainability by being more discerning in their choice of suppliers.

### **9. What do you mean by ethical codes ? Discuss briefly its significance and limitations. [10 Marks]**

Ans: The codes of ethics have to be adopted by engineering societies as well as by engineers. These codes exhibit the rights, duties and obligations of the members of a profession. Codes are the set of laws and standards. A code of ethics provides a framework for ethical judgment for a professional. A code cannot be said as totally comprehensive and cover all ethical situations that an engineer has to face. It serves only as a starting point for ethical decision-making. A code expresses the circumstances to ethical conduct shared by the members of a profession. It is also to be noted that ethical codes do not establish the new ethical principles. They repeat only the principles and standards that are already accepted as responsible engineering practice. A code defines the roles and responsibilities of professionals.

The following engineering societies have published codes of ethics.

**AAES** - American Association of Engineering Societies.

**ABET** - Accreditation Board for Engineering and Technology (USA)

**NSPE** - National Society of Professional Engineer (USA)

**IEEE** - Institute of Electrical and Electronics Engineering (USA)

**AICTE** - All India Council for Technical Education (India)

#### **SIGNIFICANCE OF ETHICAL CODES**

The following are some of the positive aspects that the codes provide to professional engineers and the profession itself.

1. Codes act as guides for ethical functioning:- The code of ethics of professional societies act as guides for an engineer to perform his/ her professional duties. Most codes talk of public good, honesty and integrity, rules and regulations of the country, etc. The decisions and actions of engineers can be guided by these codes.
2. Codes enhances the image of the profession:- For a professional society, having a carefully drawn ethical code is not only necessary to regulate the members conduct, but also to enhance the image of the profession and the group forming the society. Public image is important to claim more autonomy and self-regulatory powers and to prevent government regulations that may not be in their interest.
3. Codes support professionals to fight against unethical acts:- If the engineer has to raise his/ her voice against such ethical aberrations, he/ she need some support to justify why he/ she chooses to do so. Ethical codes can provide the engineer with the necessary support to fight against unethical acts.
4. Codes help in grooming future professionals:- Most engineering curricula have a course on ethics. It may be a compulsory course, an elective course, or a non-credit course. This generally helps in grooming a group of professionals who are aware of their responsibilities and rights.
5. Codes generally promote ethical business:- Codes can help in promoting ethical businesses and also show that ethics in business is not constraint, but rather promotes the business.
6. Codes provide deterrence to unethical conduct:- Many codes provide deterrent actions and punishment for unethical conduct. However, it is not very explicit in engineering codes. Deterrents are a necessary part of the codes. The termination of registration and membership can act as deterrents.
7. Codes can create an ethical climate:- When a group is governed by the same code of conduct, it can promote co-operation and focus on common issues. This helps in the enhancement of an ethical climate in the profession as a whole.

## LIMITATIONS OF CODES

1. Codes are restricted to general and vague wordings. Due to this limitation they cannot be applicable to all situations directly. It is also impossible to analyze frilly and predict fill range of moral problems that arises in a complex profession.
2. Engineering codes often have internal conflicts. So they can't give a solution or method for resolving the conflict.
3. They cannot be treated as the final moral authority for any professional conduct Codes represent a compromise between differing judgments and also developed among heated committee disagreements.
4. Only a few practicing engineers are the members of Professional Societies and they can not be compelled to abide by their codes.
5. Many engineers who are the members of Professional Societies are not aware of the existence of the codes of their societies and they never go through it.
6. Codes can be reproduced in a very rapid manner.
7. Codes are said to be coercive i.e., implemented by threat or force. i.e. implemented by threat or force.